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Welcome to the issue

THE WEB DESIGNER MISSION

“To be the most accessible and inspiring voice for the industry, offering cutting-edge features and techniques vital to building future-proof online content”



Steve Jenkins

Highlight



“Be curious. Never stop wanting to learn. Try new things, don't be afraid to fail”

Web Designer catches up with idea engineers Quantasy to talk shop. Page 32

To the power of 3D



SS3 has passed the first flushes of youth and is blossoming into a big, bright and intelligent entity. As its relationship with the browser becomes ever closer CSS is finally growing up. Part of that process is 3D. It's exciting, engaging and contemporary. But, it needs to be used intelligently. Get it wrong and it's pointless, it needs a purpose. Discover where, when and how to use it to great effect in our latest lead feature (page 38).

Web design might well be nothing without CSS, but it can't do everything by itself. Thankfully, help is at hand. We find 20 of the best

frameworks out there, including a selection of stalwarts, but also a collection of brash newcomers that will become part of your established order over on page 64.

Python? Can you use it for building the web? You certainly can. Find out how to start creating powerful sites and web applications with the best frameworks on offer on page 70.

Do you know how they built *The Hobbit*? The eternal creative geniuses at North Kingdom reveal how they collaborated with movie giant Warner Bros. and search giant Google to build a jaw-dropping 3D interactive extravaganza. Plus, we have our staple roundup of CSS, jQuery and HTML tutorials to keep you busy.

As always enjoy the issue and see you next time out.

The secret here is to make a 2D image move as if it's a 3D object. To enhance the effect you can give the objects depth

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- Font** - Athabasca and Breamcatcher fonts from Typodermic



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This issue's panel of experts

Welcome to that bit of the mag where we learn more about the featured writers and contributors...

3D is such a strong effect you need a good reason to use it. Spinning divs around the screen for the sake of it is not a very good reason



Richard Wentk

Richard is a long-time producer of code and apps, writing numerous books on the subject. This issue he sharpens up his CSS pencil and demonstrates the fine art of CSS and 3D. He reveals how to use transforms, animation and complementary JS for great results. **Page 38**

Mark Shufflebottom



Mark is a professor of Interaction Design at Sheridan College, Ontario. This issue his never-ending thirst for knowledge sees him tackle WebGL. He demonstrates how to create an interactive 360-degree environment. **Page 46**

Tam Hanna



Tam is a veteran in the world of coding and has worked on a host of coding languages. This issue he unlocks his wealth of knowledge to pick the best 20 frameworks that every designer/developer needs to future-proof their website. **Page 64**

Matt Gifford



Matt Gifford is a lead RIA consultant developer and industry author from Cambridge who specialises in mobile development. This issue reveals how the Python language can be used to create dynamic web apps and sites. **Page 70**



Neil Pearce



Neil is a designer and instructor for the Envato network. He is also a keen exponent of CSS. This issue he tackles CSS grids and demonstrates how to build your own superflexible custom layouts. **Page 52**

Sean Tracey



Sean is a creative technologist at a well-known south coast digital agency. He lives for all forms of code and relishes a challenge. This issue he teaches us how to create, edit and debug Firefox OS apps with the Firefox Web IDE. **Page 82**

Mark Billen



Mark is a freelance technology journalist with a background in web design and development. This issue he tackles the Lightbox pages and reveals how to create a host of quick-fire techniques you need to know. **Page 14**

Tim Stone



Tim is a front-end developer with a first class degree in Interactive Media Production. If there is a library or framework that needs attention then he's your man. This time he takes a close look at app platform Meteor. **Page 76**

Jayson Winters



The creative lead at Brace Design, Jayson is always looking to give users the experience they deserve. This issue he unveils the secrets of building custom templates with ZURB's responsive email framework INK. **Page 58**

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Think of freelancers as microagencies that you can hire to do specific tasks

Xenios Thrasyvoulou

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The tools and trends to inspire your web projects

If you have a creative project, new web product or great designer story, contact the editorial desk

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It's year of the mobile...again

Will 2015 finally be the year when mobile seriously steps into the breach and gives desktop the heave-ho?



Every time a major new web technology reaches the design community's consciousness it's being touted as the next big thing. Remember when responsive design,

HTML5, CSS3 first became a buzzword? While generating a lot of excitement and expectation, none truly fulfilled their potential until years after the initial furore. It could be argued that these technologies all need to mature still further, but they are now part of the everyday design and development process.

Mobile is on the same path but currently sits at the back of the pack. Is 2015 finally the year that mobile fulfils its true potential? 2014 finally saw mobile overtaking desktop as the number one device for accessing the web in some areas of the world.

According to figures from emarketer.com the Internet will have three billion users in

2015. By 2017 the figures are anticipated to increase by another half a billion. So we know the Internet is huge but how is the desktop vs mobile scenario panning out? As we have already mentioned mobile access is greater in certain parts of the world according to StatCounter (gs.statcounter.com). Mobile on the African continent massively outweighs desktop by as much as 65 per cent. Why? Mainly due to the lack of infrastructure and desktop computer access.

In Europe the figures are very different to Africa. In the UK the percentage of desktop use comes in at just over 60 per cent and mobile usage at just under 40 per cent. But, in the UK mobile usage rose by 10 per cent last year. This may not be a headline-grabbing figure, but consider the population of 65 million and it then becomes a rise of six and a half million.

Now that we know that mobile is indispensable, we knew already, but the numbers simply prove it. So what does 2015 actually hold for the mobile and the web?

Technology will drive usage - 4G is an obvious choice and will bring video streaming to the fore. HD on mobile, it sounds good. Plus, new Wi-Fi standards will also add to improved experiences.

What about HTML5? In mobile terms it is still immature and poses a security risk. It has a way to go, but it will be the answer to delivering apps on multiple platforms.

Then there is the user interface. This is where some of the more interesting advances are being made. Design is being led by the device, but there is also the option to start adding CSS3 animations and AR to really take UI to another level.

Wearables are going to be big. These will be part of mobile experience as they interact with apps to deliver information in new ways.

So, to answer the question - is 2015 set to be the year of mobile? The answer will be the same as last year. Mobile will be one step further along, but it still won't be the complete article. Perhaps 2016 will be the year of the mobile.

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🔊 In mobile terms, HTML5 is still immature and poses a security risk. It has a way to go, but it will be the answer to delivering apps on multiple platforms 🗣️

How are mobile devices being used?

Targeting and building a credible mobile web gives businesses an advantage



<design notes>

A collection of inspirational visuals

2015 Guide to social media image sizes

www.setupablogtoday.com/2015-social-media-image-sizes-guide

1 The use of these well-known logos instantly reinforces the message about what social media platforms are included.

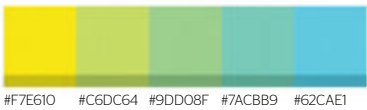
2 The design and layout is kept simple to ensure that the core subject, image sizes, is not lost in overcomplicated design.



Colour picker

Hot hexadecimal codes

* bit.ly/tyrQInX



#F7E610 #C6DC64 #9DD08F #7ACBB9 #62CAE1

Beauty Valley

bit.ly/1umcwa4



#0FOC13 #4C4554 #ABA5BA #D4E8E9 #FAF6E7

Typesetter

The best fonts you need



Nido Black

bit.ly/1umcoaD

A child-like fat font that can create engaging headlines.



Compacta

fonts.com/font/itc/compacta

A tall, lean and handsome font with a family that is great for headlines.

Graphics

Great visuals to inspire



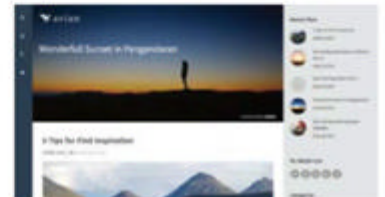
Thank You

bit.ly/1ivPCW3

Beautiful hand-drawn typography from the mighty pen of Tobias Hall. Perfectly complemented with visual engaging colours and textures.

Themematic

Style up your WordPress



Avian

demo.onelabs.net/avian

A clean, contemporary and elegant theme that works on all screens. Ideal for showcasing stories with beautifully shot photography.

Sites of the month



La Région des musées www.laregiondesmusees.fr

Discover the local culture via classy design



Insect interviews www.insectinterviews.com

Cute illustrations engage and entice visitors



Yquem yquem.fr

Big, bold images sell the site



Dream + Reach dreamandreach.bose.com

Clever interactive navigation grabs the user's attention

<webkit>

Discover the must-try resources that will make your site a better place



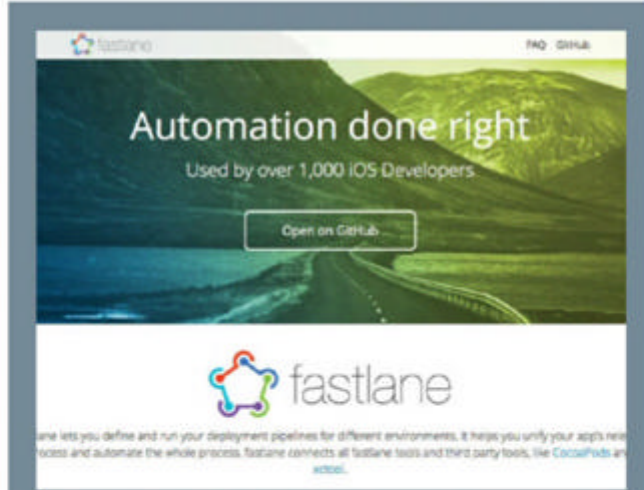
Floatlabels.js

clubdesign.github.io/floatlabels.js
A simple but effective jQuery plugin that adds an informative floated label to the field that text is being entered.



TheaterJS

gabinaureche.com/TheaterJS
Recreate a typing effect that mimics human behaviour. All you have to do is just add in your own characters and text to create an on-screen dialogue.



fastlane

fastlane.tools

iOS apps are incredibly popular and building them is an artform. For those who indulge in the art, fastlane is a time-saving tool not to be missed. It can save hours of deployment time. How? Fastlane connects all iOS deployment tools into one streamlined workflow. The platform has some tools that drastically reduce development time. These include deliver, snapshot, frameit, PEM and sigh. Deliver uploads screenshots, metadata and app with a single command. Snapshot takes screenshots of an iOS app on every relevant device. PEM generates and renews push notification profiles and Sigh fights provisioning.



Circle Progress

bit.ly/1yrKHAX
A jQuery plugin that implements Canvas to create animated progress circles. Add in stats to offer more precise info.



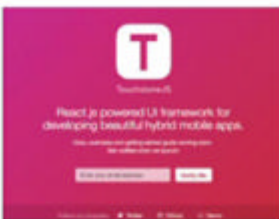
Colors

clrs.cc
A collection of colours deemed as the 'new defaults' for prototyping. Includes hexadecimal codes as you would expect.

TOP 5 UI frameworks and tools

Get a head start and create great-looking interfaces with this must-have collection

01



TouchstoneJS

touchstonejs.io
A very new UI framework that uses the power of React.js to power its core. Ideal for helping to build hybrid apps. Sign up to get notified of its launch.

02



UIKit

getuikit.com
A lightweight and modular front-end framework perfect for developing interfaces fast. Look out for a tutorial in the next issue of **Web Designer**.

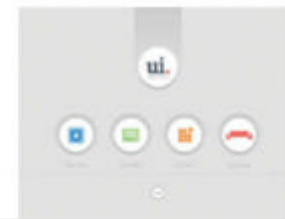
03



Material UI

bit.ly/1LOiu6a
A CSS framework, which incorporates a set of React components that also implement Google's Material Design specification.

04



Ui Parade

livetools.uiparade.com
A set of free online design apps for easy creation UI elements. On offer is a form builder, button builder, icon builder and ribbon builder.

05



Semantic UI

semantic-ui.com
An extensive collection of every type of component you could need. A host of themes allow for instant transformations ready to use.

A new breed

PeoplePerHour founder Xenios Thrasyvoulou tells us all about hyperspecialists



he freelancing economy has swelled impressively within the past decade. With the internet closing gaps between professionals, it's enabled us to pick up our most treasured or unusual skill and actually make a

full living from it, creating a new breed of freelancer – the hyperspecialist has arrived.

One of the biggest benefits of freelance and working for brands is actually the dramatic increase in productivity. This increase in productivity is driven by two key factors: hyperspecialisation and accountability. The first is the breaking down of traditional generalist roles into smaller ones and hiring people that are experts in that specific area.

The second comes from the transformation of the employer-employee relationship to one that is based on a client-service provider model. Many big brands wouldn't think twice about hiring an agency for its advertising work, for example, so think of freelancers as microagencies that you can hire to do specific tasks done effectively, seamlessly and fast.

A hyperspecialist doesn't just have the top qualifications and experience you'd want from a contact, but goes further and claims to specialise in a really complicated pocket of it. Email newsletter designers, photo resizers and Twitter background designers, for example. Someone already within a specialist industry who's then gone on to find an even more confusing or innovative pocket of it and mastered that, too.

Thomas Malone pondered the evolution of specialisation in a 2011 article (bit.ly/1woEqC2). He predicts that hyperspecialism will soon become common practice, specifically that "Just as people in the early days of industrialisation saw single jobs (such as a pin makers) transformed into many jobs (Adam Smith observed 18 separate steps in a pin factory), we will now see knowledge-worker jobs – salesperson, secretary, engineer – atomise into complex networks of people all over the world performing highly specialised tasks."

Although, don't be taken in. Everything that you don't understand and someone else does may seem like a specialty – like when you tried to teach your dad

PROFILE

XENIOS THRASYVOULOU

Founder

www.peopleperhour.com

how to text. But remember; just because something seems complicated doesn't make it a specialty. It may be a generational, regional or even a personal difference in tastes or experiences that puts an ability beyond your reach. However, that doesn't mean that other person's skillset constitutes a specialty.

For other examples of a hyperspecialist in wolf's clothing, look at how many people that you know who are 'professional photographers' now? Or are fluent in multiple languages? The availability of the technology, software and training for such skills does not a specialist make. Talent and aptitude still stands for something, after all.

There are, however, a huge number of these hyperspecialists who have become the lifeblood of many organisations. It's all about knowing where to find them. They want the work, of course, but how to connect the two of you? They may already be within your network of contacts, but haven't thought to mention that they happen to have the experience you need, as it is just that niche. Word of mouth is another way to find someone highly specialised in an specific area who comes highly recommended by a contact.

That begs the question – why hire someone when you may have the talent in house? The answer is this – wise division of labour. Look at the car manufacturing industry; different parts all made separately and then fitted together saves big bucks. Hyperspecialists equal efficiency, making the time spent finding and farming out the tasks to these

people well worth it. And although they may also work for your competitors, this is moot with a true professional. This simply means they are in the know, with fresh ideas and knowledge or best practice for your business.

For example, take the job specifications of the role of 'head of design'. Generically, these would be web design, product design and design of external communications. To take this new approach to outsourcing, you would hire a hyper specialised freelancer to take on each individual role, a few hours per week each, leaving them to focus on the task in hand for best results.

It's also about attitude. Even though a freelancer may have the same skills, work the same hours and in the same ways, something magical happens when you turn an employer-employee relationship into one where you are the customer. It creates a complete shift for the worker, from the 'my boss told me so' mindset to one of 'how can I please my client' so that he or she remains your client, and even refer you to new clients. Creating this atmosphere of accountability and making myself the customer has been the key to my success, not just in the time I've saved but also the quality of work and, thus, my reputation and brand has strengthened.

It's time to stop letting general practitioners poke at your precious tasks. Start changing your technique and find hyperspecialists to build your business – become the puppeteer that pulls it all together.

TRIP OF A LIFETIME

Virtual reality and mobile are the future of the travel industry

Q. To be successful as a business in 2015 and beyond, online is a must-have requisite. How important is online to the travel sector?

An effective online presence is vital to achieve success. With the increasing competition in the travel market, and with marketing and data processing expenses growing, travel brands are finding it difficult to keep customers happy while maintaining strong margins. The opportunity lies in advanced technology and the enhanced travel options it can offer.

Q. Digital Trip are known as the travel technology experts. What experience do you have in the online travel industry?

Digital Trip has enabled over 300 travel companies in 47 countries to achieve online success. Our travel technology is widely regarded as the market leader, having recently been awarded a prestigious Travolution award, and enables ambitious travel agents to compete for business against the small number of dominant players and operate online with all the sophistication of a big operator at a fraction of the cost.

Q. You present businesses the opportunity to operate online. What services does Digital Trip offer?

All of our online solutions are powered by our eVolve CMS, which gives travel businesses an unprecedented level of control of their online presence without any hassle. eVolve CMS makes managing content a breeze, from changing page layouts to updating special offers, all with a few clicks - keeping visitors fully engaged.

We aim to enter into long-term relationships with our clients, becoming their digital partner. We offer a complete range of solutions for travel agents, tour operators and wholesalers of every size. From

branding and design, to the fast, effective delivery of advanced travel websites tailored to their exact business requirements. We're confident in our technology - that's why we offer free ongoing support.

We also offer expert marketing services to facilitate business growth after sites are live, with cost-effective email marketing, pay-per-click campaigns and SEO.

Digital Trip can connect every travel business to a huge range of suppliers and connections, enabling them to offer their customers the widest product range at the best prices.

Q. What is the technology that drives businesses that partner with Digital Trip? Is the technology tailored for each business?

Our technology was designed specifically to meet the needs of the travel market and is fully modular, enabling each website to be tailored to the exact requirements of the individual travel company.

Our solutions cater for every type of travel business. Whereas other CMS systems are confusing, require extensive training and become quickly outdated, eVolve is forward-thinking; its easy-to-use interface means that even the most basic user requires only minimal training to accomplish the most advanced tasks - website changes can now be reduced to hours rather than days and weeks!

Our CMS also offers a number of analytic and reporting features, real-time campaign information, search engine-friendly site maps, SEO considerations, accessibility requirements, and price management.

Q. How do you see the industry evolving in the next five years?

Technology is evolving at an incredible rate and the next five years are set to

see some exciting changes in the way that customers get to interact with the travel industry.

Mobile technology is becoming popular for searching destinations and booking online, with travel sites offering rich, highly tailored content. Over a quarter of Thomson and First Choice online bookings, between January and October 2014, were made using smartphones and tablets - the trend will keep increasing over the next few years.

But it doesn't stop there. This year, wearable technology and virtual reality will change the game once again according to Thomson, who predict

that wearable technology will explode onto the travel scene with smartwatch apps significantly enhancing the holiday experience.

These devices will enable travellers to board flights using wearable boarding passes that work with a simple flick of the wrist, and when they arrive at their destination, they'll be able to use it to access local information. VR is also set to transform the high-street experience, enabling customers to enjoy an immersive, personalised experience in-store. High quality interactive displays will tempt customers and tailor choices down to the finest of details.

PROFILE

ANDY SPEIGHT

Managing director

www.digital-trip.com



Receive £25k
tax-free to train as a
computing teacher

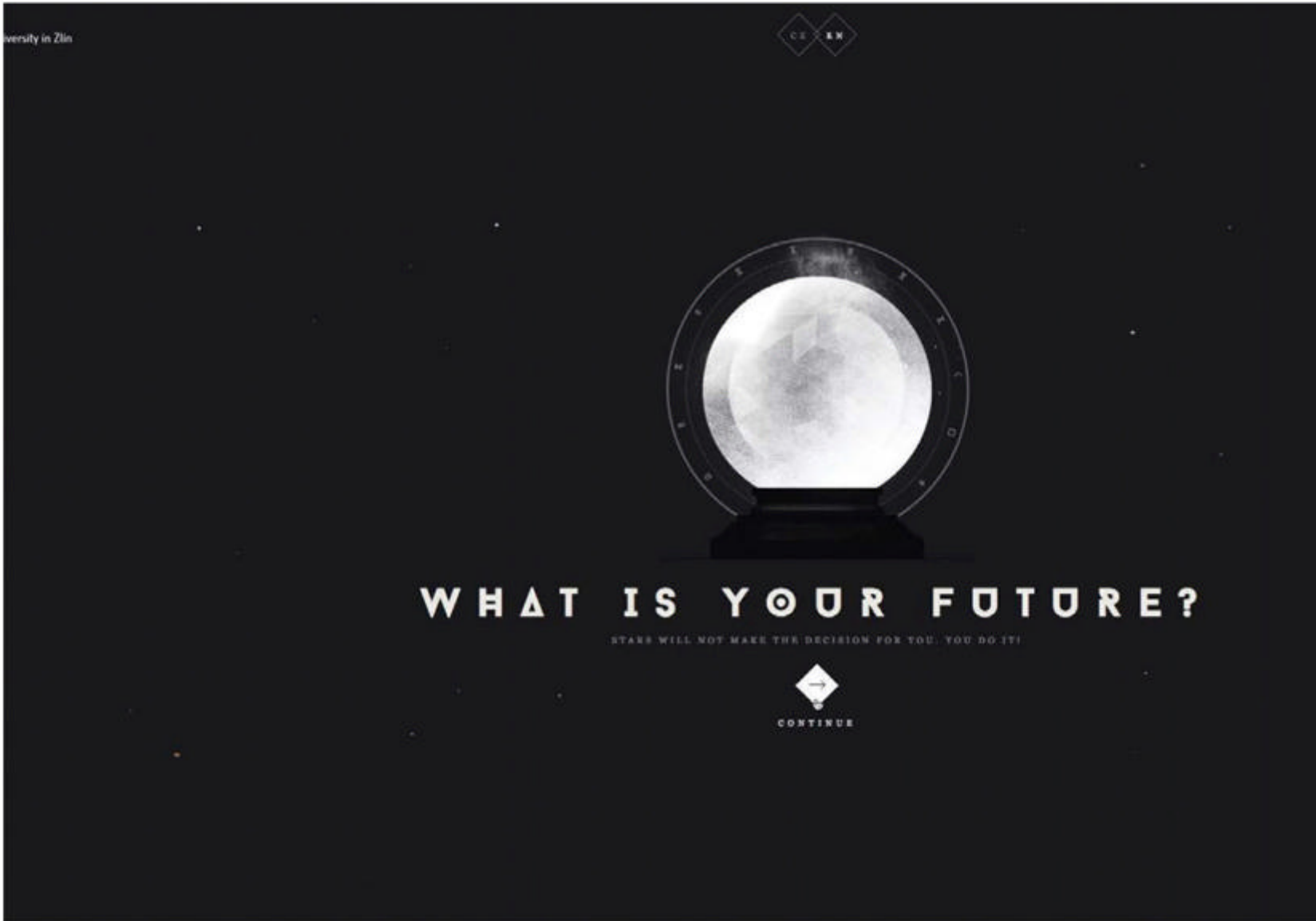
and help develop
the great minds
of tomorrow.



As someone who is passionate about computing, you know how an interest in the subject can be sparked by the right teacher. You have the opportunity to create that interest. With a minimum starting salary of £22k to £27k and the possibility to receive a £25k* tax-free training bursary or a £25k* scholarship provided by BCS, The Chartered Institute for IT, it's easy to see why teaching can be such a rewarding career.

Applications are now open.

Search [get into teaching](#) to find out more.



<Above>
 • This TBU microsite sits in front of the main university domain, linking through to relevant resources



<Above>
 • A series of cryptic questions determines your outlook and personality to recommend all the suitable faculties available

<Above>
 • Answer all seven questions to get a final verdict on your candidacy as well as some humorous words of encouragement

<Above>
 • Those knowing the route they wish to take can find the information they desire via a handy pop-out navigation menu

<Above>
 • The links to the online university enrolment system adopt a more clinical, official look that provides users with clear information

Tomas Bata University in Zlín

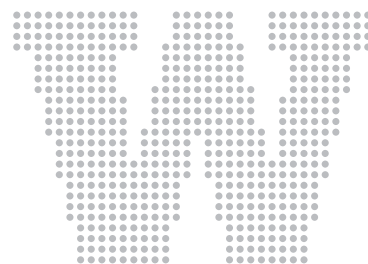
www.budoucnost.utb.cz/en/

Development technologies HTML5, CSS3, Sass, jQuery, jquery.ui.rotatable.js, jQuery.tagcanvas, Velocity.js



Designer **Madeo Interactive**
madeo.cz

It's no mystery this university microsite has all the answers with an educated use of current-gen CSS



When it comes to choosing an education, some of us are less decisive. Which university to choose is one thing, but settling on a course is another given the amount of options. This microsite for Tomas Bata University in Zlín, Czech Republic, puts an innovative twist on the enrolment process. Visitors and prospective students are asked a series of seven questions, dividing answers between two options and filtering candidates into personality types. Answers are arranged around a rotating PNG element that is animated simply with CSS3 transforms, underlining a general theme for astrological mysticism. By attaching the rotatable.js

extension for jQuery, an arrow pointer <div> can be dragged around the circular device before triggering a neat transition to the next prompt. The design is very clean and slick, avoiding additional clutter with superfluous text or an abundance of colour. A predictably dark and black spacey background remains unbroken but for an array of subtle star-like dots fizzing out from the page centre. Achieved again with staggered CSS3 transitions and three stacked transparent PNG backgrounds, Czech designers Madeo Interactive have pushed fairly simple front-end tricks to the limit. Boasting a team comprising TBU graduates and working closely with the university's Marketing and Communications faculty, Madeo has since seen the site scoop CSS Design Awards internationally. Lesson being: enrol quick if you fancy studying web design at TBU!

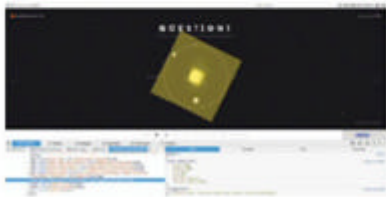
ABCABC
1234567890

<Above>
• Baron Neue Regular, designed by Frank Hemmekam with fontfabric, styles the glyph-like large headings

abcABC
1234567890

<Above>
• System fonts are preferred for supplementary text, with Georgia appearing in Firefox

Answers are arranged around a rotating PNG element that is animated simply with CSS3 transforms

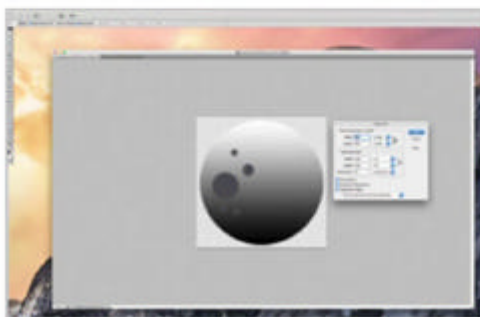


Rotate image animations with looping CSS3 transforms

Combine transparent PNGs with CSS3 to emulate Tomas Bata University

01 Rotating planets loop

Central to the Tomas Bata University in Zlín microsite is the rotating planet-like element in the page centre. Closer inspection reveals this to be a stack of transparent PNG images, with several rotating. By applying this subtle looping motion to the planet and stars, using CSS3 animations, a simple but effective result is achieved. Here we'll mimic this technique to suggest how it's done!



02 Prepare the planet

To start with we want to prepare our stack of images. Keeping things simple we'll use just two, the first being a simple circular planet created in Photoshop. This is sized 120 by 120 pixels with a transparent background and saved as a PNG called 'planet.png'. Give it enough distinct detail so that the motion that is given to it later becomes obvious.



03 Give it a ring

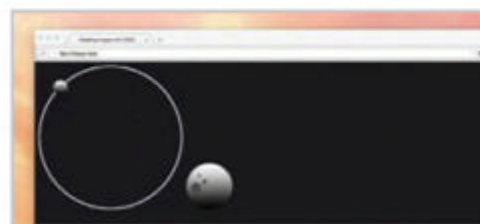
A second image is sized 360 by 360 pixels, again with a transparent background. Here we've simply added an outer ring with an additional planet and then a series of white dots randomly scattered across to signify stars. This PNG is saved as 'ring.png', and along with planet.png, should be placed into the root of a new HTML document.

04 Add the elements

In our HTML page we just need three elements defined. Basically we insert our two images, nested inside a <div> called container. This will be used to

centre the stack, so in our CSS we set positioning for container and set the background of our page body to the desired shade of grey.

```
001 CSS:
002 body {
003   background: #1A181D;
004 }
005 }
006
007
008 #container {
009
010   position: relative;
011   width: 360px;
012   margin: 15% auto;
013 }
014
015 HTML:
016 <body>
017 <div id="container">
018 
019 
021 </div>
022 </body>
023 </html>
```



05 Position the planet

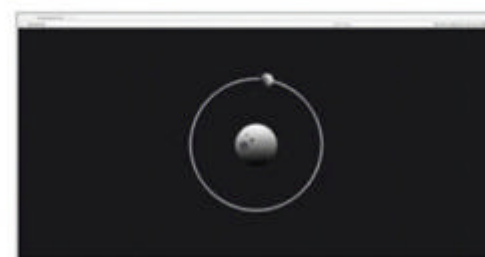
Our images are different sizes and, by default, appear next to each other on the page. In our planet image CSS class we must first position it as absolute so its position is keyed off of the <div> container. Because this parent element has positioning set as relative as opposed to the default static, we can set top and left values from its edges. The two now overlay:

```
001 .planet {
002   position: absolute;
003   top: 120px;
004   left: 120px;
005 }
```

06 Add the animations

Next we will add some animation properties to our image CSS classes. Here you can see the long and short hand methods for attaching a keyframes class called 'orbit' that we will be defining later on in the last step. The duration value is most critical here for staggering the two rotations, while linear timing keeps the motion constant and 'infinite' loops the animation. By adding a reverse to the ring image animation it will rotate anticlockwise:

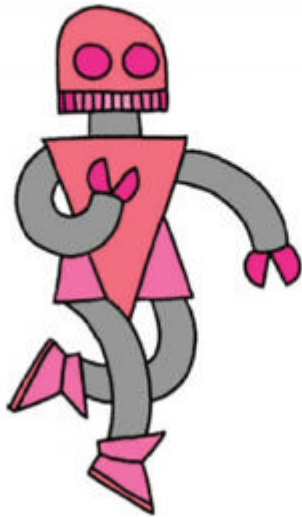
```
001 .planet {
002 ...
003 /* Vendor prefixes shown in full
004 code */
005   animation-duration: 7s;
006   animation-timing-function:
007   linear;
008   animation-iteration-count:
009   infinite;
010 }
011 .ring {
012   animation: orbit 20s linear
013   infinite reverse;
014 }
```



07 Apply the transform

We then need just a single @keyframes class called 'orbit' added to our CSS, attaching a full rotate transform for 100% of the cycle. You could also reverse this rotation by making this 360 degrees, or attach new behaviours to vary the effect. Play with the 'animation-duration' values to change timing, save and preview!

```
001 /* Vendor prefixes shown in full
002 code */
003 @keyframes orbit {
004   100% { transform:
005   rotate(360deg); }
006 }
```

Can you volunteer for Code Club?

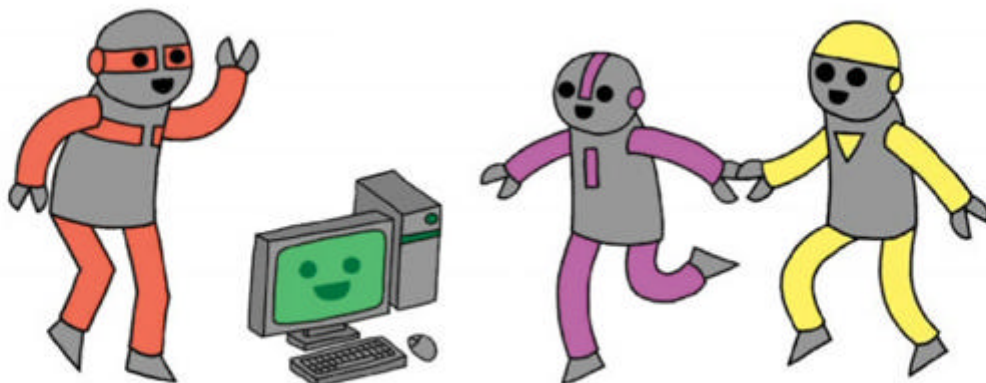
Code Club is a nationwide network of volunteer-led after school coding clubs for children aged 9-11.

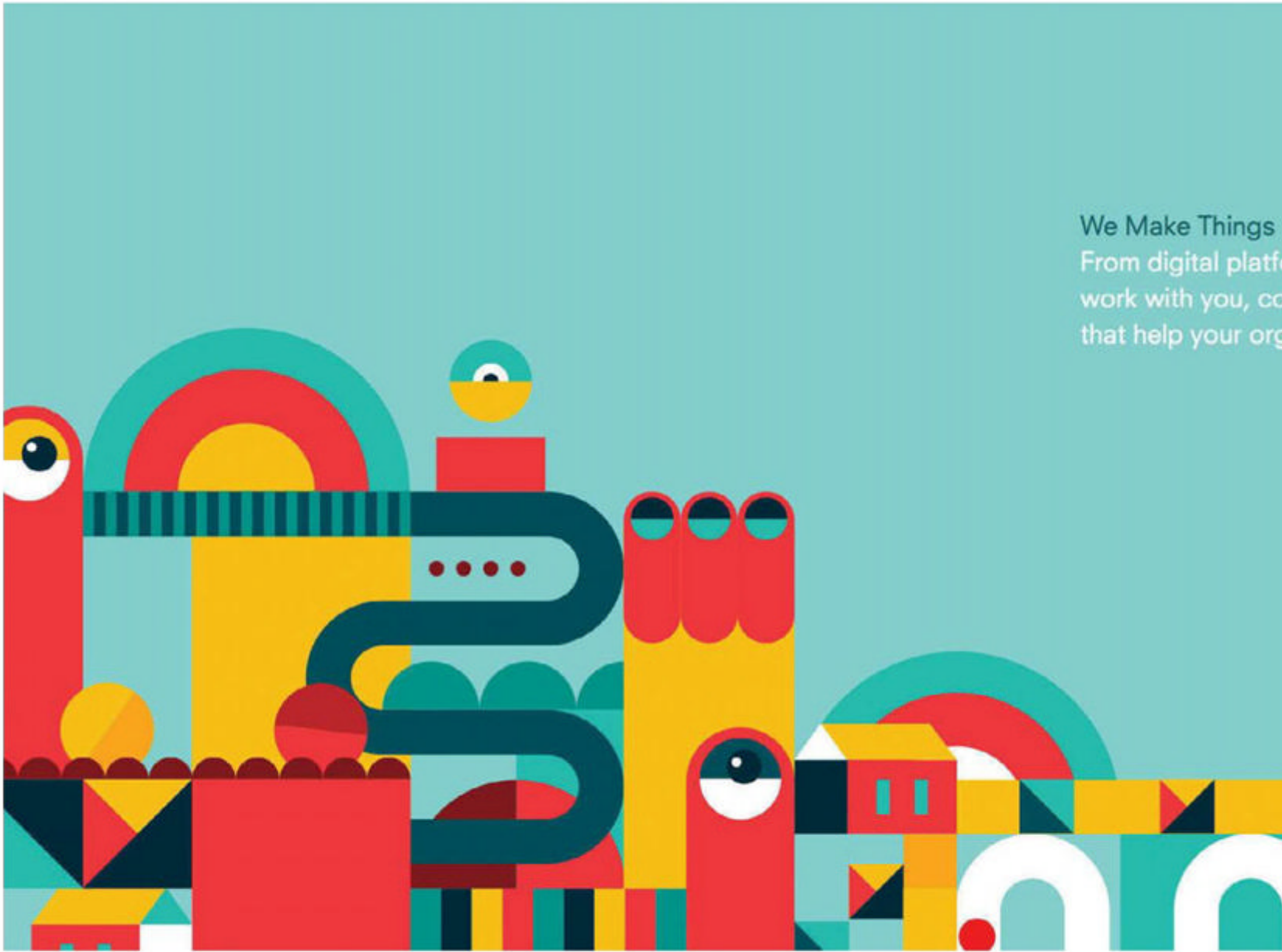
We need people who know how to program computers to volunteer to run a club at their local primary school, library or community centre for an hour a week.

We create the projects for our volunteers to teach, the projects we make teach children how to program by showing them how to make computer games, animations and websites.

Get involved, let's teach the next generation to code!

Visit www.codeclub.org.uk to find out more





We Make Things
From digital platf
work with you, co
that help your org

<Above>
• A complex and colourful full-aspect SVG animation provides a dynamic header element to kick things off



<Above>
• Pages start with big header graphics before stretching the browser so that a flurry of colourful snaps take over the page

<Above>
• Two-column grids of thumbnails provide a sneak peek of featured works. Upon rollover of the caption, the image gets a transparent overlay

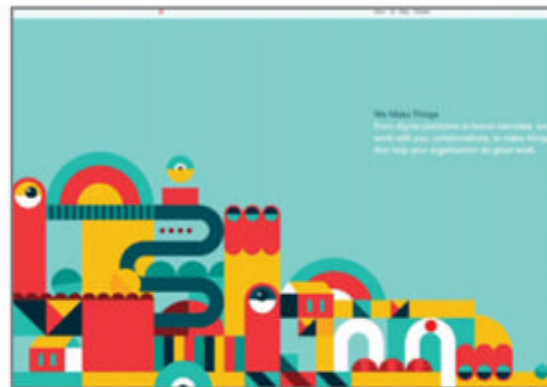
<Above>
• By keeping text tight and sharp, visitors quickly get a sense of what Fieldwork are about, thanks to concise information

<Above>
• Even the Contact page manages to conform to the minimalistic and clean design with the use of a neat header map

Fieldwork

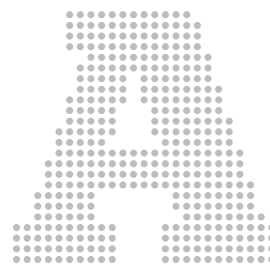
madebyfieldwork.com

Development technologies HTML5, CSS3, SVG, jQuery, Snap.svg, Fitvids.js, Fontello



Designer **Fieldwork**
madebyfieldwork.com

Manchester masters Fieldwork demonstrate a skilled eye when it comes to creating brand identity and classy design



As the importance of digital communication within marketing gets stronger and stronger, digital agencies are best placed to leverage it for their own services. Competition for projects is fierce so using your own portfolio site to establish an identity and showcase client work is essential. This is the real strength of **madebyfieldwork.com**, the online home of Manchester creative studio Fieldwork, blending subtle UI tricks with clean simplicity. Websites, brand identity, digital products, and visual communication are all areas this multidisciplinary team inhabit, placing "collaboration" at the heart of what they do. This site conveys both playful, creative energy and

professionalism, ultimately with sprawling photo-laden pages. Opening to a full-width header teeming with looping SVG animations, the main page instantly puts featured projects first. Two-column grids of rollover images provide visual previews, linking through incredibly rich and colourful photo case studies. These cascading streams of fairly large aspect JPGs are responsively stacked, ensuring the experience looks equally wonderful on tablet and mobile. Typographically the site is economical with words, preferring punchy and fairly direct statements on Fieldwork's creative philosophy. Colour is largely confined to the imagery throughout, with templates leaning on timeless standards of crisp white space and subtle grey shaded panels to break things up. Overall the resulting design is refreshingly simple, but it provides a great lesson in why timeless taste never goes out of style.

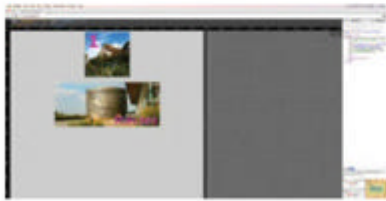
This site conveys both playful creative energy and professionalism, ultimately with sprawling photo-laden pages

forms to brand identities, we collaboratively, to make things organisation do great work.



abcABC
1234567890

<Above>
• Neuzett S Book is used throughout to keep the typography round and readable



Learn new HTML tricks for rendering images responsively

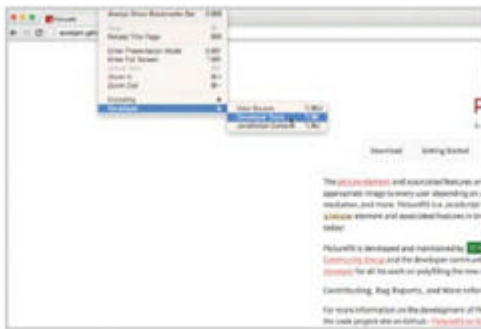
Get inspired by Fieldwork and add progressive HTML for serving images

01 Why responsive images?

On modern, image-rich websites such as madebyfieldwork.com it has become vital for content to consistently look good. Designers want to ensure page images render as beautifully as possible on a myriad of devices and resolutions. New HTML5 proposals add 'art direction' capabilities for serving optimised images based on the current viewport. Here we'll look at provisional specifications for the `srcset` attribute and also the `<picture>` element.

02 Get Google Chrome support

The techniques we're looking at here are provisional, with browser support largely confined to Google Chrome 38+ and its Blink fork of WebKit, so please ensure you follow accordingly. Other browsers can use `picturefill.js` ([scottjehl.github.io/picturefill](https://github.com/scottjehl/picturefill)), a polyfill for unsupported `<picture>` element features, but we'll stick with Google Chrome for previewing the native HTML and using Mobile Mode within the excellent View>Developer>Developer Tools panel.



03 Use image srcset attribute

The `srcset` attribute is new to the `` element and essentially defines alternative image files for the normal `src` field. Each listed image is given a value, used to swap in higher resolution versions at higher device pixel ratios. So 2x should be read as 2 device pixels per CSS pixel. This is especially useful when targeting Retina displays with larger pixel densities:

```
001
002
```

04 Test those ratios

This can be tested with the three images of doubling dimensions - so for example 300 by 300



pixels, 600 by 600 pixels and 900 by 900 pixels. As the `` element is set to 300 by 300 pixels, the larger images will swap in to display more crisply and fit the appropriate pixel ratio. In Chrome we can simulate this in Mobile Mode by incrementing the 'Device pixel ratio' value to the right of the resolution dimensions in the top-left corner.

05 <picture> and <source>

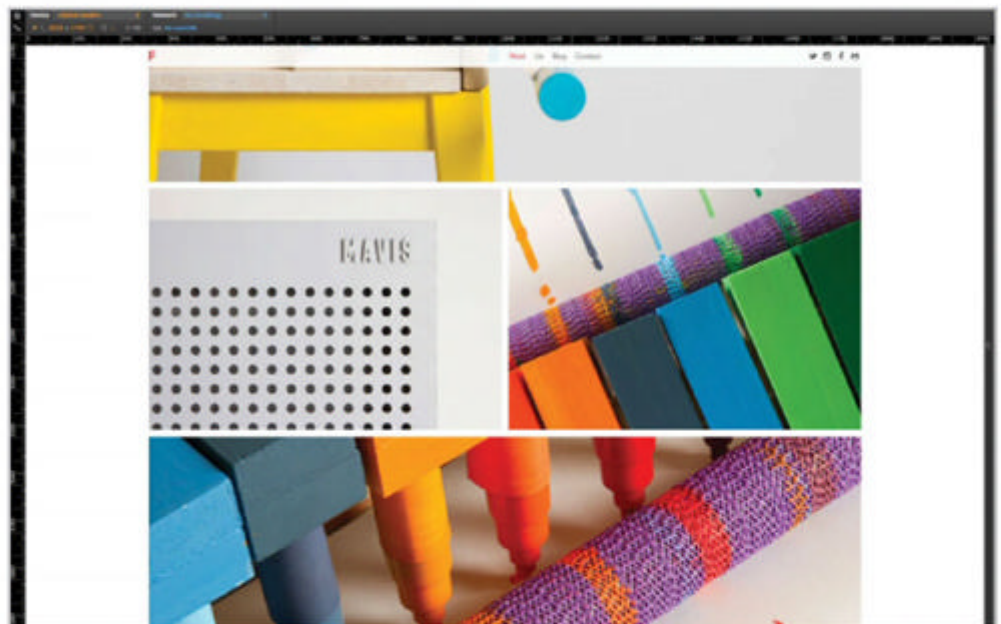
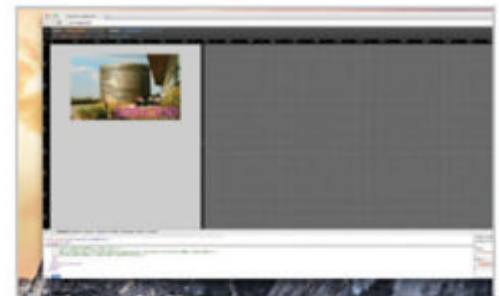
The `<picture>` element is combined with the `<source>` element normally associated with loading video and audio. By then defining a media query with a desired minimum viewport width, you can serve an optimised image again with the `srcset` attribute - including a necessary `` element fallback as default where the method is not supported:

```
001<picture>
002 <source media="(min-width: 700px)"
```

```
srcset="myImage2.jpg">
003 <source media="(min-width: 500px)"
srcset="myImage1.jpg">
004
005 
006
007 </picture>
008
```

06 Test on viewport resize

Again you can test this by resizing the viewport within Chrome's Mobile Mode or by just resizing the browser window. As you change the width value within the Screen resolution dimensions, you will see the example images switch at the stipulated media query threshold. The example page and images are provided on FileSilo for testing, however if you try it in an unsupported browser you will only observe fallbacks.



THE BEST TOOLS FOR RESPONSIVE DESIGN*



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Responsive **EMAIL DESIGNER**

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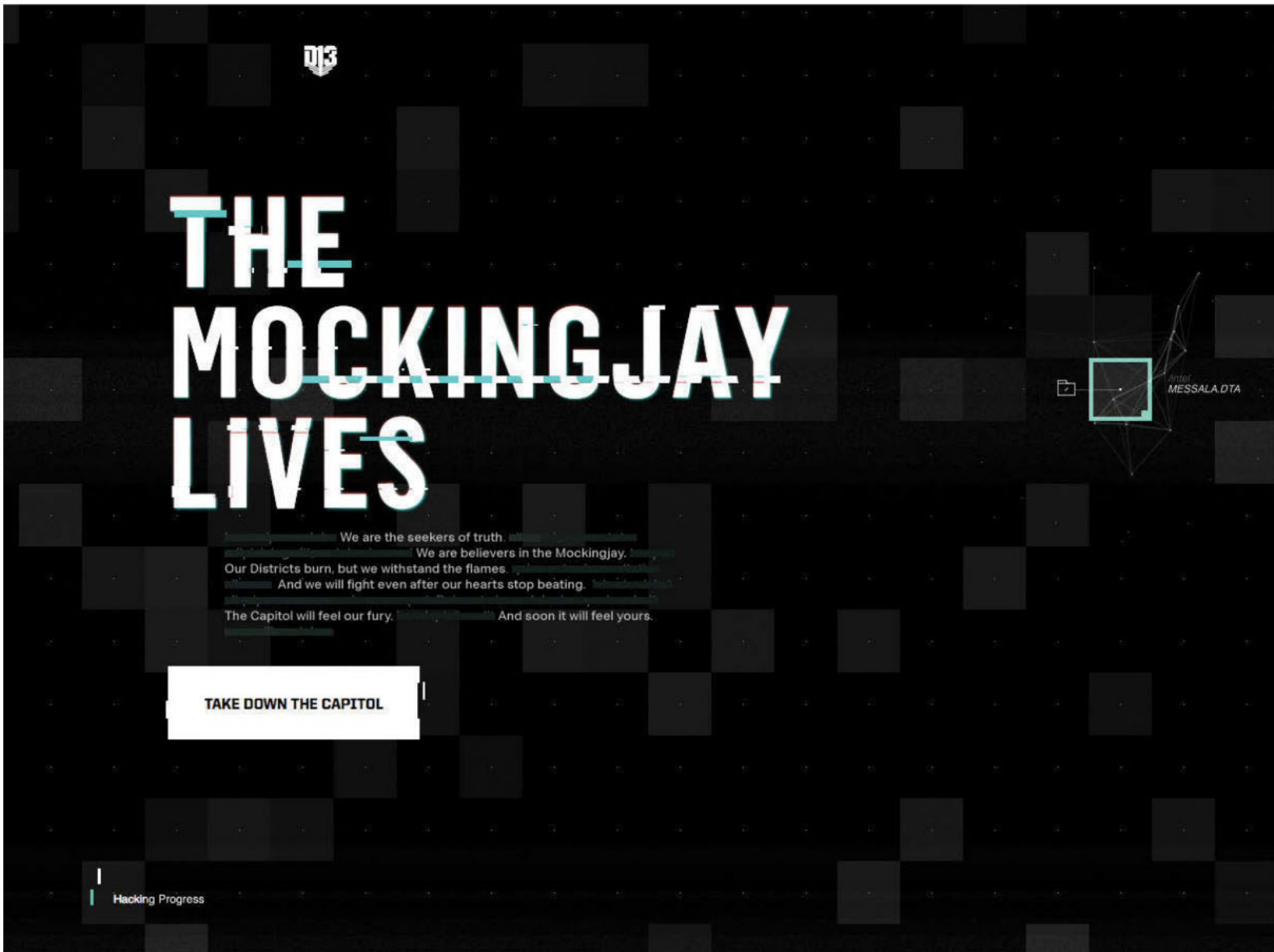
*** IT'S A CONTEST!!**

tweet **#[\[insert:wordfoundabove\]tools](#)** @coffeecup for a chance to win one of the apps. More info at www.coffeecup.com.

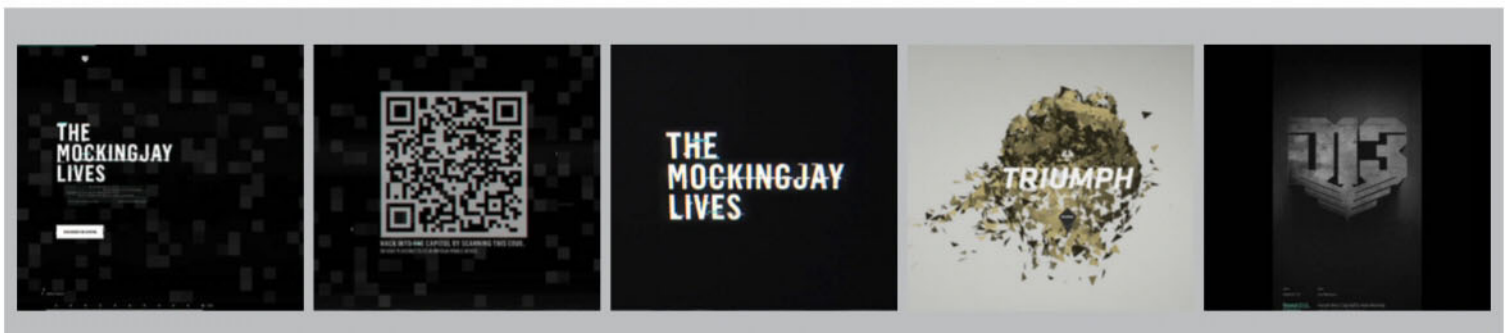
by



CoffeeCup



<Above>
 • The District 13 site takes users into the midst of the propaganda machine fuelled by the character Plutarch Heavensbee



<Above>
 • District 13 on desktop is fairly unassuming, that is until you pair it with your mobile device

<Above>
 • A QR code enables scanning of the URL for quick and easy access to the District 13 mobile site

<Above>
 • Cryptic phrases and clues appear within your desktop browser as the experience unfolds

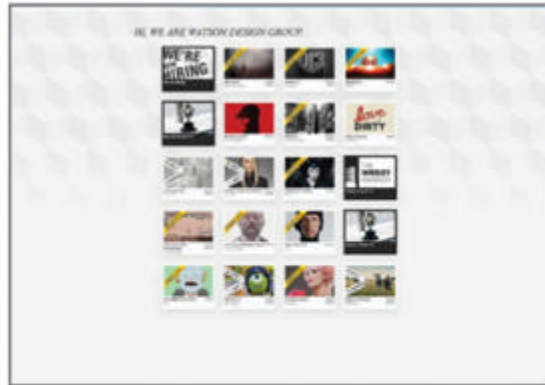
<Above>
 • WebGL and HTML5 Canvas are used at [www.thecapitol.pn](#) - its session ID is then entered on District 13's website

<Above>
 • Each available hack is lined up for you to crack once your device is paired up with the experience

District 13

district13.co.in

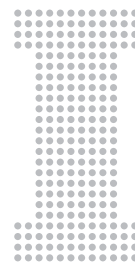
Development technologies HTML5 Canvas, CSS3, JavaScript, WebGL



Designer **Watson/DG**

watsondg.com

This marketing drive for The Hunger Games brings mobile and desktop web design closer together



If there's one word to describe fans of *The Hunger Games* movie series, it's **obsessive**. The latest instalment, *Mockingjay - Part 1*, based on the novel by writer Suzanne Collins, chronicles the districts in Panem as they battle against the tyrannical and totalitarian government. Followers are always keen to access exclusive content and extra material, and this featured web project encompasses many sites across different devices. Produced by LA agency Watson/DG for Lionsgate films, District 13 is an offshoot project from the **theCapitol.pn** site.

By accessing the URL on both desktop and mobile browsers, and entering a session ID from **theCapitol.pn**, a paired experience enables visitors to engage with puzzles. These 'hacks' use gyroscopic and touch interactions to unlock exclusive imagery, clips and movie information. When the user logs in with Facebook or Twitter you can save your progress; this is very thoughtful when you realise how tricky each hack can be! As you proceed on tablet or smartphone however, you'll see feedback appear in real-time sync via your PC. In addition, back at the main **theCapitol.pn** site, some gorgeous HTML5 Canvas and WebGL work delights the eye while underlining the 'big brother' themes that are synonymous with the franchise.

Produced by LA agency **Watson/DG** for Lionsgate films, District 13 is an offshoot project from the revamped **theCapitol.pn** site



abcABC
1234567890

abcABC
1234567890

<Above>
• Klavika font in bold, italic and medium varieties offer a futuristic look to the typography

abcABC
1234567890

<Above>
• United Sans Regular Heavy, plus system fonts, are used on the **district13.co.in** desktop site



Make rollover menu item effects with CSS3 transitions

Emulate the distinctive social rollovers found on district13.co.in's Share section with a method for applying CSS style transitions

01 Set starting styles

Visit the Share section of District13 and you'll find four social icons. As you roll over each of these, the background shifts on hover to add a distinctive frayed edge effect. This is achieved by an elegant combination of transparent PNGs and a simple CSS transition as explained here. Start a new HTML page and add some initial style classes:

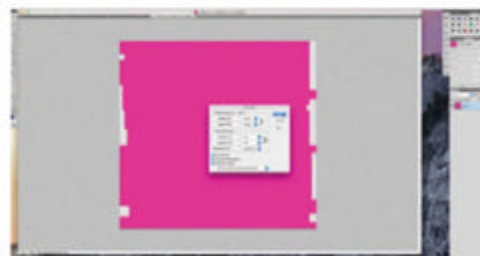
```
001 <style>
002
003 body {
004
005 background: #330066;
006 }
007
008 #container {
009
010 position: relative;
011 width: 800px;
012 height: 200px;
013 margin: 25% auto;
014 }
015 /* ADD EXTRA STYLES HERE */
016 </style>
```

02 Menu item elements

Further classes will be added once page elements are added. So in the <body> we want a <div> container holding four <a> links that we'll add unique classes for. Inside these goes an element that will be the frayed rollover background, plus another <div> styled to hold each menu item label:

```
001 <body>
002 <div id="container">
003 <a href="#" class="itemOne">
004 
006 <div class="itemLabel shiftAll"></div>
007 </a>
008 <a href="#" class="itemTwo">
009 
011 <div class="itemLabel shiftAll"></div>
012 </a>
```

```
011 <!-- REPEAT x4 -->
012
013 </div>
014 </body>
```



03 Make rollover mask images

We can observe from this that we'll need four 'rollMask' PNGs in the page root. These provide the coloured, frayed rollover mask that will be hidden by the CSS. These are sized 200 by 210 pixels and have jagged left and right edges cut out of a transparent background, creating the frayed effect.

04 Edit the rollover label images

Secondly we also require four 'label' PNGs, double-sized (200 by 400 pixels) to contain both default and hover rollover states, like a sprite sheet. We'll use numbers here in contrasting colours on a transparent background, making sure they are positioned identically and named 'Ones.png', 'Twos.png' and so on.

05 Set the backgrounds

Each item <a> link is then styled to be positioned (absolute) 0px, 200px, 400px and 600px so they form a row. Here the background colour is translucent white, which we've staggered, and provides subtle tone against the page. Selector classes then apply each of the label PNGs, positioned top-right for the default state:

06 Initialise default styles

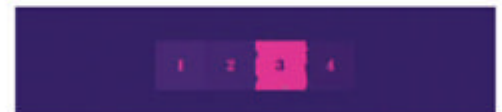
We now need some initial styling for the item <a> links to set position absolutely and sized 200 by 200px to fit. The itemMask class will hide each mask with zero width and opacity. Lastly, the itemLabel class sizes are <div> 200 by 200px each and are lined up along the row:

```
001 a {
002 position: absolute;
```

```
003 width: 200px;
004 height: 200px;
005 }
006
007 .itemMask {
008 position: inherit;
009 width: 0px;
010 height: 200px;
011 opacity: 0;
012 }
013
014 .itemLabel {
015 position: inherit;
016 display: block;
017 width: 200px;
018 height: 200px;
019 }
```

07 Attach the transition

A CSS3 transition goes inside the shiftAll class attached to each mask and <div> label. This animates the style changes we'll define in hover pseudo classes for each <a> element. District 13 uses a custom cubic-bezier() timing function with specific parameters. You could, however, use a linear alternative (commented) to add your own twist:



08 Hover pseudo classes

To finish we need two pseudo classes for a: hover, defining end style states that the shiftAll transition invokes. First, these shift the item label <div> background along to show the opposite half and contrasting number. Second, they make the mask image visible by setting the full width to 210px, so that it overlaps, and the opacity to fully opaque!

```
001 a: hover .itemLabel {
002 background-position: left top;
003 }
004
005 a: hover .itemMask {
006 width: 210px;
007 opacity: 1;
008 }
```


there's no fancy advert here
just the details that you need to read

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A JOURNEY THROUGH MIDDLE-EARTH

A two-year collaboration between Warner Bros., Google and North Kingdom reaches its climax with a stunning 3D interactive digital extravaganza

THE HOBBIT

THE BATTLE OF THE FIVE ARMIES

Project	The Hobbit - A Journey Through Middle-earth
Web	middle-earth.thehobbit.com
Agency	North Kingdom
Web	northkingdom.com
Duration	Eight months (continuation of last year's <i>Desolation of Smaug</i> project), two years in total
People involved	40-50
Total hours	100,000



J. R. Tolkien could never have envisaged how his classic novel *The Hobbit* would be brought to life in the 21st Century. Was his vision set in text the one that Peter Jackson brought to the big screen?

There is no doubt that every reader interprets a story in a different way, and there will always be those who approve and those who don't. Success suggests that the film series was well conceived. But, the film is only one arena that expresses the book.

As we all know the web is now an integral part of any promotion and the last in the series of companion sites is 'A Journey Through Middle-earth', which complements the worldwide release of *The Hobbit: The Battle of the Five Armies* movie. This is an interactive digital experience with the aim to capture the richness and dynamism of *The Lord of the Rings* and *The Hobbit* films. It represents the last chapter of a two-year collaboration between Google, Warner Bros. and North Kingdom (www.northkingdom.com).

The objective for Warner Bros. with this project was to use the interactive web to celebrate the rich world of Middle-earth drawn from all six films. For example, a special legacy of a Middle-earth trailer was cut across all six films that directed to the overall experience. There were also two experience-driven trailers created to run across the world's cinemas ahead of the movie. The filmmakers were brought in to early discussions regarding the project and the studio was able to get their blessing on creating this experience.

For Google, the goal of this experience was to show the power and maturity that open-web mobile technologies, when supported by modern browsers, had to offer.

For North Kingdom though, their goal was to help showcase how a design-driven approach can shape all

THE HOBBIT

THE BATTLE OF THE FIVE ARMIES

kinds of new possibilities in the field of entertainment and technology.

Building on the success of the first experience that was based on *The Desolation of Smaug*, this final iteration enabled the team to close the circle and therefore connect the story from *The Battle of the Five Armies* back to the film releases of *The Lord of the Rings* trilogy.

🔗 We wanted to ensure that our experience would honour the storyline and capture the imagination of fans 🔗

The engaging journey begins on a beautiful, interactive map of Middle-earth that has been built from the ground up, from which fans can explore 21 new locations from *The Lord of the Rings* and *The Hobbit* film trilogies. The map is rich with 3D animations, highlighting the paths of eight key characters in the film series, including Bilbo Baggins, Gandalf and Aragorn. These maps are based on Tolkien's original maps, and

this marks the first time that technology has been used to enable users to explore the rich, immersive universe of Middle-earth.

To deepen the experience, North Kingdom created experience Heroes' Journeys, an area of the platform that will enable people to relive all of their epic Middle-earth adventures, from Frodo's journey to Mount Doom in *The Lord of the Rings* to Bilbo's final battle in *The Hobbit: The Battle of the Five Armies*.

With the conclusion of the series going full circle how did it all begin for North Kingdom? The team explains: "It all started last year when we were approached by Google to create a world-class immersive experience leveraging the latest Google technology for the second

SETTING THE MOOD

The visuals throughout the Middle-earth project are stunning. The question is how much work was involved for the agency, how many people were involved and how did North Kingdom bring it all together in the end? The team reveal the secrets behind the process. Prepare to be impressed.

"Visual design in this type of project is a very broad topic. There's the art direction of course that sets the mood and the look of the whole project in terms of colours, typefaces and style of the 3D renderings - both in real-time and prerendered.

"Then it's the UI design, buttons, menus, game elements and finally 3D modelling and texturing. We had an art director, designers and 3D artists working on the project. A lot of work was put into the texturing

of the Middle-earth map, trying to get forests, rivers and mountains as correct as possible.

"For the battleground game we created separate objects and environments for each of the five scenes and used those objects to create the obstacles and the settings in the game boards. Due to the constraints of the mobile browsers we also had to work a lot with making the characters and objects look good with a very low number of polygons."

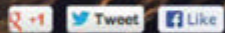
This web experience is the second time that North Kingdom has worked on *The Hobbit* movie trilogy

THE HOBBIT

THE BATTLE OF THE FIVE ARMIES

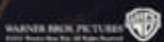
A JOURNEY THROUGH MIDDLE-EARTH

This is a Chrome Experiment Made with some friends from Google



PRIVACY POLICY TERMS OF USE

THIS FILM IS NOT YET RATED



installation of Peter Jackson's epic trilogy, *The Hobbit: The Desolation of Smaug*.

"Before we began, we questioned its value and intentions because we wanted to ensure that our experience would honour the film's storyline and capture the imagination of the fans that would transport them to the vibrant world of Middle-earth, in a mobile-first web experience.

"Our first perception of this project was that we wanted to challenge ourselves and to really push the boundaries of what is possible in a digital experience and bringing the world of Tolkien to life in the digital realm for the millions of *The Hobbit* and *The Lord of the Rings* fans all over the world.

"For the final film, *The Hobbit: The Battle of the Five Armies*, we pushed ourselves to dive deeper into Tolkien's incredible world to be able to give the fans an epic experience for the conclusion of the journey through Middle-earth. For eight months, our team worked on updating the initial site platform extending Middle-earth so that it can actually bridge the worlds between *The Hobbit* and *The Lord of the Rings*. Our focus was on showcasing what is actually possible with new creative techniques and the latest technologies for Google Chrome.

"To further challenge the fans we have developed an innovative, peer-to-peer, social battle experience. This is where anyone can challenge their friends to a test of their might and skill, and they will then become a part of the epic Battle."

To get an epic such as *The Hobbit* films off the ground, there needs to be some serious and well-organised communication between all of the companies that are involved in the project. With such huge stakes involved, close-knit work was critical as the team at North Kingdom explain: "This was a very high involvement project with close collaboration between Warner Bros., Google, North Kingdom and the

SCALE UP

There is no doubt that *The Hobbit* is a cutting-edge, visually stunning interactive experience. While gazing at the visuals there is a whole host of action going on behind the scenes. In fact, too much information to squeeze into these pages.

The team at North Kingdom reveal the key technologies that drive the game while also pointing to a more of an in-depth analysis of the back-end tech at <http://bit.ly/1AoWdQr>: "Backend in this case was mainly the WebRTC and the user management. We had a lot of the structure for routing and translations in place since last year's project and could build upon that. The biggest challenge from a back-end POV was making sure that the site could scale to serve thousands of concurrent users and to handle the connections between players."



Erebor is featured throughout *The Hobbit* films as the home of the Dwarves



Enter the Battlegrounds to choose to be good or evil, in locations such as Minas Tirith



Mirkwood is another location where you can fight as a Man, a Dwarf, an Elf or an Orc

THE HOBBIT

UX Wireframes

UX Designers: Alfredo Aponte & Adrià Verdaguer

- WARNER BROTHERS & GOOGLE -
NORTH KINGDOM AUG 2014



Site Navigation
Hierarchy: Paths of the different Characters, List with all the Locations sorted alphabetically, and Configuration elements (Sound, etc.)



The Heroes' Journey explores how a character like Gandalf ended up on their path



Location with Battleground
1. Location: A beauty shot will represent the selected location.
2. Follow a Path: Tapping on the Character button will reveal all the Characters who have been here.
3. Battleground: If the Location has a Battleground a "Join the Battle" button will be displayed to motivate the user to enter.



Battleground
1. Leader: The current King of the Hill in the Battleground is represented with it's high score, this will change every time a new leader takes the top spot, names to be determined.
2. Menu: Tapping the menu button will reveal all the Locations on the Extended Map.
3. Your Progress: To access your progress and view your ranking, tap "Your Progress" to view details.
4. Action: To emphasize action, the current battles will be highlighted through current event screens.
5. Begin: The Start Challenge button will be dynamic, depending on the event "Next Challenge" in the coin screens and "Access Challenge" when the player is challenged.



Challenge End Screen - Victory
1. Motivation: To keep users in the loop, the copy will congratulate them for the victory and set new goals for the users.
2. Share: Users can share their status in Middle-Earth and progress with their friends, if they have achieved some Badge-goal the character copy will change (ex: "I'm on a roll, becoming King of the Hill, etc.)
3. Next: By tapping Next Challenge the system will match the current player with another user and a new Challenge will begin.



Mount Doom is just one location that can be explored via the draggable and faithful map



Both film trilogies uses The Shire as bookends, and you can read the characters' story in this area

filmmakers. Weekly, iterative check-ins between Sweden and LA were common place as we used our 'Big Brain' work method to think through challenges and opportunities together.

"Every project works in a four-step process where the phases are named Discovery, Definition, Development and Deployment. To assure the quality of the project from all perspectives the project should begin with a Discovery phase where North Kingdom, Google and Warner Bros. investigate the project from a creative and user perspective.

"From here we move into Definition - this is when the workgroup define design, technology, wireframes, budget and time together. We create the blueprint for how we will develop the project.

"Once this blueprint is agreed by all parties the team move forward into a Development phase. This is the production stage where the blueprint and all preproduction decisions become reality. Finally, the team move to deployment where the process of delivery, testing and securing all functionalities of the experience can be completed.

"A typical work process like this will use cross-office coordination tools such as Basecamp and Google Hangout to ensure the teams are in sync with each other. This is vitally important for quality control purposes and for managing all the sign-offs. Every decision is taken from a user-first perspective and the process of iteration helps make this decision-making process inclusive.

"The overall idea with 'Big Brain' is that North Kingdom and its partners are shaping what's best for the project together - eliminating hierarchies and giving an agile focus to the workflow.

"Above all, the efforts to speak more frequently and more collaboratively lend themselves to a more responsive, fun and engaging project process. These conditions mean that we can take learning forward on a



The experience follows its predecessor as a Chrome Experiment and is viewable on multiple devices

BUILT FOR CHROME
FOR YOUR
LAPTOP, PHONE AND TABLET

Our focus was on showcasing what's possible with new techniques and the latest technologies from Google Chrome

long range assignment and task the team with getting better at being better."

Before a project gets anywhere near the design phase there is a lot of conceptual work to do. Ideas need to be worked on and formulated before the design process can begin. With previous history already in the bank North Kingdom took a look back to move forward. "Everything we learned from working on last year's *The Desolation of Smaug* experience we tried to bring with us into this year. The film is the epic conclusion to Peter Jackson's trilogy of films about *The Hobbit*, and one of Warner Bros.' most important theatrical movie releases for Q4 2014."

With a winning legacy in place, the launch needed to be spot on for the teams if the project was going to be brought together for the end product. It needed to appeal to a cross-section of consumer and professionals. Here's how it happened, "The experience had a PR plan attached to it and there were different players involved with the release.

"North Kingdom also created a cinema trailer for the interactive experience that would run before the film. In addition a special 'Legacy Trailer' was cut by Warner Bros. to tie all six films together - this resulted in a call to action that pushed to the experience also."

For the developer community, Google released several blog posts co-authored by the team at North Kingdom. They wrote a helpful tutorial detailing WebGL, the inclusion of WebRTC, developing peer-to-peer gameplay, and working on the game and all its parts with the game engine (<http://www.html5rocks.com/en/tutorials/casestudies/hobbit2014>) as well as a blog post (<http://chrome.blogspot.se/2014/11/walk-in-footsteps-of-heroes-in-journey.html>).

In addition the project has been tweeted to millions of fans through Google's account (via Chrome and the official Google account). Plus, key fan sites were recruited to support the social media activation too, such as theonering.net together with the official account from Warner Bros.

The final part of the process is typically postlaunch and North Kingdom is no different. They look to provide support and aftercare until the project no longer graces the web as they explain here: "What we offer in terms of post-launch coverage is that the original team members who produced the site experience is available to consult, support and debug in the event any site bugs may come up postlaunch. We are wholeheartedly dedicated to ensuring the site is functioning properly and as intended as we have agreed in our scope of work."

THE BIG QUESTION...

Which of the five armies would you sign up for?



☛☛ The dwarves, just because you're short doesn't mean you don't pack a mean punch! ☛☛

SHEILA HO,
PRODUCER



☛☛ Elves of course because than I would live forever, be able to eat what ever I want and still be ripped! ☛☛

LINDA BROCKMAN,
PRODUCTION MANAGER



☛☛ I wanna be one of the Great Eagles! Is that an option? ☛☛

DANIEL ISAKSSON,
TECHNICAL DIRECTOR



☛☛ I don't want to be an orc, they are ugly and die. Wouldn't mind being a Man and being Bard, he has amazing facial hair ☛☛

SAMUEL KANTALA,
DESIGNER

The re-envisioned online strategy for the new Li-Ning/
Way of Wade shoe line reflects both brands' values



IDEA ENGINEERS

As entertainment, advertising, technology and culture converge, Quantasy is at the epicentre of a creative movement that is defining digital marketing for the 21st Century

Quantasy

who Quantasy

what Quantasy deconstructs emerging behaviours and leverages emerging platforms of communication to deliver immersive interactive, social, commerce and content experiences.

where 9543 Culver Blvd.,
Culver City, CA 90232
web quantasy.com

Key clients

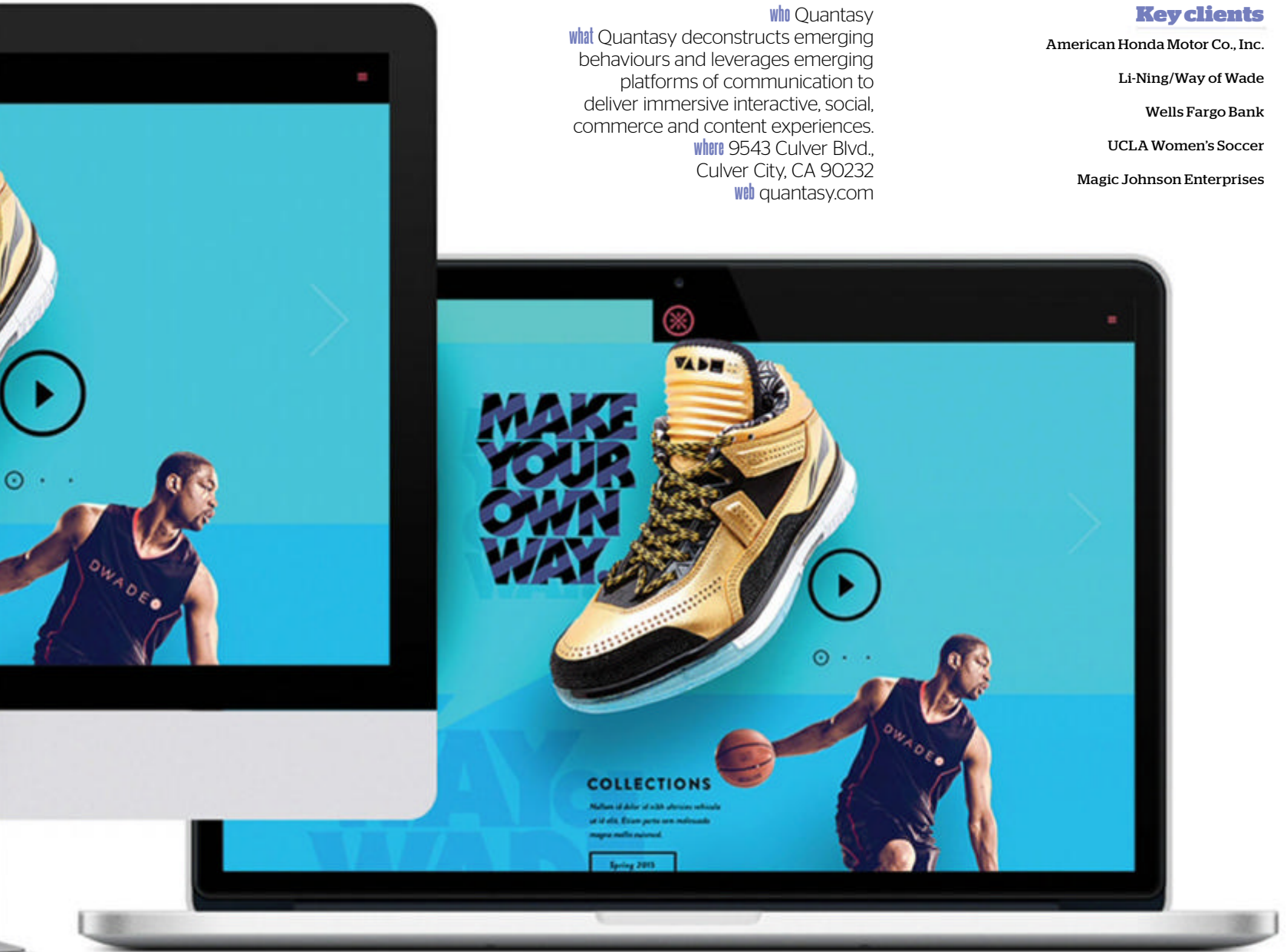
American Honda Motor Co., Inc.

Li-Ning/Way of Wade

Wells Fargo Bank

UCLA Women's Soccer

Magic Johnson Enterprises



In 2011, two friends, Will Campbell and Danilo Roque, founded Quantasy. Will was originally working for larger entertainment companies as a music producer and writer, whereas Danilo has a media arts background.

Will explains: "Working with entertainment brands, it came to a point where...you could have a deal with Universal, they pay you and sign you, but that doesn't mean your product is going to come out.

"In 2003, we were working on a [Disney] project with Raven Symone and developed a digital marketing plan that we thought fans would enjoy, including a website and eBook. As a result of this digital marketing plan, the project got big. It ended

up turning into one of Disney's biggest hits. We immediately saw the opportunity for this type of integrated 360-degree project that combined entertainment, technology, music and marketing. It didn't take long for other industry people to see what we had put together and started asking us to do the same thing for their projects. From there, it got bigger and we brought in some help, formalised the process and plans."

All businesses need a distinctive name to ensure that they stand out in their market. A memorable name becomes a business's brand and instills equity in the business. Will and Danilo wanted to combine science and imagination. Initially, they came up with the term quantum fantasy, which was

already taken, but after some negotiation, the domain name was secured.

The website of a creative agency is vital, as it is often the first point of contact for new clients. "An agency's site is very important," says Will. "Clients usually find you, not the other way around. As people are trying to find their next partner they come across your website.

"It's very important to keep it up-to-date to have a reflection of what you do and what you've done most recently. That being said, the website is only a component of an overall brand presence. Thought leadership, social media, other ways and places that people can learn about what you bring to the table are also important."

Quantasy



OUR REEL

Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem sequi nesciunt.



Magic Johnson Enterprises serves as a catalyst for driving unparalleled business results for our partners and fostering community/economic empowerment by making available high-quality entertainment, products and services that answer the demands of ethnically diverse urban communities.

PROUD PARTNERS



NEWS & UPDATES

Ex-professional basketball player Magic Johnson hired Quantasy to relaunch his site

Quantasy's Ballislife app provides all kinds of basketball news



The ways in which agencies secure new clients is as varied as the industries that different marketing firms represent. Quantasy has always placed itself at the centre of design where technology, culture and entertainment meet. Will states: "People find that we have a unique offering. A client will know quickly if we're for them or not. We are definitely pitching and making sure that we're seeking out potential opportunities and have a focused and consistent business generation effort.

"We do get clients that have seen a website or another piece of digital content and say to us they would like precisely the same for their business. Of course you can't simply repeat what you have previously done. In these situations we try to understand what the client liked about the work we had done and modify this for their needs.

"Often, this will take us in another direction that the client hadn't considered, but they allow us to create new and unique experiences. That doesn't mean every client will be a guinea pig for some new, wild digital design we have come up with. It just means we approach new work with the view of developing unique pieces of digital design that the client can be proud of."

The clients that Quantasy chooses to collaborate with come from a number of sectors. "There are clients that we are pitching that we'd love to have the opportunity to work with," says Will. "If we pass on a project it's generally because it's not the best brand fit. We help clients that want to leverage sports and entertainment culture and the power they have with technology. We focus in that area. We are working with clients that feel passionately that they can't afford to be behind the digital times."

Creative agencies are often recognised by their ground-breaking campaigns. So what is Quantasy's company ethos? Is there a campaign that encapsulates what drives Quantasy? "Our 2013 Honda Civic campaign ideally merged the worlds of entertainment, technology and culture, which is what we're all about," explains Will. "We were able to tap into a real cultural insight for millennials,

leveraging entertainment and capitalising on a relationship with Nick Cannon that enabled us to bring in the celebrity at an affordable rate and to do it in a way that was authentic to the client, with social media, video, a website and cross-channel media across a digital landscape.”

Danilo adds: “We build brand relationships using culture and the current digital tools. This speaks to the brand’s audience and lets us develop engaging content that consumers want to interact with.”

How agencies approach the content they create often means developing working practices that delivers new ideas. Will shares Quantasy’s method: “We assign people from all of our disciplines. Ideas can come from everywhere. Rather than having people work in an assembly-line fashion, the strategist does the strategy, creative comes up with idea, and so on. We like to get multiple perspectives as people come up with ideas differently.”

Reinforcing this collaborative approach, he says: “Everyone has a specific expertise that they bring to the table, but everyone on the team is responsible for the big idea.”

On the rapid evolution of the technological landscape, Will is well aware that things are always in flux: “Technology changes quickly, you can’t spend 18 months to two years in development. Our approach is to get it out, get it launched and then iterate it from there. Development, the actual programming, is the most time-consuming part.”



industry insight

Will Campbell, CEO

“The thing that separates people in our creative industry is their natural tendencies for collaboration and curiosity - that’s what sets them apart. Be curious. Never stop wanting to learn. Try new things, don’t be afraid to fail”

Danilo also explains: “Our heritage has been all about collaboration with an open-source mindset. We take the ideas of collaboration even to how we lay out our office space. We don’t have devs in one area or client services team members in another. We try and ensure that we mix these skills together in order to gain the most from the interactions that occur daily. This is the best way for ideas to germinate.”

Turning to the tools that Quantasy uses, Will divulges: “As technologies become more supported and standardised, further advancements will enable complex layouts and advanced interactive functionality. These advancements will be easily implemented across desktop, mobile and tablet but also in other native implementations, including vehicle in-dash applications and in-store/restaurant applications.

“There has been an explosive increase in new technologies, frameworks and libraries in the last few years.

Google continues to be the driving force behind some of the best tools. Google Tag Manager (GTM) is one of those tools.

“GTM makes it easy for marketers to add and update website tags including conversion tracking, site analytics, remarketing and more with just a few clicks, and without needing to edit your website code. Google Fonts offers hundreds of free, open-sourced fonts that are web-ready. Google

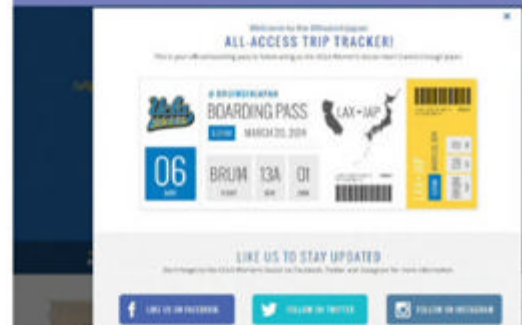
2014 UCLA Bruins Women’s Soccer Team

uclasoccer.com

After winning their first national championship last Autumn, the UCLA Women’s Soccer team was creating unprecedented buzz on social media.

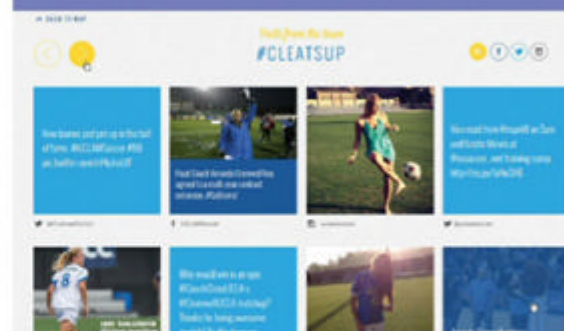
Quantasy began their strategy by a thorough examination of insights on various social media platforms. There were 8,800 tweets about the championship game from 6,852 unique Twitter users. It was clear that now was the time to capitalise on the momentum of the team’s success.

From there, we took our insights and moved into the strategy phase with three key goals: to increase awareness and generate earned media, create a more personal connection to the team, and build social followings across platforms. Our challenge was to creatively work within the school’s limited budget while maximising the team’s social equity.



To do so, we created #BruinsInJapan, a real-time social trip tracker that compiled and presented a behind-the-scenes look at the coaches and players on their international trip to Japan. It included a live social feed with various hashtags for Twitter and Instagram and an interactive series of virtual postcards written by fans called Letters from Home.

When we analysed the campaign, we were happy to see that we spent nothing on paid media over ten days. A total of 165 unique contributors participated in the campaign, leading to 658 new followers across social media channels and 697 unique posts tagged #BruinsInJapan. Overall, there were 9,672 engagements in response to posted content and 752,602 social impressions.



Quantasy

Webmasters helps with website optimisation. HeadJS is a powerful script loader that helps with page-load speed on a script-heavy website.

"Sass is a great tool that offers developers an efficient way of coding and managing their style sheets. Sublime Text is a cross-platform text and source-code editor. I say it's a code editor written for code editors. It's fully supported by the community and offers tons of packages and plugins written by the open-source community. Site animations and subtle movements are the new rage and it could all be done with pure CSS3. There are a few animation libraries that are available such as Animate.css or Justin Aguilar's CSS3 Animation Cheat Sheet."

Many of the design tools that are now deployed create content that is platform agnostic, but is mobile now the primary space for which Quantasy designs? Danilo explains: "I think what we always try to do is create an experience that makes sense for the device or environment you are using."

"Of course, this is the core of responsive design, and also what Google is doing with Material Design, but for us, the content and the experience always go together. It's our job to ensure the content we create is the best it can be to ensure high levels of engagement are maintained."

"When we are creating new content for our clients, we always ask ourselves if the content we are developing is ideal for the platform it is aimed at. Is the user experience intuitive? How would we, as consumers, react to the content? These are key questions we always ask ourselves at every stage of the design process."



industry insight

Danilo Roque,
chief operating officer

“Our heritage has been all about collaboration with an open source mind set. We take the ideas of collaboration even to how we lay out our office space”

Will also commented: "Mobile is often referred to as the second screen, but in my view, it's the first screen. The first thing people do when they wake up in the morning is check their phone or tablet, and they use these devices before they go to sleep."

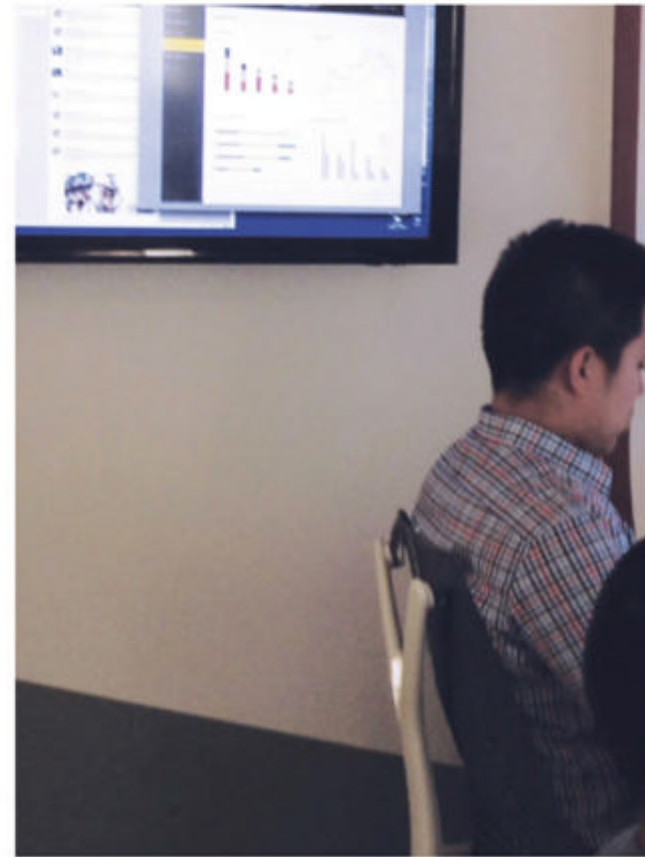
All creative services are only as good as the people they have working on their projects. How does Quantasy approach its recruitment? "We look for people that love to collaborate, are flexible and open to change," says Will. "We look for people that are super curious, always want to learn more and seek new knowledge. Great, smart, creative code or design is the cost of entry. The things that separate people in our creative industry are their natural tendencies for collaboration and curiosity. Be curious. Never stop wanting to learn, try new things, don't be afraid to fail."

And what of the future? Will concludes: "We're still growing and looking forward to more growth. The sweet spot that we would like to be at is between 40-50 people. It's not our ambition to be 1,000 people. We're looking at building out and defining an app studio to build out a larger app business. An exciting project we have going now is with Li-Ning and Dwyane Wade, and one with Lionsgate."

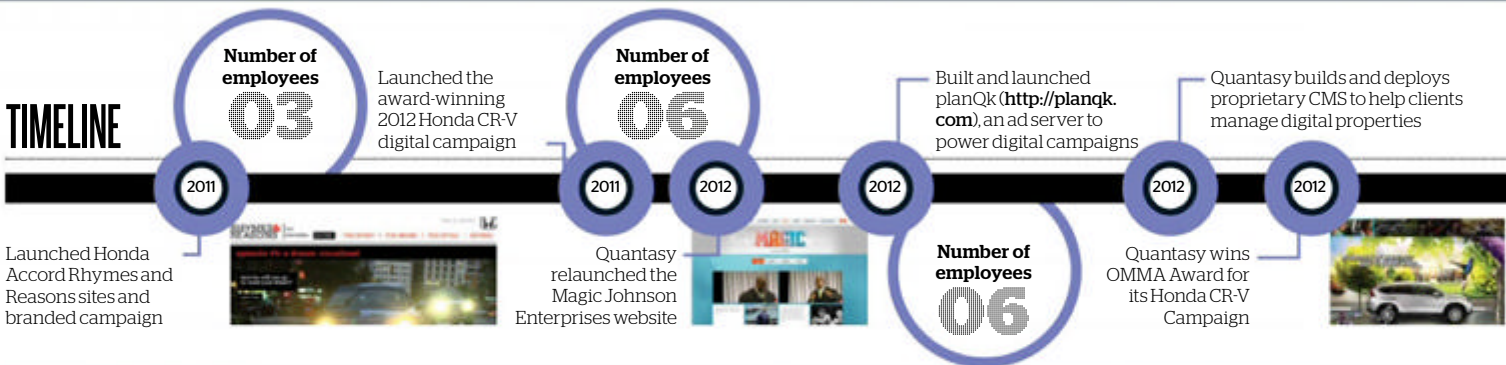
Quantasy states on their website that they believe in the science of imagination. With an approach to each project that speaks volumes about their insight into how digital marketing is converging, especially across the mobile environment, they have the creative skills to ensure they always devise unique and engaging experiences for each client.



Quantasy are developing mobile apps for clients right now but will eventually branch into building their very own app studio



TIMELINE





After reviewing their business approach, Quantasy established three categories of clients: major, mid-sized and growth



No matter the role, whether as a writer, strategist or a developer, Quantasy staff are all immersed in their projects in small teams

Quantasy

WEB..... www.quantasy.com
 FOUNDERS..... Will Campbell, Danilo Roque
 YEAR FOUNDED..... 2011
 CURRENT EMPLOYEES..... 10
 LOCATION..... Culver City, California

SERVICES

- > Digital and social media strategy
- > Content and creative development
- > Insights and analytics
- > Technology and development
- > Media and influencer outreach

ENCORE GOLD-RUSH

COLLECTIONS

Former Interscope Records executive Ron Gillyard joins

Launched Ballislife app, which was in the Top Sports apps list on iTunes

2013

2013

2013

2014

Launched the 2013 Honda Civic digital and social media campaign

Number of employees **10**

Launched a site and digital presence for Li-Ning/Dwyane Wade shoe line



Take your CSS into the next dimension with this ultimate guide to 3D effects and animations

TO 3D – OR NOT TO 3D?

THE BENEFITS

Why 3D? Because it looks so damn cool when it's done right! But before going further, you need to know what CSS 3D can and can't do.

First, 3D text. Nope! If you want 3D text effects, use the text-shadow property. For the finest 3D text you can add multiple instances of text-shadow. But you don't need CSS 3D transforms.

Secondly, parallax. That's another no – mostly. You create 3D parallax effects by moving different elements at different rates. The only 3D-ish part of the process is setting the front-to-back order of the elements. But you don't need to use 3D transforms to create the effect.

So what is 3D for? Mostly it's for spinning items around. You can spin them around their own centres, but that's a basic effect and not all that interesting. For a more impressive result you can group them together and spin the group around a line. If you imagine this with a collection of photos, you can create a common page-turn effect, with all the photos moving together as if they're stuck to the same piece of virtual paper.

The secret here is to make a 2D image move as if it's a 3D object. Think skeuomorphism, even if you're not

sure how to spell it. To enhance the effect you can give objects depth, with optional textures. 3D works best when you can create a convincing illusion of a physical object moving through the screen.

And you can take it even further, but the advanced level needs talent and hard work. If you don't mind putting the hours in, you can use 3D to put together entire animated 3D worlds.

CSS isn't quite smart enough to make a complete game, but it doesn't take much extra JavaScript to add collision and movement logic. This kind of semirealistic 3D can also be used for 3D product galleries, displaying simple animated and semirendered objects that users can rotate and explore. And if you're really ambitious and don't mind sacrificing some browser compatibility, you can explore WebGL and the 3D JavaScript frameworks to create some completely original work.

PROCEED WITH CAUTION AND BE AWARE OF FAILS

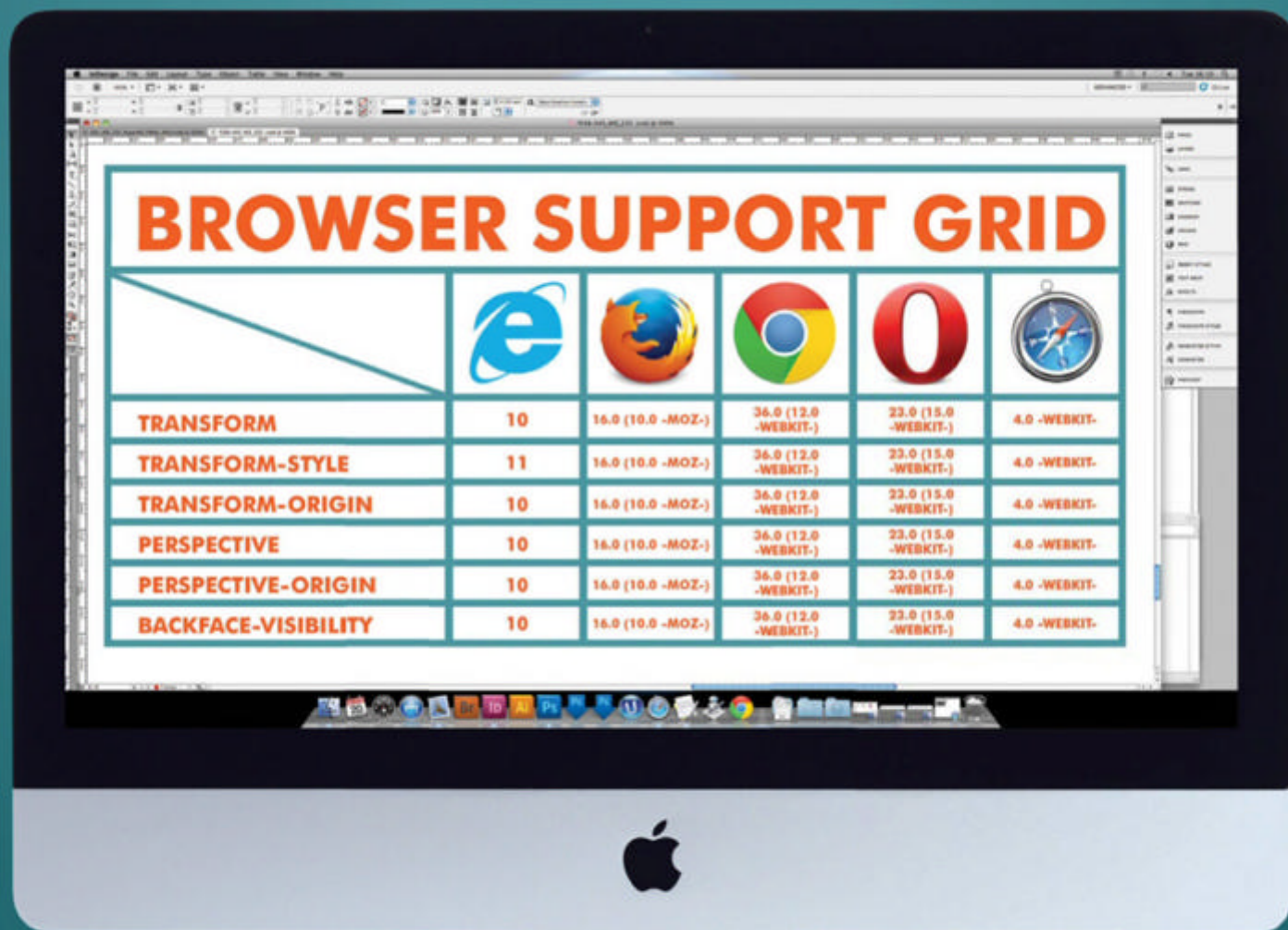
The most common fail is using 3D just because you can, even though there's no clear user benefit. 3D is such a strong effect you need a good reason to use it.

Spinning divs around the screen for the sake of it is not a very good reason.

Instead of thinking about transforms and timings, think about the user experience as a whole, and especially about the task flow through your app. If you can use 3D to highlight important elements as the user works with them, then go ahead. Likewise, you would point out all the important creative elements if you're building a demo or promo.

But be wary of using 3D for simple navigation. You might think the world needs menu elements that spin around as the user mouses over them, but it probably doesn't. It may need a cool vertical rotation that simulates a box or panel spinning in a skeuomorphic way. But adding features like these should be the last thing on your list of things to do. And you'd be wise to try out a demo to get client approval before baking them into a design.

The bottom line is that if your site design is primarily 2D, you can try putting some 3D on there to add subtle accents and make the site stand out. But less is more of course, and if you add too much you can create a distracting mess of clashing visual metaphors that looks like 3D has been overused.



SAY HELLO TO CSS 3D TRANSFORMS

How do transforms work? Imagine a 2D box. Each point is a pair of x, y coordinates.

With 2D transforms, you can do four things to the box. You can stretch it or you can shrink it, you can move it, you can spin it, or you can pull two of the corners to distort it.

In 2D CSS, these are represented by the scale, translate, rotate and skew transforms. The first one, scale, will work by making the box bigger or smaller, whereas translate will move it. Then you've got rotate, which will spin it, and skew, which will pull it along a diagonal to stretch it into a diamond.

3D transforms give you these same options, but you can do them in three dimensions, labeled x, y and z. Thanks to the magic of maths, this makes your box look as if it's being pulled into or out of the screen, which simulates a 3D effect.

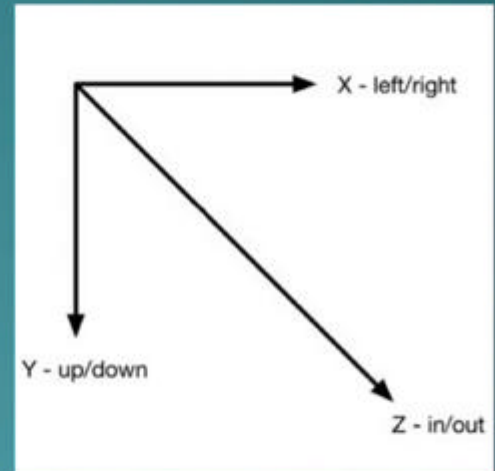
AXES OF SWIVEL

Take a look at the diagram. Seems easy enough, doesn't it? In 2D, if you rotate an element it spins around as you'd expect. In 3D, you have to pick an axis for your rotation. And this is where a lot of designers get confused.

When you rotate an object in 3D, it rotates around the axis. So now, imagine that the axis is an invisible wire, and it runs through one edge of the object. When you use the rotateX transform, the object will spin

around the x axis, which means that it spins around a horizontal line running across your monitor. A y rotation spins around a vertical line running down your monitor and a z rotation spins around a line that goes right through your monitor, which makes it just like a 2D rotation.

You may feel like this is melting your brain, but all you need to do is experiment with the different 3D transforms so that you can see what they do when you change them on the screen. After a while, the dimensions and axes will all become clearer to you and the confusion will go away.

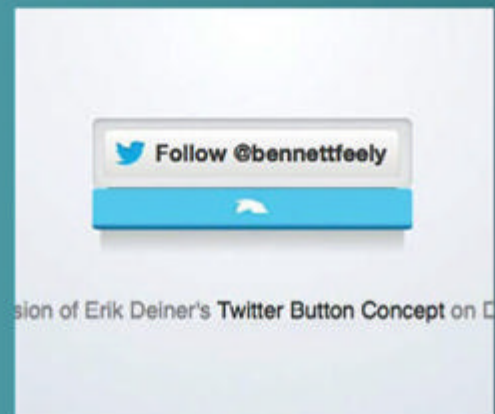


X and y are flat, z goes into your monitor. Rotating in 3D rotates an object around the axis you pick

```

position: absolute;
top: 0; right: 0; bottom: 0;
transform-origin: center bottom;
transform-style: preserve-3d;
font: 1.25em/2 "icon";
color: white;
text-align: center;
pointer-events: none;
z-index: 100;

```



Check out the Twitter Button Concept (<http://bit.ly/1BFRjQ7>) to see transforms at work

PERSPECTIVE, THE MATRIX AND THE ORIGIN

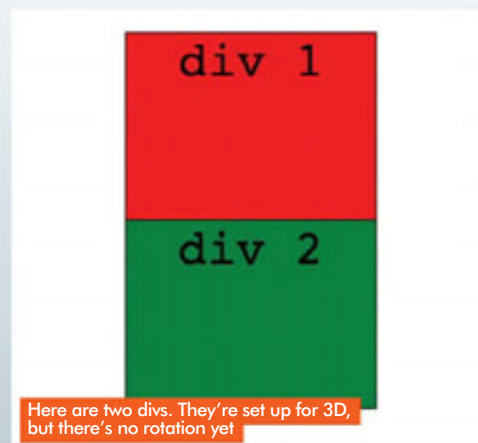
It helps to know where you started, where you are, and where you're going

3D has a reputation for being confusing - it isn't really confusing, but it does take practice. You may need to learn a few secret tips in order to understand why your transforms may not work as you would have expected them to.

Firstly, 3D transforms don't always look very 3D. If you apply an x or y rotation to an element, it looks as if it's being squashed and then expanded again. It doesn't quite look as if it's spinning.

To enhance the effect you need to set the perspective property. This will create an imaginary camera for your scene, and will then change the geometry to add a vanishing point for you.

Even if you have no idea what the maths actually does, you will still be able to see that it makes a noticeable, instant difference. Once you get to adding perspective, your 3D movements will suddenly look



much more convincing than before. Values of around 200 to 500 pixels will work well, but be careful of very

small values as they will create an unrealistic exaggerated effect that you may not quite want on your objects.

MATTER OF PERSPECTIVE

One gotcha: perspective does nothing to the object you set it on! It only works on child objects. To use it, place your child objects inside a div and then set perspective on the div.

For more complex effects, you can set a property called 'perspective-origin' to change the position of the virtual camera. You don't usually need to do this, but if you animate it, it can create some unusual effects that you can't create in any other way.

The other gotcha is knowing where the origin actually is - the location of the reference point for all of your transforms. The origin for 2D transforms lies right in the top-left of an element.

GET STARTED WITH CSS 3D TRANSFORMS

The basics aren't as hard as they look. So it doesn't take much to get started

MAKE A PARENT DIV

You can apply 3D transforms to any element. They're usually applied to divs, they work just fine on boxes of text - so we'll start with the obligatory box.

```
001 <head>
002 <style>
003 div {
004   text-align: center;
005   font-size: 300%;
006   font-family: monospace;
007   position: absolute;
008   top: 300px;
009   left: 300px;
010   width: 200px;
011   height: 150px;
012   background-color: red;
013   border: 1px solid black;
014 }
015 </style>
016 </head>
```

MAKE A CHILD DIV

3D works best if you create child divs inside a parent div. When you add perspective, this will pull all of the 3D elements together. It also makes it easier to work with 3D origins.

```
001 <body>
002 <div>div 1
003   <div id="div2">div 2</div>
```

```
004 </div>
005 </body>
006
```

MARK UP THE CHILD DIV

The child div inherits CSS properties in the usual way so that we can make some changes to give it a different look.

```
001 div#div2 {
002   position: absolute;
003   font-size: 100%;
004   background-color: green;
005   top: 150px;
006   left: -1px; /* Fix the border offset */
007 }
```

SPIN IT!

You can now add the magic words to create a 3D transform. This example applies a 3D rotation. The last number sets the angle, the first three numbers set how much it affects the x, y and z axes.

```
001 div#div2 {
002   position: absolute;
003   font-size: 100%;
004   background-color: green;
005   top: 150px;
006   left: -1px; /* Fix the border offset */
007   transform: rotate3d(1, 1, 1, 45deg);
008   /* Tip you can use -1 to invert a
```

```
transform on any axis*/
009 }
```

THE RESULT...

And this is what you get. It looks simple enough. But there's something else you need to know...

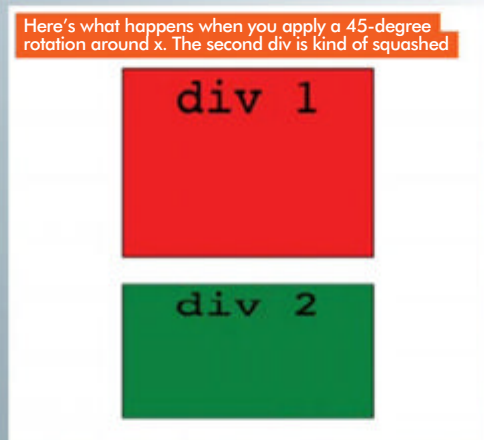


ADD IT UP

To combine transforms, you have to put them on a single line after the transform command. As is usual with CSS, if you define two or more transform properties, only the last one does anything.

```
001 /* The wrong way to combine transforms... */
002   transform: rotate3d(1, 1, 1, 45deg);
003   /* This line is ignored */
004   transform: translate3d(100px, 100px,
005   100px); /* This line isn't */
006 }
007 /* The right way to combine transforms... */
008   transform: rotate3d(1, 1, 1, 45deg)
009   translate3d(100px, 100px, 100px);
010 }
```

HOW NOT TO MELT YOUR BRAIN WITH 3D



The origin for 3D transforms seems to vary. It's often the centre of an element, but it may not be. You can change the origin by setting the transform-origin. (The z value has to be set in px, x and y can be set as a

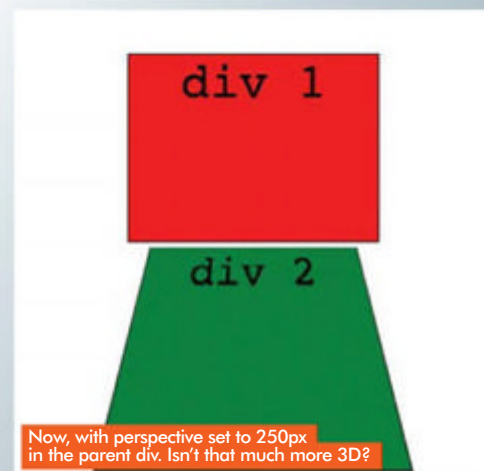
percentage, or as other standard CSS units. If you have a single object, it's easy to keep track of the origin. But if you have a scene full of objects that are all moving in 3D, it gets way more complicated, especially when you are working on applying 3D transforms to objects inside of other 3D objects.

FIND THE ORIGIN

The secret to finding the origin is to be ruthlessly methodical. Work out in detail exactly and precisely how your scene hangs together and how all the elements interact. It will save you lots of time if you need to change your work later.

The final confusing feature of 2D and 3D transforms are the matrix properties. You can specify all kinds of transforms with a single matrix transform, which takes a long list of numbers.

The matrix requires god-like maths geek skills. You won't be able to use it without knowledge of matrix



maths and a spreadsheet or JavaScript. Unfortunately it's the only way to create certain effects - as you'll see in the demo on the next page...

USING 3D WITH CSS ANIMATION

You can use 3D transforms in animations in the usual way, as long as you include browser prefixes for the animation code. The transforms don't seem to need it, but animation code does.

SET THE TRANSITION TIME

Let's extend the simple example to make it an on-hover effect. Remove the transform from the child div, and then add a transition property to set a transition time of 1s.

```
001 div {
002   ...
003   transition: transform 1s;
004 }
```

SET UP HOVER

Next, we add a hover statement to trigger the hover effect. This has to go on a separate line, because CSS is weird like that. When the user mouses over the div, the hover effect applies the transform.

```
001 div:hover#div2 { /*We'll put the transform
002   code here */ }
```

FLYING AWAY

Finally, we add transform code to create the effect. Any 3D CSS transform will work here. This example pushes the second div along the z axis to hide it underneath the first div.

```
001 div#div2:hover {transform: translateZ(-
002   1000px);}
002
```

DEFINE KEYFRAMED ANIMATIONS

You can add those too, but they're harder to work with. You must include browser prefixes, otherwise they won't work at all. But, you can define keyframes in the usual ways.

```
001 @keyframes zipper {
002   50% {transform: rotateX( 90deg )
003     rotateY(0deg);}
004   100% {transform: translateZ(-1000px);}
005 }
006 @-webkit-keyframes zipper {
007   50% {transform: rotateX( 90deg
008     ) rotateY(0deg);}
009   100% {transform: translateZ(-1000px);} }
```

RUN IT!

To run the animation, put the usual animation statements inside of the hover statement. Remember to add browser prefixes! We haven't included them all here to save space.

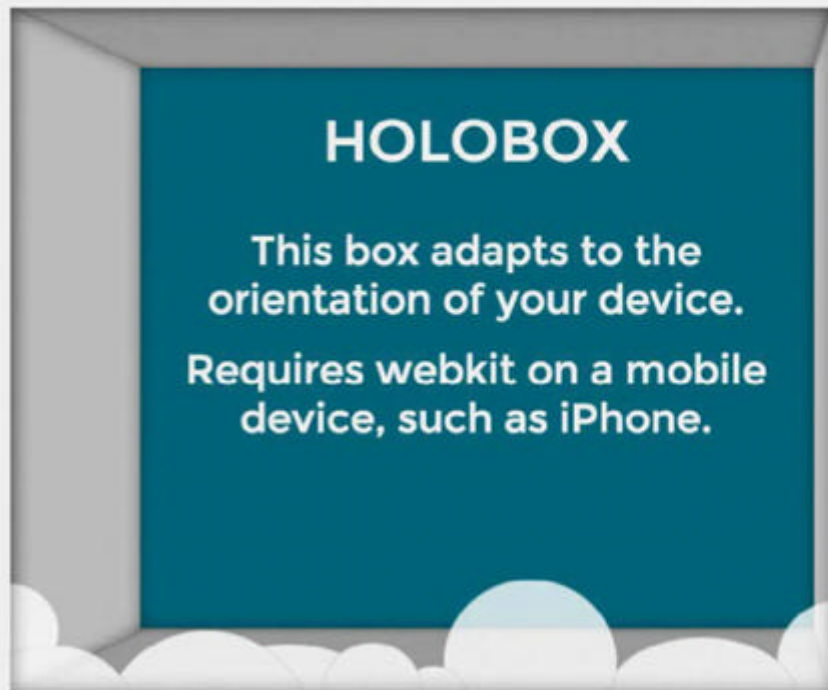
```
001
002 div:hover#div2 {
003   animation: zipper 5s;
004   -webkit-animation: zipper 5s;
005 }
006
007
```

FIX TRANSFORM PROBLEMS

The transforms should work in the usual way. Unfortunately hover has an issue with the fill-mode, so it doesn't stick at the end. To fix this, use JavaScript animation class swapping.

```
001 div#div2 {
002   ...
003   -webkit-animation-fill-mode: forwards;
004   animation-fill-mode: forwards;
005   /* This won't fix the hover problem.
006   You need.. JavaScript. Uh huh.*/
007 }
```

EXPERIMENTAL CSS 3D



hakim.se/experiments/css/holobox

The potential of CSS and 3D is massive. Make sure you check out the Holobox experiment in action to fully appreciate what can be achieved with CSS

BUILD AND ROTATE IN 3D

Spinning a 3D object is cool – here's how to do it

One of the aims of 3D is to create the illusion of a solid object. But there are three problems. The first is working out the geometry of your scene. You literally have to calculate the position of every element.

The other problem is setting up your scene so it's easy to animate. Making the right choices about parent and child relationships can make all the difference here. And don't forget you need to include a container to manage perspective.

The final problem is that there are assorted subtle CSS gotchas that affect perspective in unobvious ways. They are annoying, so we've tried to discuss them all.

BUILD OBJECTS IN 3D

SKETCH A CUBE

Cubes have six faces, so we'll use six elements. We'll create a div for each face, and put them inside a single container div with the id of 'cube'.

```
001 <body>
002   <div id="cube">
003     <div class="front">1</div>
004     <div class="back">2</div>
005     <div class="right">3</div>
006     <div class="left">4</div>
007     <div class="top">5</div>
008     <div class="bottom">6</div>
009   </div>
010 </body>
```

MORE CONTAINER!

We need to put all the above inside another invisible container so we can set the perspective. We'll define it up as a section to show you don't have to use a div.

```
001 <body>
002   <section class="container">
003     <div id="cube">
004       <div class="front">1</div>
005       <div class="back">2</div>
006       <div class="right">3</div>
007       <div class="left">4</div>
008       <div class="top">5</div>
009       <div class="bottom">6</div>
010     </div>
011   </section>
012 </body>
```

MAKE A CUBE

To make a cube we rotate/translate each face. Note how we rotate each face to point it in the right direction, then translate it to move it into place.

```
001 <style>
002 #cube .front {
003   transform: translateZ( 100px );
004 }
005 #cube .back {
006   transform: rotateX( -180deg ) translateZ(
007     100px );
008 }
009 #cube .right {
010   transform: rotateY( 90deg ) translateZ(
011     100px );
012 }
013 #cube .left {
014   transform: rotateY( -90deg ) translateZ(
015     100px );
016 }
017 #cube .bottom {
018   transform: rotateX( -90deg ) translateZ(
019     100px );
020 }
021 </style>
```

COLOUR IN

Let's add some colour. Using hsla for colours makes it easy to create a sequence of appealing and stylishly translucent shadings with copy, paste and editing.

```
001 #cube .front { background: hsla( 300,
002   100%, 50%, 0.7 ); }
003 #cube .back { background: hsla( 240,
004   100%, 50%, 0.7 ); }
005 #cube .right { background: hsla( 180,
006   100%, 50%, 0.7 ); }
007 #cube .left { background: hsla( 120,
008   100%, 50%, 0.7 ); }
009 #cube .top { background: hsla( 60, 100%,
010   50%, 0.7 ); }
011 #cube .bottom { background: hsla( 0, 100%,
012   50%, 0.7 ); }
```

SIZING OBJECTS

So far we have a cube with no sizes. Fix this by setting the sizes of the container, the cube div, and its faces.

```
001 .container {
002   width: 200px;
003   height: 200px;
004   position: relative;
005   margin: 0 auto 40px;
006   border: 1px solid #FFF;
007 }
008 #cube {
009   width: 100%;
010   height: 100%;
011   top: 100px; /* Offset from top of parent
012   */
```

```
013 position: absolute;
014 }
015 #cube div {
016   display: block;
017   position: absolute;
018   width: 200px;
019   height: 200px;
020   border: 2px solid black;
021 }
```

KEEP IT TOGETHER

You need to set the transform-style property to make sure 3D works properly. This is critically important when you're transforming a group of child items!

```
001 #cube {
002   ...
003   transform-style: preserve-3d; /*Keeps
004   all the faces together. */
005 }
```

SET PERSPECTIVE

Now we can set up perspective. If we move an object relative to its parent, we have to adjust the perspective to compensate and set 'margin 0 auto' on all faces.

```
001 .container {
002   ...
003   perspective: 1000px; /* A distant
004   vanishing point */
005   perspective-origin: 50% 100%; /*
006   Auto-offset perspective for child cube */
007 }
008 #cube div {
009   ...
010   margin: 0 auto; Magic word that fixes
011   perspective!
012   /* Without this the cube rotates around
013   one edge -> bad.. */
014 }
```

SET UP ON-HOVER

We want the cube to spin when we mouse over it, so we add a hover state with a 3D rotation. Spinning the cube automatically spins all of its faces.

```
001 #cube {
002   ...
003   transition: transform 1s;
004   /* Set the transition duration */
005 }
006 #cube:hover {
007   transform: rotateX( 180deg ) rotateY(0deg);
008   /* Edit the X and Y rotations to create
009   different end positions */
010 }
```

AND WE'RE DONE

Hovering over the cube rotates it and reveals the back face – edit the hover transform to show other faces.

CSS VS JS

Which is better? How do you choose which to use?

3D CSS is really designed to move elements in simple ways. Although you can build complex scenes with it, keeping all the elements moving in step can become very complicated.

JavaScript adds one big win - animation. JavaScript will make it possible for you to animate complex scenes. It's very easy to set up an animation timer too. You can then also create your own easing functions and it will then enable you to read and write the positions, sizes and rotations of objects. You can even create and destroy objects as and when you actually need them.

You can also find and copy transform helper functions off of the web. For example, check out this blog post written by Keith Clark about vertex data ([bit.ly/15xEVUZ](#)) for information on sample code and functions that make it easier to work with the transform matrix. It explains how much faster it is when compared to setting up continuous changes to separate transforms.

The downside to JavaScript is that CSS 3D transforms are very fast and efficient. If you use them with CSS animations, the browser does most of the work for you. Rolling your own features in JavaScript is of course more powerful, but it will also make your browser work that much harder. On desktop devices it could set the cooling fans whirring, and it will often hammer the battery on mobile devices.

So the rule of thumb here is to use CSS if you can, and JavaScript only if you really need to.

It's worth knowing that the 3D features built-in to CSS are the budget version of full-fat 3D. But there is an alternative technology called WebGL that can create true 3D renderings of objects in complex scenes, with texture and lighting effects. Unfortunately though, it's much harder to learn, and it's not quite standard yet, so browser compatibility is still a bit of an issue. But it's also a taste of the future, and a number of frameworks are helping to make it a reality or at least more accessible.



Clever use of textures can take you a long way. But you still need JavaScript for a full game

CSS VS JS A LITTLE EXTRA

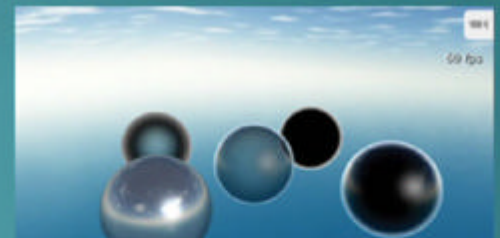
THREE.JS THREEJS.ORG

Three is the daddy of the 3D WebGL JavaScript frameworks. It offers endless cool stuff and plenty of gorgeous demos to admire, such as the Chrome-specific examples at [cabbi.bo](#). This is the framework to explore when you want to promote your 3D to the next league. It's a lot more complex than plain CSS, but you can do a lot with it.

The art of WebGL – practical 3D code in almost any browser available

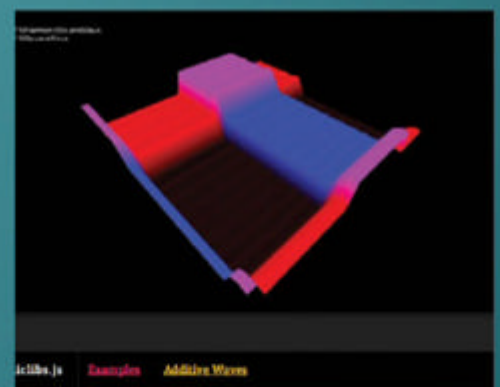
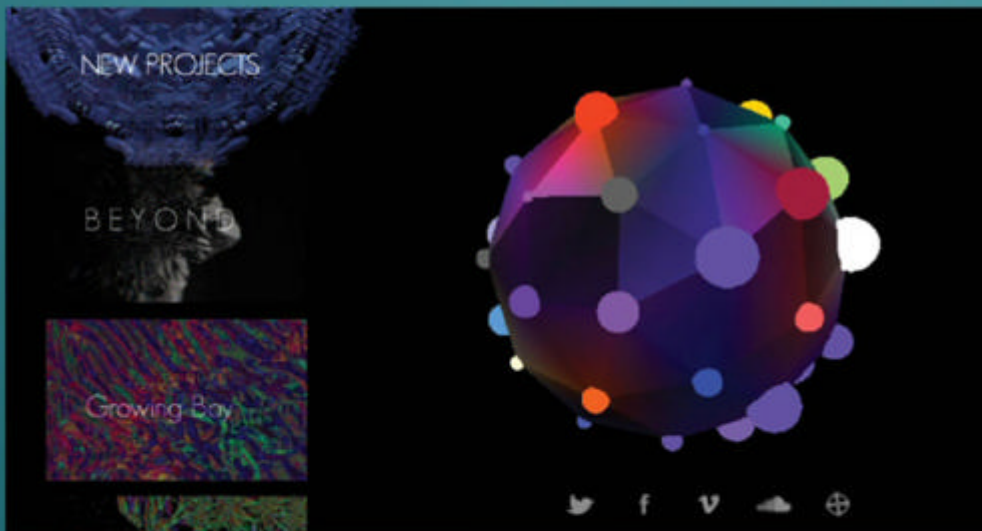
BABYLON.JS BABYLONJS.COM

A relative newcomer, Babylon offers many of the same features as [three.js](#). However, it makes it easier to create photorealistic lighting and reflection effects. Scene building remains immensely difficult, and you'll need at least some 3D experience. But if you can hack it - and if you know your shaders from your normals - it's an inspiring look into the future.



PROCESSING.JS PROCESSINGJS.ORG

Processing is better known as a standalone code library for doing cool things with colours, shapes and sounds. The JS version takes most of the core of Processing and makes it available in any browser. It's a general 2D/3D library, but it's perfect for creating complex interactive UIs of all kinds (and also for making generative art, if that's an interest).



THE FUTURE OF 3D

How far can 3D go? It will go as far as you want!

It's early days for 3D. For now, the web is still mostly a 2D document and image kind of a place. 3D CSS adds spice and seasoning, but most applications don't suffer if you leave it out.

Part of the problem has been the move from desktop to mobile devices. 3D on mobile devices is much faster than it was five years ago, but it still struggles to match the frame rates and complex models possible on non-mobile hardware.

What does this have to do with the web? Tech designers keep trying to push computing towards immersive 3D, but current hardware interfaces are too

bulky, clumsy, or slow to become popular. Virtual 3D effects like the ones offered by HP's expensive Zvr system - at CES2015 - hint at the future, but 3D won't be a standard feature until someone actually invents an effortless way to view and move around in a 3D world.

The graphics themselves have some way to go. Conventional 3D rendering can produce true photorealism, but even with fast hardware it can take hours to render a scene.

But WebGL throws away some of the realism for massive speed gains, and it's already on its way to

becoming a mainstream web technology. What happens then? The obvious answers are likely to be wrong. It's tempting to imagine that a shopping site would be improved if it appeared as a virtual mall, but in fact users want quick access to products and prices, and today's flat 2D catalogue-like presentation is ideal for that.

The likely answer is an avatar system that puts a photorealistic version of you in a photorealistic setting, perhaps with tactile feedback. Imagine trying on clothes or trying out furniture and getting a realistic visual and tactile preview. Now imagine the same technology being used for games and social interactions of all kinds.

You can see that the current version of 3D possible with CSS is just a start. Much more is possible, and the technology will be here sooner than you think.

3D tech isn't quite there yet for everyday use. But someday soon you'll be able to design for the 3D web!



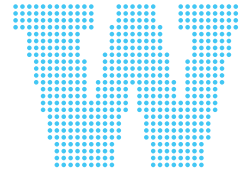
Create an interactive 360° scene in WebGL

Make panoramic explorable environments with the three.js WebGL library

tools | tech | trends Brackets, three.js
expert Mark Shufflebottom



DOWNLOAD TUTORIAL FILES
www.filesilo.co.uk/webdesigner



WebGL is growing in popularity as a rich graphics-rendering platform for the browser. It boasts real-time 3D graphics that are hardware

accelerated by the graphics card and is available on all major browsers, across all major platforms. Three.js is the original library for creating 3D content for the web and it is consistently updated. In this tutorial we will create a 360-degree panorama scene. To get around lower-specifications problems, prerender the scene in a 3D package and use a spherical map to add this to the sphere. Once mapped back onto a sphere, the spherical map will look like the real scene. There are cameras and lenses available that create this kind of spherical image for real-world photography. But we want users to be able to interact so we will create hotspots that show a tool tip when the user rolls over them. The tool tip will be a regular HTML div tag, styled up with CSS. JavaScript will detect the hotspot we are over and display the right content, switching the tool tip off when not over a hotspot.

01 Start the project

To begin, open up the start folder in Brackets or place it in your local web server folder and edit the index.html page in your code editor. Then, in the body section add the code shown below to start the project. We are going to have a tool tip called 'info'. Place a logo in the top-left corner and then render our WebGL scene into the container element.

```
001 <div id="info" class="hidden">Hello
World!</div>
002 <div id="logo"></div>
003 <div id="container"></div>
004
```

02 Style these elements

In the head section of the document, add the style tag as shown in the style rules. For the body we are making the background black, turning the margins off and setting any overflow content to hidden. The logo is being positioned over the top of the 3D content in the top-left of the screen.

```
001 body {
002   background-color: #000000;
003   margin: 0px;
004   overflow: hidden;
005 }
006 #logo{
007   position: absolute;
008   top: 0px; left: 0px;
009   width: 274px;
```

```
010 }
011
```

03 Style the tool tip

Let's style the tool tip up to just sit in the top-left of the screen for now, later we'll update this as the mouse moves so that it will end up following the mouse. We'll give it a slightly transparent, black background with a very small border radius on the corners. White text will finish off the tool tip.

```
001 #info {
002   position: absolute;
003   top: 0px; left: 0px;
004 }</nav>
005 background: rgba(0, 0, 0, 0.7);
006 border-radius: 2px;
007 color: #fff;
008 padding: 5px;
009 font-family:Arial;
010 font-size:18px;
011 text-align:center;
012 }
013
```

04 Hide and show the tool tip

We're creating two additional classes. These classes will turn the visibility of the tool tip on and off. By default we've set it to hidden here, but when we move our mouse over a 3D model we'll bring the tool tip back to show the user what the area of interest for them to be clicking on is. This will give us a tool tip that shows itself at the appropriate time.

```
001 .hidden{ visibility: hidden; }
002 .visible{ visibility: visible; }
003 </style>
004
```

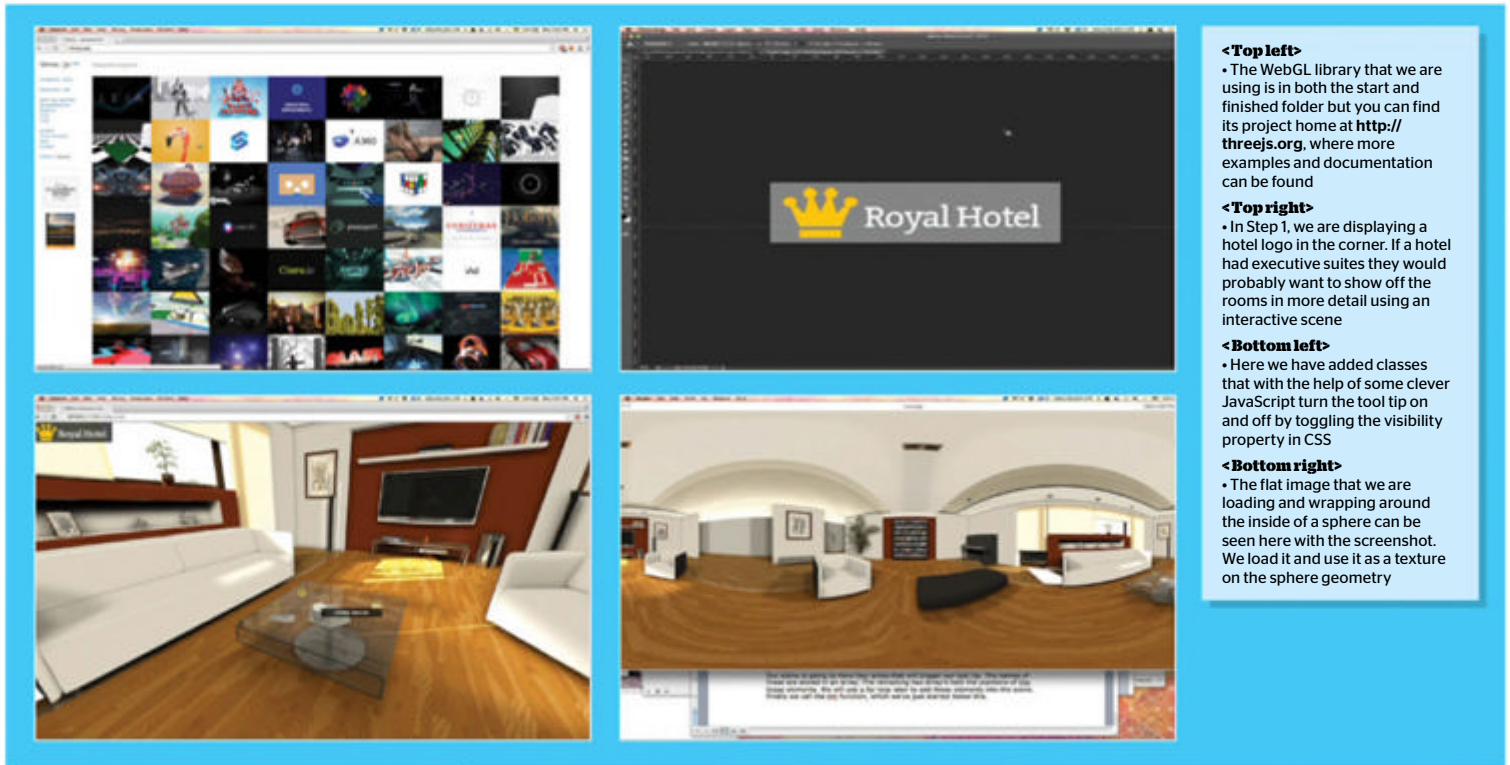
05 Start the code

Before the final body tag add the code shown below. Here we are linking to the three.js library then starting the variables that we will use in the project. All our remaining code in the steps to follow will be placed before the closing script tag. The variables are tracking the mouse position and looking after firing a ray into the scene from the position of the mouse.

```
001 <script src="js/three.min.js"></script>
002 <script>
003   var camera, scene, renderer;
004   var isUserInteracting = false,
onMouseDownMouseX = 0, onMouseDownMouseY =
0, lon = 0, onMouseDownLon = 0, lat = 0,
onMouseDownLat = 0, phi = 0, theta = 0;
005   var mouse = new THREE.Vector2(),
raycaster, INTERSECTED, hover = false, info;
006 </script>
007
```

06 Area of interest

Our scene is going to have four areas that will trigger our tool tip and the names of these will be stored in an array. The remaining two arrays will hold the positions of these elements. We will use a 'for' loop later so that these elements are added into the scene. Finally we call the init function.



<Top left>
 • The WebGL library that we are using is in both the start and finished folder but you can find its project home at <http://threejs.org>, where more examples and documentation can be found

<Top right>
 • In Step 1, we are displaying a hotel logo in the corner. If a hotel had executive suites they would probably want to show off the rooms in more detail using an interactive scene

<Bottom left>
 • Here we have added classes that with the help of some clever JavaScript turn the tool tip on and off by toggling the visibility property in CSS

<Bottom right>
 • The flat image that we are loading and wrapping around the inside of a sphere can be seen here with the screenshot. We load it and use it as a texture on the sphere geometry

Radians not angles

Computers take angular data as radians not angles - 360° is equal to $\pi \times 2$ as radians, so a full turn is roughly 3.28 as radians. It can be quite confusing if you are new to this!

07 Create the scene

Here we will move on to declaring some more variables that we will use in the init function. We also cache a reference to the info and container DOM element. We will then create a camera to look into our scene and then set this camera to look at the centre of the scene. Finally we will create a new scene to add all of our content to.

```
001 var container, mesh;
002 info = document.getElementById( 'info' );
003 container = document.getElementById(
'container' );
004 camera = new THREE.PerspectiveCamera( 75,
window.innerWidth / window.innerHeight, 1, 1100
);
005 camera.target = new THREE.Vector3( 0, 0, 0
);
006 scene = new THREE.Scene();
007
008
```

08 Make the room

Create a large sphere and turn it inside out by scaling it to -1 on the x axis. Then we create a material for this and load in the texture to display. Next add the geometry and the material together to create our 3D model, which is then added to the scene so that it is visible to the camera.

```
001 var geometry = new THREE.SphereGeometry(
500, 60, 40 );
002 geometry.applyMatrix( new THREE.Matrix4().
makeScale( -1, 1, 1 ) );
003 var material = new THREE.MeshBasicMaterial(
{ map: THREE.ImageUtils.loadTexture( 'img/room.
jpg' ) } );
004 mesh = new THREE.Mesh( geometry, material
);
005 scene.add( mesh );
006
```

09 Create another sphere

Add more spheres to the edge of our first sphere. These will give us hotspots that we can hover the mouse over and get information. Then reuse the variable's geometry and material to create our new sized spheres. Now we use a 'for' loop to loop through the names in our array. Each sphere is given a unique name and made invisible so we get invisible hotspots.

10 Position each sphere

Use the array of pos1 and pos2 to position our spheres at different places over the edge of our first sphere, which contains the room image. We are using

mathematical functions of sin and cos to position the hotspots out from the centre of the scene and onto the room image sphere.

```
001 var phi2 = Math.acos( pos1[i] );
002 var theta2 = Math.sqrt( Math.PI ) *
pos2[i];
003 mesh.position.x = 530 * Math.cos( theta2
) * Math.sin( phi2 );
004 mesh.position.y = 530 * Math.sin( theta2
) * Math.sin( phi2 );
005 mesh.position.z = 530 * Math.cos( phi2
);
006 }
```

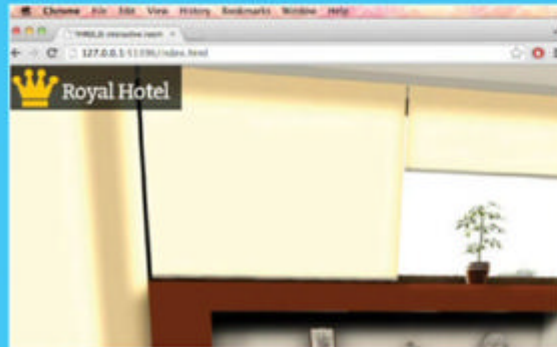
11 Render the scene

Now set up WebGL to render our 3D scene. The size of this is set to the inside dimensions of our browser. The container div gets this renderer added to it. Next we set an important variable, which is the raycaster. This fires an invisible ray into the scene from the position of the mouse and tells us which models are under it.

12 Event Listeners

We need to control what happens when the mouse moves or when the mouse is pressed and released. For this we add event listeners, which listen to these user interactions. We will add one more listener, this is the resize event and handles what happens when the browser window is resized.

```
001 document.addEventListener( 'mousedown',
onDocumentMouseDown, false );
```

<Top left>

• In this step we add spheres as hotspots into the scene. In this screenshot we have left the visibility of the models on so that you can see the hotspots, however we turn them off and use them as hit areas only in the final project

<Top right>

• We have enabled the browser to be resized by updating the render size and the aspect ratio of the camera as the window changes. This also lets our 3D scene be responsive



<Bottom left>

• If the user clicks in the scene and drags with their mouse they can change the angle of viewing the scene. This enables a full 360-degree view of the room

<Bottom right>

• When the user puts their mouse over a hotspot, a ray is sent into the scene bringing back an array of the objects under the mouse. Depending which object it is, we bring up the appropriate tool tip

Array variables

Array variables are best to think of as lists of useful information. We usually use a 'for' loop to iterate through all of the elements in the list and do something with them.

```
002 document.addEventListener( 'mousemove',
onDocumentMouseMove, false );
003 document.addEventListener( 'mouseup',
onDocumentMouseUp, false );
004 window.addEventListener( 'resize',
onWindowResize, false );
005 animate();
006 }
007
```

13 Resize the window

If the browser window is resized by the user, we listen to that event and then we update the way our scene displays because of that. Grab the inner width and height of the browser window and then update the camera's aspect ratio. Finally, change the size of our renderer as well.

```
001 function onWindowResize() {
002 camera.aspect = window.innerWidth /
window.innerHeight;
003 camera.updateProjectionMatrix();
004 renderer.setSize( window.innerWidth,
window.innerHeight );
```

```
005 }
006
```

14 Press the mouse

When the mouse is pressed there are a few things that we want to do. The first is to stop the default event from propagating. We set the `isUserInteracting` flag to true and record the mouse's x and y position ready to update our display in the browser as the mouse drags the scene around.

```
001 function onDocumentMouseDown( event ) {
002 event.preventDefault();
003 isUserInteracting = true;
004 onPointerDownPointerX = event.clientX;
005 onPointerDownPointerY = event.clientY;
006 onPointerDownLon = lon;
007 onPointerDownLat = lat;
008 }
009
```

15 Move the scene

When the mouse moves around we want to detect if the user has pressed the mouse, if they have then the `isUserInteracting` variable will be true. Update the longitude and latitude variables (these will be based on the mouse position) and then we can move the scene. We also set the tool tip to follow the mouse.

```
001 function onDocumentMouseMove( event ) {
002 if ( isUserInteracting === true ) {
003 lon = ( onPointerDownPointerX - event.
clientX ) * 0.1 + onPointerDownLon;
```

```
004 lat = ( event.clientY -
005 onPointerDownPointerY ) * 0.1 +
006 onPointerDownLat;
007 }
008 mouse.x = ( event.clientX / window.
innerWidth ) * 2 - 1;
009 mouse.y = - ( event.clientY / window.
innerHeight ) * 2 + 1;
010 info.style.top = event.clientY - 50
+"px";
011 info.style.left = event.clientX + 20 +
"px";
012 }
```

16 Mouse released

When the user releases the mouse we tell the `isUserInteracting` variable to be false so that the scene doesn't update and change. At this point we run our `animate` function this gets called 60 times per second and runs the update function which updates the scene.

```
001 function onDocumentMouseUp( event ) {
002 isUserInteracting = false;
003 }
004 function animate() {
005 requestAnimationFrame( animate );
006 update();
007 }
008
```

17 Update the display

Let's create the update function, now. Check if the user is hovering over a hotspot or if they're interacting



<Top left>

• When the user rolls off an object we make the tool tip disappear again. The scene automatically rotates by itself, but the user can also rotate the scene, by clicking and dragging



Creating the room

The room image is created in a very specific way in order for it to render correctly, by wrapping it around a sphere. From the start folder, view the img folder and you will see the image room.jpg inside. Open this image in Photoshop to view the flat image. The image was rendered by Cinema 4D from a model of a 3D scene. We use this flat image in WebGL when we want a scene to look better than what the 3D renderer can actually create by loading the model.

This image alone took 22 minutes to render, which isn't exactly real-time. To get this image we add a sphere to the centre of our scene and set its reflections to full. We then render the texture from the sphere and as it is receiving the full reflections of the room, we end up with a spherical map of the room that we can then use in WebGL.

with the scene. If it's the latter, update the scene, otherwise set the scene to slowly rotate.

```
001 function update() {
002   if ( hover == true || isUserInteracting == true ) {
003     lon = lon;
004   }else{
005     lon += 0.05;
006   }
007   lat = Math.max( - 85, Math.min( 85, lat ) );
008   phi = THREE.Math.degToRad( 90 - lat );
009   theta = THREE.Math.degToRad( lon );
010 }
```

18 Update the camera target

Change the camera target so that it rotates around the circumference of the sphere with the room image mapped onto it. This means that the camera stays still in the centre while the target rotates around the centre point. If the user drags the scene, these values change and the camera looks at the new position.

```
001 camera.target.x = 500 * Math.sin( phi ) * Math.cos( theta );
002 camera.target.y = 500 * Math.cos( phi );
003 camera.target.z = 500 * Math.sin( phi ) * Math.sin( theta );
004 camera.lookAt( camera.target );
005 }
```

19 Shoot rays

Next, shoot a ray into the scene from the the mouse's x and y position from the point of view of the camera. Then check to see if the ray intersects any objects in the scene. This will make our 'intersects' array contain a list of all models under the mouse.

```
001 var vector = new THREE.Vector3( mouse.x, mouse.y, 1 ).unproject( camera );
002 raycaster.set( camera.position, vector.sub( camera.position ).normalize() );
003 var intersects = raycaster.intersectObjects( scene.children );
004 if ( intersects.length > 0 ) {
```

20 Under the mouse

We named all of our hotspots earlier in Steps 6 and 9. Here we are checking to see if the hotspot named 'ent' is below the mouse. If it is, then we turn the visibility of the tool tip on and set the text of the tool tip to give relevant information. We also set our hover variable to true to stop the scene automatically spinning.

```
001 if ( INTERSECTED != intersects[ 0 ].object ) {
002   INTERSECTED = intersects[ 0 ].object;
003   if ( INTERSECTED.name == "ent"){
004     hover = true;
004     info.innerHTML = "Entertainment System";
005     info.classList.remove('hidden');
006     info.classList.add('visible');
```

```
007   }
008 }
```

21 Check other objects

Using the same principle as in the previous step we detect if the model hotspot under our mouse is the piano or the table. For each of these we set the text in the hotspot to display the correct name and set the hotspot to be visible. This is repetitive but necessary.

```
001 else if ( INTERSECTED.name == "piano"){
002   hover = true;
003   info.innerHTML = "Piano";
004   info.classList.remove('hidden');
005   info.classList.add('visible');
006 } else if ( INTERSECTED.name == "table"){
007   hover = true;
008   info.innerHTML = "Drinks Service";
009   info.classList.remove('hidden');
010   info.classList.add('visible');
011 }
```

22 Finish off the project

Check if the library is under the mouse and change the tool tip for that. Our final else statement just detects none of the hotspots and therefore turns the tool tip off. The very final part is to update the display on the screen. Save the document and check it in your browser from a web server.

web workshop

Build fading menus and floating panels

inspiration www.giacomorelli.com



Navigation is a key area of any website and it empowers the users to be able to move from one area to the next. A lot of time on any design project goes into working out the best way to enable this to happen, and often, designers are coming up with new ways

to push the boundaries of interaction or to leave users with a novel way of

browsing content. Giacomorelli's site uses a unique navigation menu with floating panels that are not immediately obvious as menus. These panels move around in a sort of parallax fashion as the mouse moves and highlight when the mouse rolls over them, giving the site a unique way of navigating.

Moving menus

If you are planning on adding a menu that has any sort of movement, particularly movement based on the mouse's position, then you need to ensure that the menu isn't too difficult to click on the links. Otherwise this will frustrate the user.

1 INSPIRATION

Not so obvious

When employing a unique navigation system like that used on Giacomorelli.com site, it's often important to have a regular way of navigating. It isn't immediately obvious that the floating panels are navigation elements, in fact it's actually only the text on the panels that are the links, so even clicking the panel will not get the user to any pages.

Because of this, the Giacomorelli site has a more traditional burger icon in the top, left-hand corner of the site and clicking on this enables a menu to overlay over the whole screen. This provides the user with an elegant and more familiar alternative to browsing the site if they wish to use it.

AW 2014

GIACOMORELLI

LOOKS FOR AUTUMN WINTER 14/15

COLLECTION

SS 2015

PREVIEW THEME

GIACOMO MORELLI

DIRECTOR

BRAND ID

1

2

3

Hovering panels
Around the edge of the screen are a number of floating panels as the user moves their mouse, the panels move around the screen and come into focus towards the centre.

Accessible menu icon
A regular burger menu icon appears in the top-left of the screen so that anyone who wants to get straight to the links can do so without the distraction and excitement of the panels.

Clear overlay
Clicking on the burger icon will bring up a large overlay panel onto the screen that makes the interface into a menu that is very large and easy to use.

Eye-catching photos
The panels themselves are not actually links though they do highlight when the user rolls over them. They catch the user's eye and brings them to the user's attention.

Link effects
Inside each panel is a text link that takes the user to the appropriate area of the site. These links also highlight with a strike through them on rollover of the text.



<comment>
What our experts think of the site

Reflective and complex

“The Giacomorelli site is the home of Italian designer Giacomo Morelli. For the website we strived to make a design as unique as his creations; each web page is designed and programmed using structures different from each other, creating a new user experience in tune with the mood of the brand.”

Michi Del Rosso, creative director and visual artist

3

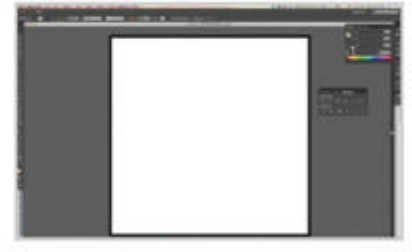
TECHNIQUE

Concentric shapes

The sites uses very little in the way of graphics besides photography, but there are some concentric rectangle shapes. Here we show an easy way to create concentric shapes in Illustrator.

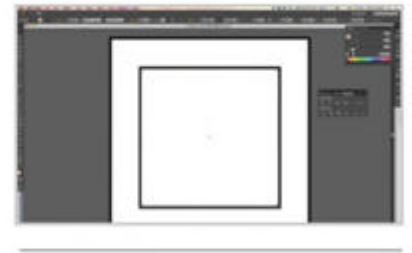
01 Create the basic shape

Create a new document that is 40 by 40 pixels. Choose no fill and black for the stroke with 0.5pt stroke. Now draw a square the size of the document to get our outer shape of the concentric rectangles.



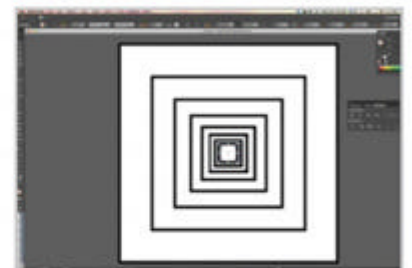
02 First duplicate

With the rectangle selected, choose the scale tool and start to drag towards the middle to create a preview of the scaled rectangle. While still dragging, hold down the Alt key and as you get to about 70 per cent of the original size, let go to create a duplicate shape.



03 Clone and scale

To finish the effect all you have to do now is press Cmd/Ctrl+D to reproduce the last transformation over and over. As you produce each one it will be a copy of the one selected, reduced to 70 per cent of the original size.



2

TECHNIQUE

Create the fading menu

01 Style the html

We are going to start by adding the CSS that we need for the menu. First we create a navigation style, which will be the hamburger menu icon, and this will become a close button when the menu opens. The panel is the panel in the middle of the screen.

02 Further styling

Now we create the style for the menu overlay panel that will be brought in over the top of the panel. We set the background of this to white, then we set a class called hidden, which will ensure that the menu is hidden until the hamburger is pressed.

```
001 #overlay{
002 width: 100%;
003 height: 600px;
004 background: #fff;
005 }
006 .hidden{
007 display: none;
008 }
009 </style>
```

03 Set the body

Now move into the body tag and we add the page structure. This has the nav element, which will hold the burger menu. The panel is here with the overlay element inside and this will have the actual menu links. The overlay will then appear when the burger is pressed.

```
001<nav id="show"></nav>
002 <container id="panel">
003 <div id="overlay" class="hidden">
004 <ul>
005 <li><a href="#">Menu Item 1</a></li>
006 <li><a href="#">Menu Item 2</a></li>
007 <li><a href="#">Menu Item 3</a></li>
008 <li><a href="#">Menu Item 4</a></li>
009 <li><a href="#">Menu Item 5</a></li>
010 </ul>
011 </div>
012 </container>
013
```

04 Add the functionality

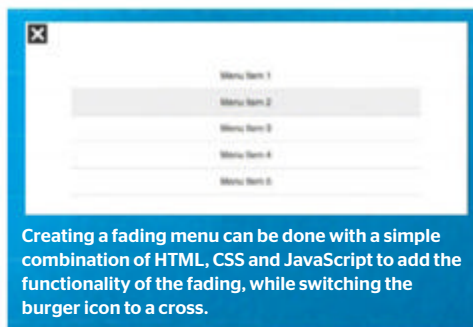
Before the closing body tag add the following code, which adds a link to the jQuery library. We then open a script tag below this and have a document ready function. We store our DOM id elements in a variable and set up the click listener.

```
001<script src="jquery.js"></script>
002 <script>
003 $(function() {
004 var overlay = $("#overlay");
005 var menu = $("#show");
006 var open=false;
007 menu.click(function(){`
```

05 Fade in and out

Here we test if the menu is open or not. If it is then we make the menu fade out and turn the menu back to a burger icon. If the menu is not open then we fade the menu in and change the burger icon to a closing cross icon. Save and test in the browser.


```
001if(open){
002 menu.css("background-
003 position", "0 0");
004 overlay. fadeOut();
005 open=false;
006 }else{
007 menu.css("background-position",
008 "-50px 0");
009 overlay. fadeIn();
010 open=true;
011 }
012 }</script>
```



Set up your own grid system using CSS

Learn how to build your own simple, responsive grid for custom layouts

tools | tech | trends HTML, CSS
expert Neil Pearce



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SS grids have been around for quite a long time - often they come bundled in frameworks such as Bootstrap, Foundation and Skeleton. These bundled frameworks are great, but

sometimes using a framework can be overkill if all you really need is a simple grid. The vast majority of websites today use a grid. These websites may not intentionally have a grid system in place, but if they have a main content area floated to the left and a sidebar floated to the right, then we have a simple but effective grid.

If a more complex layout is needed, then people tend to reach for a ready-made framework just like the ones that we've already mentioned above. But CSS grids are not difficult to create and anyone with a basic understanding of CSS could easily be able to create their own custom grid system. That is exactly what we're going to do in this tutorial. As you'll see later on, it's not hard or complicated and even making them responsive is no big deal. So open up your favourite text editor and let's create our own responsive CSS grid system.

01 Get started

Open up a new HTML file in your favourite text editor. Once all the meta information and link to an empty CSS file is added, we're going to add in a grid wrapper and call it 'grid-container' with an additional class called 'outline', which we will use to add some outlines to our columns.

```
001 <div class="grid-container outline">
002 </div><!-- END of grid row -->
```

02 Use rows

Inside our grid container, we're going to add in another div with a class name of 'row'. This is going to be a generic class name and we will be using it a few times throughout our grid system. This particular row will be holding four columns and it wouldn't hurt to add a class name called 'column_four' for future reference, but we won't be using it for any styling purposes.

```
001 <div class="grid-container outline">
002 <div class="row column_six">
003 </div> <!-- end of row -->
004 </div><!-- END of grid row
```

03 Add the four columns

Inside the first 'row column_four' div, add in four other classes called 'col-1'. These will be our four columns that will span across the top of our page. Inside these we will have text content, so put in <p> tags within the divs.

```
001 <div class="col-1"><p></p></div>
002 <div class="col-1"><p></p></div>
```

```
003 <div class="col-1"><p></p></div>
004 <div class="col-1"><p></p></div>
```

04 Add three columns

Now add in a new row with only three columns within. Again let's give our row an additional class name of 'column_three', which will help us so that when we do look at the HTML, we can understand things better. These columns will sit underneath our top six columns and we will give these columns a class name of 'col-2'.

```
001 <div class="row column_three">
002 <div class="col-2"><p></p></div>
003 <div class="col-2"><p></p></div>
004 <div class="col-2"><p></p></div>
005 </div> <!-- end of row -->
```

05 Add a two-column footer

The last section of our grid will include only two columns that will be positioned at the very bottom of our page as a two-column footer. Again we will give them a different class name of 'col-3' as these will be our third and final set of columns, and add in the <p> tags. That's it for the HTML, let's move on to the CSS.

```
001 <div class="row column_two">
002 <div class="col-3"><p></p></div>
003 <div class="col-3"><p></p></div>
004 </div> <!-- end of row
```

06 Type in content

Before we start writing some CSS, we need to first put some content into our columns. So to keep things

super simple, copy and paste some Lorem Ipsum dummy text. However there's nothing stopping you adding your own content here. Just remember to also add some to the other columns (col-2, col-3).

```
001 <div class="col-1"><p>col-1 Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s</p></div>
```

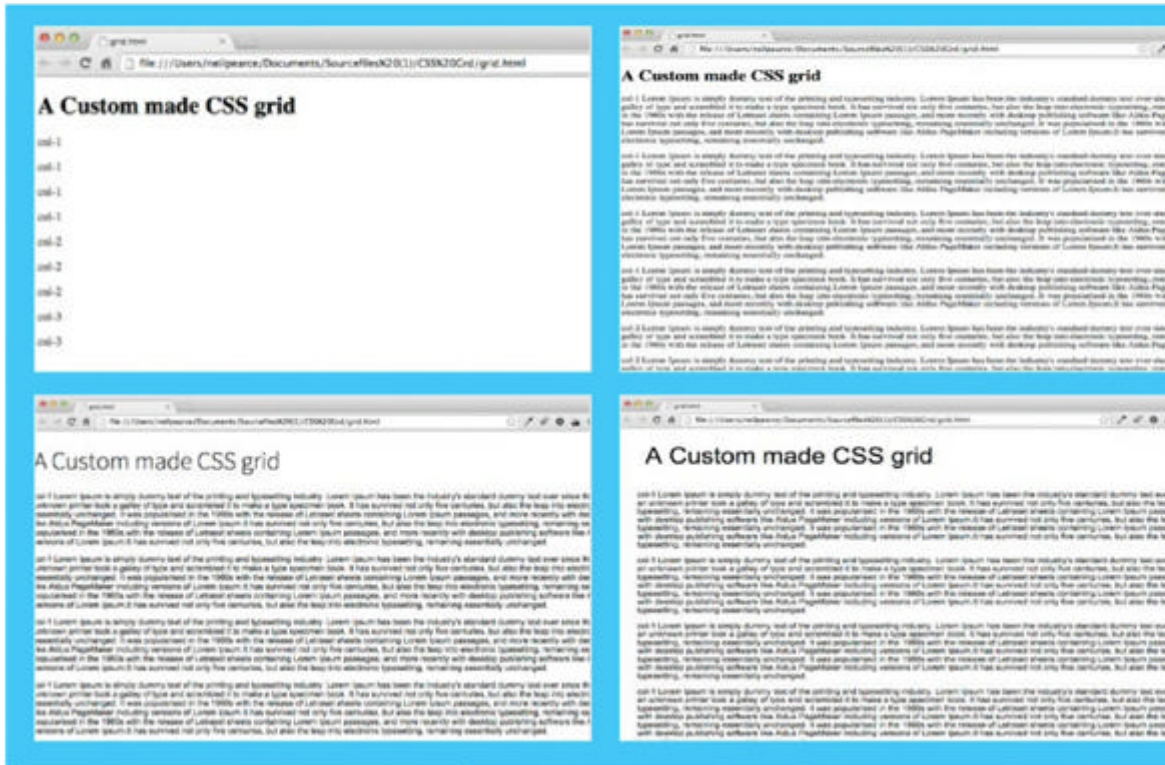
```
002 <div class="col-1"><p>col-1 Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s</p></div>
```

```
003 <div class="col-1"><p>col-1 Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s</p></div>
```

```
004 <div class="col-1"><p>col-1 Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s</p></div>
```

07 Add the CSS

Go ahead and create a new CSS file and call it 'grid.css' and place it in its own folder called 'CSS'. As with most projects you start, the first piece of CSS you add will be a CSS reset. We're not going to go into the specifics here, but taking a quick look at the CSS rules should give you a good idea of what's going on.



<Top left>
 • The grid is not looking all that clear at the moment, but we only have the bare bones of our grid

<Top right>
 • With the content now added we can see things taking shape. Now it's time to move on to the CSS

<Bottom left>
 • Now that we have the CSS reset added and some body styles, we can move on to actually styling the columns

<Bottom right>
 • With the CSS now added to the grid container, and the clear fix rule added, we can see things taking shape

The outline property

The outline shorthand property sets all the outline properties in one declaration. The `outline-color`, `outline-style` and `outline-width` can all be set.

```
001 h1,h2,h3, body {
002   font-family: 'Source Sans Pro';
003   font-weight:300;
004 }
005 h1 { font-size: 3em; }
006 h2 { color:#2c2f36; font-size:2em; margin-bottom: 15px; }
007 html, body {
008   width: 100%;
009   padding: 0;
010   margin: 0;
011   height: 100%;
012   min-width: 100%;
013   max-width: 100%;
014   overflow: hidden;
015 }
016 a {
017   color: #888;
018   text-decoration: none;
019 }
020
```

08 Box layout model
 One of the frustrating things about layout in CSS is the relationship of width and padding. After carefully defining your widths to match your grid, you then start getting issues when you start adding in text. So now you are subtracting pixels from your original width so the box doesn't expand, which is something we don't want to be doing. So adding the box-sizing property to all elements will give you the box model that you actually want.

```
001 *, *:after, *:before {
002   -webkit-box-sizing: border-box;
003   -moz-box-sizing: border-box;
004   box-sizing: border-box;
005 }
006
```

09 Change body styles
 In this simple step, we will add some styling to the font and the page background. We will keep things simple and choose an Arial font. The font colour will be black and we will make the page background white. Having it nice and simple like this will make it easier for us to see the gutters and outlines, which we'll take a closer look at in a later step.

```
001 body {
002   font-family: Arial, sans-serif;
003   color: #000;
004   background: #fff;
005 }
006
```

10 Get the width for the container
 The purpose of the container is to set the width of the entire grid. The width of the container is generally 100%, but you might want to set a max-width for larger displays. A good maximum width to set is 1200px, but that's entirely up to you. And then we will centre the grid using the good old margin autotricks.

```
001 .grid-container{
002   width: 100%;
003   max-width: 1200px;
004   margin: 0 auto;
005 }
```

11 Utilise the clearfix hack
 The main purpose of the row element is to keep the columns that are inside it from overflowing onto other rows. To make sure this is achieved on older browsers, we'll use the clearfix hack to make sure everything inside the row stays inside the row.

```
001 /*-- our clearfix hack -- */
002 .row:before,
003 .row:after {
004   content: "";
005   display: table ;
006   clear:both;
007 }
```

12 Position columns
 There are many ways to position columns using CSS. But the most common way is to use floats. So by targeting all classes with a substring on col, we can target

Set up your own grid system using CSS



- <Top left>**
 - Now we target all the p tags within our columns and give them default styles as well as 15 pixel padding to make a gutter
- <Top right>**
 - With the column widths now added, we can see the grid taking shape with the columns positioned nicely
- <Bottom left>**
 - We have now added in our outlines to show the grid in a nice visual way
- <Bottom right>**
 - In this step, we will target all the paragraph tags again and align all the text and remove any margins or padding

[class*="col-"]
 To apply CSS to a group of classes, you can use [class*="col-"] to select any element contains at least one occurrence of 'col-'

all our columns and float them left. To prevent them from stacking on top of each other, we will also give them a min-height of 1px and a 15px width gutter using padding.

```
001 [class*='col-'] {
002   float: left;
003   min-height: 1px;
004   /*-- our gutter -- */
005   padding: 15px;
006 }
```

13 Set the column widths
 To find the width of our columns, divide the total number of columns by the width of our container. In our case, the width of the container is 100 per cent, and we want four columns to begin with, so 100 divided by four is 25 - our base column width (which will be col-1) is 25%.

```
001 /* Columns widths */
002 .col-1{ width: 25%;}
```

14 Column widths continued
 Having now figured out how to calculate the first set of columns, we can now use that formula to work out

the rest. We only want three columns in col-2 so we need to divide 100 by three, and you get 33.33. We will carry on until we get to 100%, and to make things easier for us in case we needed to add more columns later, we will add an additional two classes for col-4, and col-5.

```
001 .col-2{ width: 33.33%;}
002 .col-3{ width: 50%;}
003 .col-4{ width: 83.33%;}
004 .col-5{ width: 100%;}
```

15 Column outlines
 To make things easier for us visually, we can add a 1px solid outline around all our columns, by targeting the outline class we added to the first row and using the outline property. This is really handy and will enable us to see both the main element and the padding.

```
001 .outline, .outline *{
002   outline: 1px solid #ddd;
003 }
```

16 Paragraph styles
 Now to complete our grid, we will target all the 'p' tags within our columns and give them some default styles. So firstly we will remove any margin and padding and then we will centre the text. Lastly we will set the font colour to black using the 'black' keyword. So that's our grid now completed.

```
001 [class*='col-'] > p {
002   padding: 0;
003   margin: 0;
```

```
004 text-align: center;
005 color: black;
006 }
007
```

17 Responsive columns
 Adjusting our grid for mobile devices is pretty easy. All we need to do is adjust the widths of the columns. The only thing we need to be careful of is the last column in the row. This may want to hang off the end and to counter this, we'll make the last .col-2 and .col-1 in the row 100% wide.

```
001 @media all and (max-width:800px){
002   .col-1{ width: 33.33%; }
003   .col-2{ width: 50%; }
004   .col-3{ width: 83.33%; }
005   .col-4{ width: 100%; }
006   .col-5{ width: 100%; }
007   .row .col-2:last-of-type{
008     width: 100%;
009 }
010   .row .col-5 ~ .col-1{
011     width: 100%;
012 }
013 }
014
```

18 Optimise for smaller screens
 To finish off our responsive grid, we will target smaller devices. For this we will make all the columns 100% except for the first column. There won't be any positioning problems with our columns at this width, so

there will be no need to add any additional CSS to counter anything.

```
001 @media all and (max-width:650px){
002   .col-1{ width: 50%;   }
003   .col-2{ width: 100%;  }
004   .col-3{ width: 100%;  }
005   .col-4{ width: 100%;  }
006 }
007
```

19 Add more columns

Just so we can see how easy it is to configure our grid, we're going to add two additional columns to the top half of our grid, and fill them with some dummy text. So now that we have six columns spanning the page, we now need to make some adjustments to our CSS, which we will do in the next step.

```
001 <div class="col-1"><p>col-1 Lorem Ipsum
is simply dummy text of the printing and
typesetting industry. Lorem Ipsum has been the
industry's standard dummy text ever since the
1500s</p></div>
002 <div class="col-1"><p>col-1 Lorem Ipsum
is simply dummy text of the printing and
```

typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s</p></div>

20 Adjust the column widths

Just like before, we need to do some simple calculations based upon the amount of columns we now have. Now that we have six columns, we need to divide 100 by 6, which now gives us 16.66. So within the col-1 selector, we need to change the width to 16.66%. So that's how easy it is to make adjustments to our grid.

```
001 .col-1 { width: 16.66%; }
002 .col-2 {width: 33.33%; }
003 .col-3 {width: 50%; }
004 .col-4 {width: 66.66%;}
005 .col-5 {width: 83.33%;}
006 .col-6 {width: 100%;}
```

21 Final thoughts

Throughout this tutorial we have only created a basic grid. It is not a framework or a complete solution, but rather a starting point for creating your own CSS grid system. A grid system, however, is not for everyone, but creating your own will certainly help you decide if a grid is what you need.



The box-sizing property

Throughout this tutorial we used the box-sizing property, and to get a better understanding of this property, we will take a closer look at what it does. The box-sizing property is used to tell the browser what the sizing properties (width and height) should include. The CSS Box Model used to calculate widths

and heights of all elements isn't ideal. It's not broken, but it doesn't always play nicely within some browsers. So we use this property to emulate the behaviour of browsers that do not correctly support the CSS box model specification.

The default to this property is 'box-sizing: content-box;', but in this tutorial we used the value

'border-box'. This makes the final rendered box the declared width and height, and any border and padding will cut inside the box and now we can safely declare our content boxes to be of 100 per cent width, including pixel-based padding and border and accomplish what we had originally set out to do without having to worry.

web workshop

Make navigation boxes pop out on hover

inspiration bit.ly/1qAk0Er

There's nothing new about giving your navigation elements some sort of hover effect. The advent of CSS3 simply gave us more effects to utilise, rather than any new ways to use the hovering act itself. But that's not to say that there aren't options for giving our navigation hover effects more function, as well as more gimmicks. What

we're looking to do in this web workshop is to have a series of image-based navigation links with two completely separate hover effects. The first is a simple colour change of the border, but the second is a pop-out tooltip box with some info about the link itself. Let's look at the inspiration for this effect.

Content Delivery

This web page is well-thought-out and makes large amounts of dry information both accessible and entertaining. Bite-size chunks of content, delivered in a variety of interactive ways, can make the experience more palatable than overwhelming, bombarding text.

1 INSPIRATION Impressive infosites

The Guardian website has flourished in recent years and is home to a wide variety of well-designed blogs and infosites. None of these are more impressive than the recently published The Story of Palm Oil in the Sustainable Business section.

This one-page, scrolling, infospot tells the story of palm oil and its wide use in everyday products, using a series of animations, interactive charts and a drag-and-drop survey point. It features the image-based navigation we will be replicating and is a remarkable example of simple storytelling in an HTML environment. Hats off to the designers Nice and Serious!

1 **Full background**
Each of the seven sections has a neat, full-width video background to introduce it. The faded blue tone on each of them gives the projects a subtle but striking effect.

2 **Moving SVGs**
We will use PNGs for our navigation icons, but on the infosite they are animated SVG images, featuring movement on hover to add to the border colour change.

3 **Info slider**
Click on the Plantation section to see an animated map, which has an interactive slider illustrating the growth of palm oil production by country since 1964.

Visualised statistics
The Business section has a series of interactive pie charts, detailing individual companies and their use of sustainable palm oil. Hovering on each chart expands that area of the pie and opens up an informative tooltip.

Powerful endnote
Head down to the bottom of the page to see a real-time calculation of how long you have spent on the site and how much rainforest has been destroyed in that time.



<comment>
What our
experts think
of the site

Add a level of interactivity to your site

"Interactivity is quickly becoming the way forward in web design and development. Site users are more engaged when they have more to do than simply sit and read. Delivery of information in rewarding ways, enabling the user to feel control over the content, enhances experiences."

Richard Lamb

2

TECHNIQUE

Build the initial navigation

01 Structure the page

Our page will be constructed around two distinct areas, a fixed navigation column on the left (#navbar) and the main page area on the right (#main). Within the navbar div, place an unordered list with six empty list elements. In the main div we can put the page title.

```
001 <body>
002   <div id="navbar">
003     <ul>
004       <li></li>
005       ...
006     </ul>
007   </div>
008   <div id="main">
009     <h1>Do Something!</h1>
010   </div>
011 </body>
```

02 Write the body CSS

We are focusing on the navigation elements in this workshop, rather than any page sections, so give the body of our site a fullscreen image background.

```
001 body {
002   font-family: 'Open Sans', sans-serif;
003   font-size: 12px;
004   background: url('images/bg.jpg')
no-repeat 50% 50% fixed;
005   background-size: cover;
006   margin: 0;
007 }
```

03 Continue to the section CSS

We want our navigation column to have a fixed position and occupy the height of the page it sits in. We also want to give it a fixed width, 100px in this case, which we will match with the left padding of the main div area. This is a layout that would need to be readjusted for smaller screens.

```
001 #navbar {
002   width: 100px;
```

```
003   height: 100%;
004   position: fixed;
005   background-color: #369;
006 }
007 #main {
008   padding-left: 100px;
009 }
```

04 Place navigation icons

You will need six PNG icons to use for your navigation elements. Ours have been obtained from [icomoon.io](#), all connected with a type of activity. Place each icon within an <a> link, within each list element. There are six in all, as with the example below. Add the CSS for the unordered list, setting it tidily within the navigation column.

```
001 <li>
002   <a href="#">
003     
004   </a>
005 </li>
006 ul {
007   list-style-type: none;
008   padding-left: 17px;
009   margin-top: 50px;
010 }
```

05 Style the nav elements

Now we can apply the styling needed to arrange them. Each should be given a circular border-radius and base colour for the border. Width and height can be fixed, with padding and text-align properties keeping the images central. The relative positioning comes into play when the pop-out boxes are added in the next section.

```
001 li {
002   position: relative;
003   border: 2px solid #eee;
004   border-radius: 50%;
005   padding: 10px;
006   width: 40px;
007   height: 40px;
008   text-align: center;
009   margin: 10px 0;
010   transition: border 0.2s ease-in;
011 }
012
```

3

TECHNIQUE

Make the hover

Now let's add two hover effects on each icon link. This will involve the inclusion of a new div element within each list item and a bit of JavaScript.

01 Add a div element

Put in the new div with the class activebox that sits within the tag, but not the <a> tag. Add an inline display:none property. Give it a title and some blurb.

```
001 <li>
002   <a href="#">
003     
004   </a>
005   <div class="activebox"
style="display: none;">
006     <h2>Go for a Walk</h2>
007     <p>Lorem ipsum.</p>
008   </div>
009 </li>
```

02 Change hover properties

Let's change the border colour of the icon on hover with added CSS easing. The activebox elements must be absolutely positioned, to enable them to align with relative icons, and adjusted to sit in line with the navigation column.

```
001 li:hover {
002   border: 2px solid #fe000a;
003   transition: border 0.2s
ease-in;
004 }
005 .activebox {
006   position: absolute;
007   width: 300px;
008   top: 0;
009   left: 70px;
010   padding: 10px;
011   background-color: #369;
012   color: #fff;
013   border-top-right-
radius: 30px;
014   border-bottom-right-
radius: 30px;
015 }
```

03 The JavaScript

Toggle the display state of each activebox element so that it has a fade-in when the matching icon is hovered over. Using '\$this' ensures that only the corresponding element is displayed.

Design responsive emails with ZURB's Ink

Worried that your HTML emails might not look right on some devices? ZURB's Ink may be just the solution you need

tools | tech | trends ZURB's Ink Framework, an email service provider **expert** Jayson Winters



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www.filesilo.co.uk/webdesigner



HTML emails are arguably both one of the most useful and the most troublesome technologies that a digital designer will typically use. The most

useful because, unlike a website or an app, you're reaching out with your content. The most troublesome because of the old-fashioned coding requirements and the wide range of operating systems, email clients, devices and deliverability issues you need to contend with. Fortunately, ZURB have turned their attention to the challenges of HTML emails with the development of Ink that, in their words, enables you to quickly "create responsive HTML emails that work on any device and client. Even Outlook". Without Ink, designers have taken a wide number of approaches to designing HTML emails and chosen between a rigid but Outlook-friendly solution or smartphone and tablet optimised approaches that might be less than Outlook-friendly. With Ink, ZURB have laid it all out there: the design rationale, the process, the code, and the compatibility and known issues.

01 Use an all-in-one stylesheet

The final code that is sent by Email Service Provider (ESP) is just one file, with links to images stored on a server somewhere. With that in mind there's no point in complicating things by linking to a separate stylesheet. Better still, use one of ZURB's templates to get you started and take care of the basic necessities like the setup, client-specific styling and resets.

```
001 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
002 <html xmlns="http://www.w3.org/1999/xhtml">
003 <head>
004 <meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
005 <meta name="viewport" content="width=device-width"/>
006 <style>
007 * Ink v1.0.5 - Copyright 2013 ZURB Inc *
008 /* Client-specific Styles & Reset */
009 #outlook a {
010 padding:0;
011 }
012
```

02 Control the width

Managing the width of your email is probably the single most important factor in ensuring a good user

experience across multiple devices, so ensure consistent and full use is made of the available space.

```
001 body{
002 width:100% !important;
003 min-width: 100%;
004 -webkit-text-size-adjust:100%;
005 -ms-text-size-adjust:100%;
006 margin:0;
007 padding:0;
008 }
009 .ExternalClass {
010 width:100%;
011 }
```

03 More resets and basics

The basic Ink template is around 1,000 lines of code and the first 100 lines or so are given over to core setup, so you are unlikely to want to change too much here. Don't try changing the minimum and maximum widths unless you really understand what you are doing.

```
001 img {
002 outline:none;
003 text-decoration:none;
004 -ms-interpolation-mode: bicubic;
005 width: auto;
006 max-width: 100%;
007 float: left;
008 clear: both;
009 display: block;
010 }
011 center {
```

```
012 width: 100%;
013 min-width: 580px;
014 }
```

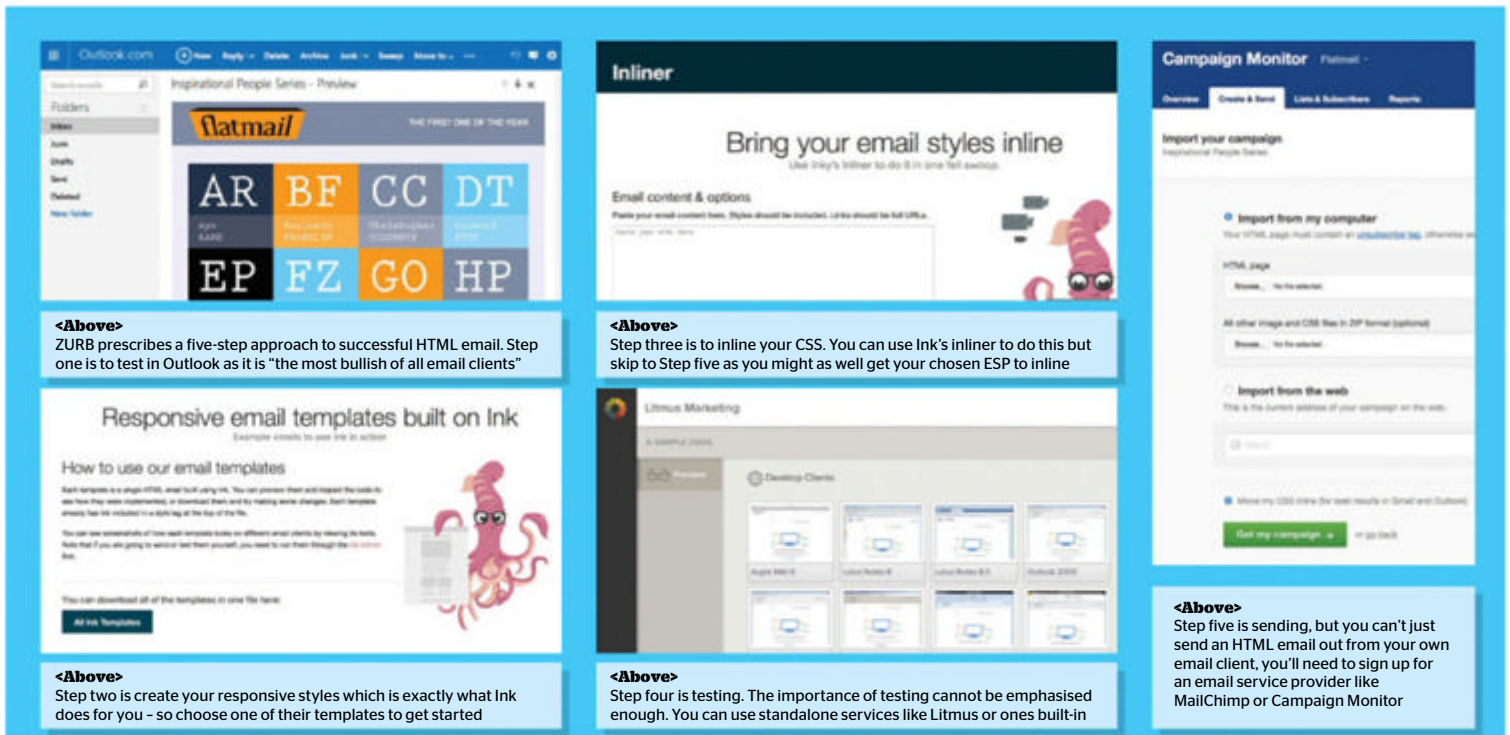
04 Use tables

If you've never created HTML emails before and CSS was your first exposure to web design, you might be surprised to see that tables are used to manage the layout of emails. For some designers it will be just like stepping back in time.

```
001 table.body {
002 height: 100%;
003 width: 100%;
004 }
005 table.container {
006 width: 580px;
007 margin: 0 auto;
008 text-align: inherit;
009 }
010 table.row {
011 padding: 0px;
012 width: 100%;
013 position: relative;
014 }
```

05 Make 12 columns

Designers with experience of ZURB's Foundation and other similar frameworks will be familiar with using a grid, where each content area may occupy any number of columns to complete the overall layout. These are all set up in lines 96 to 250 of the Hero Sidebar template used for this tutorial.



<Above>
ZURB prescribes a five-step approach to successful HTML email. Step one is to test in Outlook as it is "the most bullish of all email clients"

<Above>
Step three is to inline your CSS. You can use Ink's inliner to do this but skip to Step five as you might as well get your chosen ESP to inline

Responsive email templates built on Ink
Example emails to use Ink to action

<Above>
Step two is create your responsive styles which is exactly what Ink does for you – so choose one of their templates to get started

Litmus Marketing
A useful class

<Above>
Step four is testing. The importance of testing cannot be emphasised enough. You can use standalone services like Litmus or ones built-in

Campaign Monitor
Import your campaign

<Above>
Step five is sending, but you can't just send an HTML email out from your own email client, you'll need to sign up for an email service provider like MailChimp or Campaign Monitor

```
001 table.one { width: 30px; }
002 table.two { width: 80px; }
003 table.three { width: 130px; }
004 table.four { width: 180px; }
005 table.five { width: 230px; }
006 table.six { width: 280px; }
007 table.seven { width: 330px; }
008 table.eight { width: 380px; }
009 table.nine { width: 430px; }
010 table.ten { width: 480px; }
011 table.eleven { width: 530px; }
012 table.twelve { width: 580px; }
```

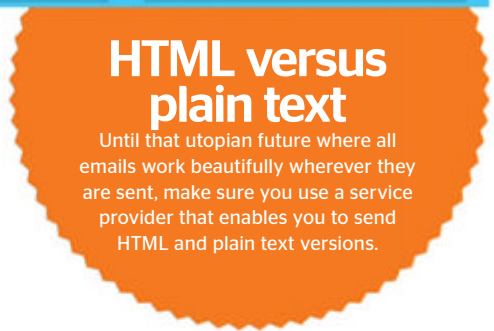
06 No media queries
Unfortunately, Android support for media queries is currently quite patchy, so you might want to use the Block-Grid approach where elements are pushed down to the next row automatically as the viewport gets smaller.

```
001 /* Block Grid */
002 .block-grid {
003 width: 100%;
004 max-width: 580px;
005 }
006 .block-grid td {
007 display: inline-block;
008 padding: 10px;
009 }
010 .two-up td {
011 width: 270px;
012 }
013 .three-up td {
014 width: 173px;
015 }
```

```
016 .four-up td {
017 width: 125px;
018 }
019 .five-up td {
020 width: 96px;
021 }
022 .six-up td {
023 width: 76px;
024 }
025 .seven-up td {
026 width: 62px;
027 }
028 .eight-up td {
029 width: 52px;
030 }
```

07 Set up alignment and visibility
Content tends to look better centred on small screens, so elements including table divisions and headings are centred right here. Centring classes are set up for spanning and images. Two classes are set up for hiding content to be displayed on smaller screens.

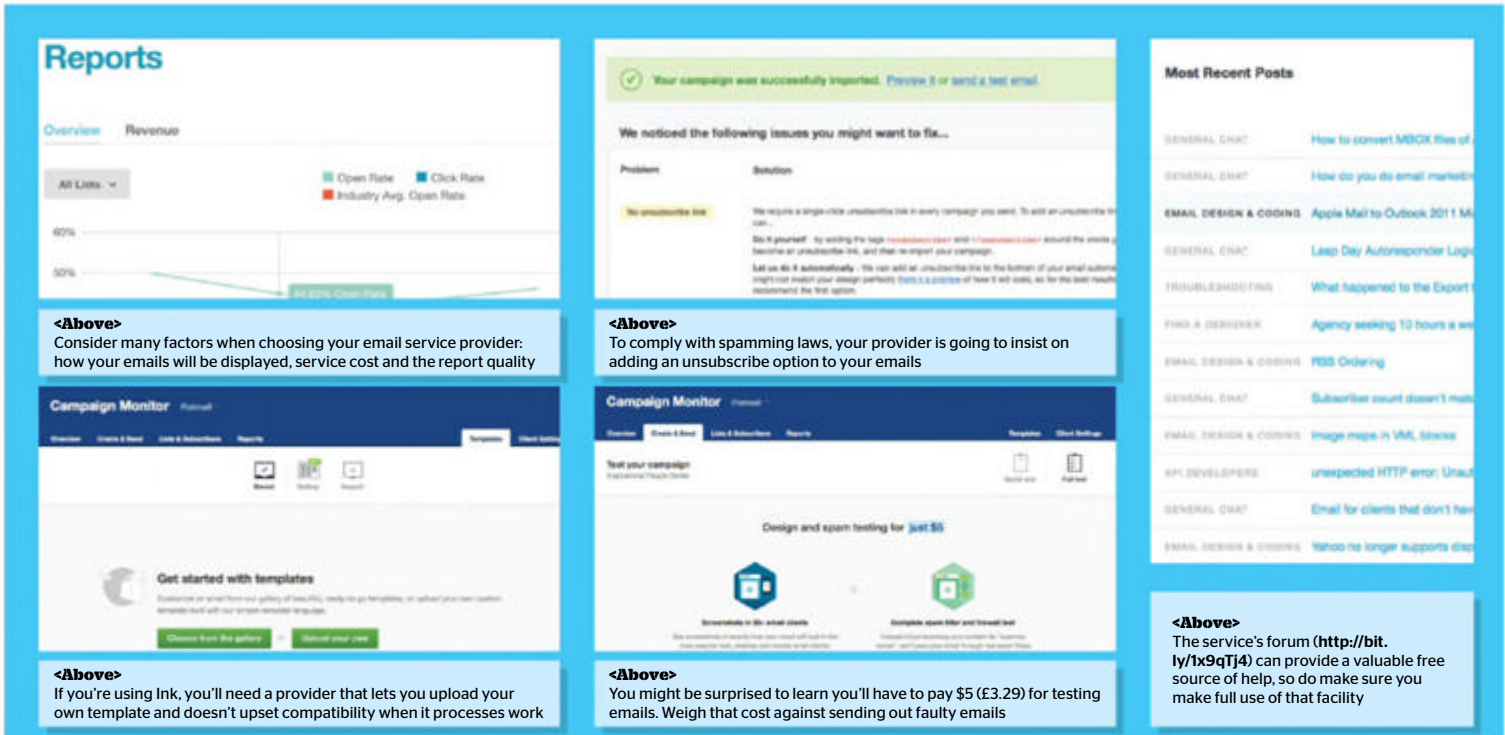
```
001 table.center, td.center {
002 text-align: center;
003 }
004 h1.center,
005 h2.center,
006 h3.center,
007 h4.center,
008 h5.center,
009 h6.center {
010 text-align: center;
011 }
```



```
012 span.center {
013 display: block;
014 width: 100%;
015 text-align: center;
016 }
017 img.center {
018 margin: 0 auto;
019 float: none;
020 }
021 .show-for-small,
022 .hide-for-desktop {
023 display: none;
024 }
```

08 Choose the typography
Eighty lines of styling are dedicated to ensuring the various paragraph text and headings are correctly sized and coloured. The decisions you make here will have a huge impact on the look and feel of your email so it is worth taking time to work through each section.

```
001 body, table.body, h1, h2, h3, h4,
h5, h6, p, td {
```

```
002 color: #7e8aa2;
003 font-family: "Helvetica", "Arial",
    sans-serif;
004 font-weight: normal;
005 padding: 0;
006 margin: 0;
007 text-align: left;
008 line-height: 1.3;
009 }
010 h1, h2, h3, h4, h5, h6 {
011 word-break: normal;
012 }
```

09 Style the panels

These are of great use in crafting email communication and let you draw attention to particular content as panels have coloured backgrounds.

```
001 .panel {
002 background: #000000;
003 padding: 15px !important;
004 }
005 .sub-grid table {
006 width: 100%;
007 }
008 .sub-grid td.sub-columns {
009 padding-bottom: 0;
010 }
```

10 Style the buttons

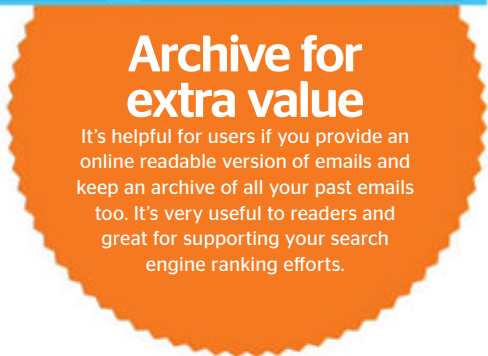
The framework provides styling for four different sized buttons. As with panels, buttons are important in achieving your communication goals as you are likely to be asking email recipients to 'buy now' or something similar.

```
001 table.button td,
002 table.tiny-button td,
003 table.small-button td,
004 table.medium-button td,
005 table.large-button td {
006 display: block;
007 width: auto !important;
008 text-align: center;
009 text-transform: uppercase;
010 background: #ff9800;
011 color: #ffffff;
012 padding: 8px 0;
013 }
```

11 Media queries

The framework keeps things simple by just using one media query for when a screen and viewport with a max width of 600px is detected. ZURB do point out that browser previewing won't get you very far (especially in Firefox). You really do need to preview in email clients.

```
001 @media only screen and (max-width:
    600px) {
002 table[class="body"] img {
003 width: auto !important;
004 height: auto !important;
005 }
006 table[class="body"] center {
007 min-width: 0 !important;
008 }
009 table[class="body"] .container {
010 width: 95% !important;
011 }
012 table[class="body"] .row {
```

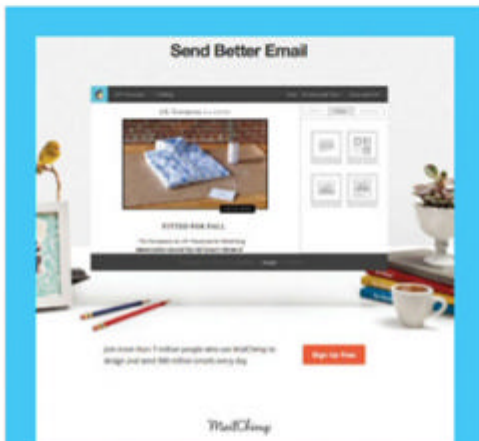


```
013 width: 100% !important;
014 display: block !important;
015 }
```

12 Email body

At line 774, the body of the HTML file begins. It's HTML, but not as you know it. And, that's before the CSS has been inlined when the code looks even more naively conceived. The purpose, of course, is to avoid the risk of any single element being left unstyled.

```
001 <body>
002 <table class="body"
    style="background:#eef">
003 <tr>
004 <td class="center" align="center"
    valign="top">
005 <center>
006 <table class="row header">
007 <tr>
008 <td class="center" align="center">
009 <center>
```



Send better email

There are lots of resources and companies to help you write better email. MailChimp is an email marketing service and works with individuals as well as larger companies on their email campaigns. They provide email list management, template building, a guide to bypass spam filters and various reports for analysing your email data.

13 Spell it all out

ZURB's rules are quick to pick up and it includes things like the last .wrapper in a row, which must have a class of .last applied to it, even if it's the only wrapper in the row. The .expander class is used to ensure that the column expands correctly to full width on small devices.

14 Link to images

Your email service provider will enable you to upload any required images, and it should automatically update the full link to these images when it finds a match in your code. The layout is formed of a number of nested tables, and it's easy to inadvertently break it by forgetting to close any tags if you start to make extensive changes.

```
001 <table class="container">
002 <tr>
003 <td>
004 <!-- content start -->
005 <table class="row">
006 <tr>
007 <td class="wrapper last">
008 <table class="twelve columns">
009 <tr>
010 <td>
011 
```

15 Add variables

Make sure you personalise your email wherever it is appropriate. Each ESP has its own syntax for variables and these are best added or edited once the template has been uploaded.

```
001 <p>Hello Richard</p>
002 <p>Welcome to our new email feature
003 spotlighting the great and the good,
004 for your inspiration and education.</p>
005 <p>We're looking forward to to
006 finding out what you think.</p>
007 <p>Best Wishes</p>
008 <p>The Flatmail Team</p>
009 </td>
010 </tr>
011 </table>
```

16 Add a panel

It's easy to add a full-width (12 columns) panel. Heading styles and links are all applied as per standard HTML. Remember to add the expander class to the last element so that it appears correctly on smaller devices.

17 Make two columns

Here two columns of content are created by setting a 'wrapper' and then 'wrapper last' each containing a six-column width table. Notice that the empty .expander class <td> is used at the end of each column and the
 tag can be used to add a break.

18 Order the list

If you're used to seeing unordered lists being provided as the best solution for a range of layout tasks from navigation to lists, you might be surprised to see that the normally reliable isn't used here. Outlook 2007 and 2010 do not support lists so, instead, each item appears as a separate table row.

```
001 <table class="six columns">
002 <tr>
003 <td class="panel">
004 <h2>The Line Up</h2>
005 <p>This week's inspirational
006 people:</p>
007 <table>
008 <tr>
009 <a href="#">1. Ayn RAND &raquo;</a>
010 </td>
011 </tr>
012 </table>
013 <hr>
```

19 Smaller panels

As with full width ones, panels are created using the .panel class and will appear at any width required in the grid. Notice that you can apply inline styles to elements as with the H6 tag here but you should probably do this with some caution to avoid introducing inconsistencies across different devices.

```
001 <table class="six columns">
002 <tr>
```

```
003 <td class="panel">
004 <h6 style="margin-
005 bottom:5px;">Connect With Us:</h6>
006 <table class="tiny-button
007 facebook">
008 <tr>
009 <td>
010 <a href="#">Facebook</a>
011 </td>
012 </tr>
```

20 Add buttons

This section demonstrates how simple it is to add buttons to the layout. You will have chosen the colours appropriate to your own needs in lines 419 to 525. Similarly your hyperlink colours are now set in lines 360-375. The tag that you probably (we're hoping so anyway) haven't seen in a long time will make an appearance here.

21 Footer content

This last nested table is used for your footer content. To stop your ESP from adding their own code and potentially breaking your responsive layout, you can remove <a> and wrap the Unsubscribe content with [unsubscribe] [/unsubscribe] for Campaign Monitor.

```
001 <table class="row">
002 <tr>
003 <td class="wrapper last">
004 <table class="twelve columns">
005 <tr>
006 <td align="center">
007 <center>
008 <p style="text-align:center;"><a
009 href="#">Terms</a> | <a href="#">Privacy</
010 a> | <a href="#">Unsubscribe</a></p>
011 </center>
012 </td>
013 <td class="expander"></td>
014 </tr>
015 </table>
016 </td>
017 </tr>
018 </table>
019 </tr>
020 </table>
```

22 More features

There are a few more features to Ink than the ones covered here including Offset Columns, Sub-Grids and Newsletter Images. Maybe after trying out Ink you'll be inspired to try out other solutions for taming the challenge of HTML emails. Remember to test as you go, and whatever you do, don't start using tables for your web layouts - it's just an HTML email thing.

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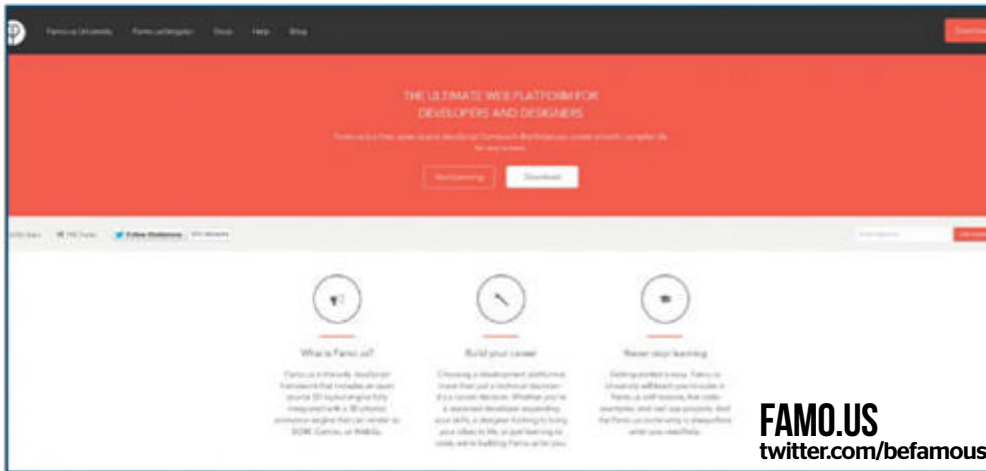
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20 FRESH FRAMEWORKS

Frameworks are an integral part of the design and development process. Here we unveil a selection that will get your designs ready for now and the future



FAMO.US

CREATING FAST-MOVING VISUALS IS DIFFICULT DUE TO THE CONSIDERABLE EFFORT REQUIRED FOR DOM TRANSFORMS

Famo.us tries to solve the problem of fast-moving visuals with an unorthodox approach. Websites are composed of one or more surfaces, which are displayed by the rendering engine. Surfaces are handled via an intermediary element known as context. The most basic version of a Famo.us-based website is shown in the snippet:

```
001 var Engine = require('famous/core/Engine');
002 var Surface = require('famous/core/Surface');
003 var mainContext = Engine.createContext();
004 var firstSurface = new Surface({
005   content: "<h3>Hi!</h3><p>I'm a
surface!<br>I live inside a context.</p><p>You
can add <b>HTML</b> content to me and style me
with <b>CSS!</b></p>",
006   size: [200, 200],
007   properties: {
008     backgroundColor: 'rgb(240, 238, 233)',
009     textAlign: 'center',
010     padding: '5px',
011     border: '2px solid rgb(210, 208, 203)',
012     marginTop: '50px',
013     marginLeft: '50px'
014   }
015 });
016 mainContext.add(firstSurface);
```

Famo.us differs from technologies such as WebGL in that the individual surfaces are made up of rendered HTML. This makes the framework ideally suited for all kinds of bouncy content, but creating 3D games is better handled with other technologies for example. Surfaces can even be arranged on top of one another via a group of layout managers such as HeaderFooterLayout:

```
001 var mainContext = Engine.createContext();
002 var layout = new HeaderFooterLayout();
003 layout.header.add(new Surface({
004   . . .
005 }));
006 layout.content.add(new Surface({
007   . . .
008 }));
009 layout.footer.add(new Surface({
010   . . .
011 }));
012 mainContext.add(layout);
```

Keyframe-based animations are a classic use case for the Famo.us framework. Adding motion to a surface involves the creation of a StateModifier object. It is then provided with a group of widgets and one or more curves that will work on describing the beginning and end points of the desired movement:

```
001 var stateModifier = new StateModifier();
002 mainContext.add(stateModifier).
add(surface);
003 stateModifier.setTransform(
004   Transform.translate(100, 300, 0),
005   { duration : 1000, curve: 'easeInOut' }
006 );
007
```

Famo.us/Angular permits you to connect to data stored in an AngularJS backend. This simplifies the creation of parametrised animations: a field in a model can be used to determine animation speeds, background colours and similar effects.

FULL HARDWARE ACCELERATION

Apple's iPhone introduced the concept of making the GPU work on animations. Famo.us renders via hardware accelerated CSS transforms, which is very efficient and yields blazingly fast updates whilst consuming minimal power.

ALTERNATIVE HTML FRAMEWORKS

UIKIT

Most GUI frameworks abhor change. This one tries to embrace it

getuikit.com

GOOD FOR: Creating responsive user interfaces that can be themed easily

UIKit is a jQuery-UI-like user-interface framework based on the LESS CSS interpreter. Its use permits the reuse of CSS elements, thereby creating an extraordinarily simple code base that is easy to adjust to your needs.

Sadly, most developers will never need to take a look at the underlying code. UIKit is shipped with a web-based customiser, which permits you to fine-tune most aspects of the rendering engine without touching the actual markup files.

MONTAGEJS

Data binding is so 2010. Montage harnesses the power of the FRB!

montagestudio.com/montagejs

GOOD FOR: Building high-performance single-page apps with advanced data binding

MontageJS is based on various object-oriented design patterns. This means that most components can be expanded easily, thereby aiding the creation of complex applications. A visual designer assists you in getting user-interface markup just right without long and tedious code editing.

Functional Reactive Bindings free you from the obligation of creating glue code. They differ from normal two-way bindings as they permit you to create more complex relationships automatically.

GROUNDWORK CSS

Making typographically impressive user interfaces with minimal extra effort

groundworkcss.github.io

GOOD FOR: Making scalable web apps and responsive text

Developers familiar with Sass will immediately recognise the powerful selectors that simplify the acquiring of pointers to DOM elements. The product ships with a large selection of predefined classes, which create impressively-designed textual elements.

For example, `<a>` tags with a href attribute pointing to YouTube are automatically expanded with a YouTube icon, providing the user with a visual cue about the contents of said element:

```
001 <a href="http://youtube.com">Youtube
Link</a>
```


ALTERNATIVE CSS FRAMEWORKS

YAML

Constructing forms and grids can be tedious. This framework helps you out

www.yaml.org

GOOD FOR: Building complex grids without diving into the specifics of layout systems

Time has been unkind to YAML: the framework has been on the market since 2005, but never managed to get into the limelight. Continuous development has created a special-interest product dedicated to the creation of forms, columns and grids.

When working with YAML, start by embedding the CSS files specified in the documentation: due to effective minification, your application's file size increases by about ten kilobytes. In the next step, the actual markup must be added. However, by default, YAML restricts itself to positioning the elements onscreen.

The process of creating the actual form elements involves the adding of `<div>` tags, which are to be parametrised with the class of the element that they are to represent:

```
001 <div class="ym-column">
002 <div class="ym-col1">
003 <div class="ym-cbox">
004 ...
005 </div>
006 </div>
007 <div class="ym-col3">
008 <div class="ym-cbox">
009 ...
010 </div>
011 </div>
012 </div>
```

TOAST

Grid frameworks can be behemoths. Dan Eden provides a slim alternative daneden.github.io/Toast

GOOD FOR: Making grids that can act as containers for various UI elements

Grids tend to have an unholy fascination for component vendors, and developers peddle for complex grid components.

But Dan Eden's product goes against the mainstream in that he purposely limits the number of options that is given to developers, in order to create a widget which is very simple to use. Deploying it is as easy as 1-2-3: just start by inserting the file, adding the skeleton tag and then proceed to filling it up.



GUMBY

MANY FRAMEWORKS ARE TIED TO A CUSTOM GUI STACK. THIS FRAMEWORK AUGMENTS WIDGET SETS WITH FLEXIBLE TOGGLES

Getting started with Gumbo is easy, all you have to do is add the relevant CSS and JavaScript files to your project. In the next step, controls should be arranged inside the flexible grid component:

```
001 <div class="row">
002 <div class="twelve columns">
003 <p>12 columns</p>
004 </div>
005 </div>
006 <div class="row">
007 <div class="eleven columns">
008 <p>11 columns</p>
009 </div>
010 <div class="one columns">
011 <p>1</p>
012 </div>
013 </div>
```

GO ADVANCED

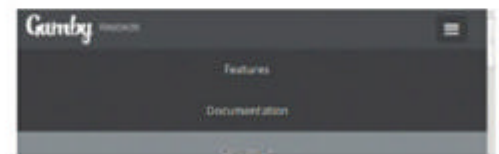
Even though Gumbo contains a set of Metro-style widgets, its main strength is grouped up in a module commonly known as Components. Elements can be hidden and shown, and stylesheets are toggled automatically as and when they're needed. CSS can be reused via a feature called mixins. For example, responses can be set up in order to modify the structure of the user interface automatically:

```
001 @include respond(large-screens) {
002 /* Your font is so big, it's absurd! */
003 h1,h2,h3,h4,h5,h6 { @include font-size($absurd); }
004 }
```

Designers working with a dedicated designer will be happy to hear that the Gumbo team provides Photoshop templates for most of its user-interface components. They will help to simplify the creation of mockups during the design stage.

START YOUR ENGINES

Reducing the size of the framework makes your web app faster. Gumbo provides a tool which strips out unneeded parts of the product i to reduce download volume.



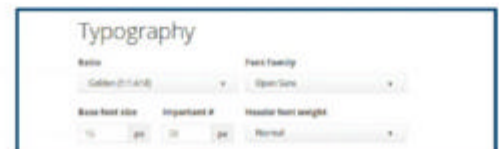
SELECT COMPONENTS

The first part of the tool permits you to select uninteresting components. Simply remove the checkbox in front of any feature that your application will not use.



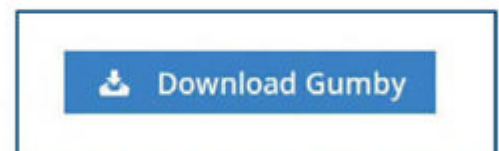
CONFIGURE ADVANCED OPTIONS

Below that, a selection of text boxes and other widgets permit you to set reasonable defaults for most components. Use this to make your markup simpler.



DOWNLOAD AND DEPLOY

Finally, click the big blue download button in order to obtain your custom build of Gumbo. Please make sure to test it thoroughly, as the builder tool is still in beta.





FOUNDATION

CAN ZURB BACK UP ITS CLAIM OF BEING THE MOST ADVANCED RESPONSIVE FRONT-END FRAMEWORK IN THE WORLD?

Developers who download and unpack the basic Foundation distribution are treated to a complete archive containing a turn-key website including both logic and stylesheets. ZURB's documentation suggests that the individual sites are to be based on the grid system of the framework. A module called Interchange lets your website select different source files as the size of the screen changes - the following example uses three different pieces of content for devices with small, medium and large displays:

```
001 <div data-interchange=["../examples/
interchange/default.html, (small)], [../
examples/interchange/medium.html, (medium)],
[../examples/interchange/large.html, (large)"]>
```

```
002 <div data-alert class="alert-box secondary
radius">
003 This is the default content.
004 <a href="#" class="close">&times;</a>
005 </div>
006 </div>
007
```

NAVIGATIONAL AIDS

Foundation provides a batch of classes which simplify the creation of navigational elements. Off-canvas menus can be added to your website with a group of predefined tags - you are freed from the obligation of coding everything by hand in CSS. iOS-styled navigation bars are realised via the icon-bar class.

Should you work on a multimedia application, you will be delighted to discover that ZURB provides an attractive and responsive lightbox component for this purpose. Users can click a single thumbnail in order to open the fullscreen gallery viewer. Captions and other navigational aids are rendered automatically if enabled.

positioning. Finally, a set of dedicated tags display PHP, CSS and HTML code with syntax highlighting.



99LIME.COM/ELEMENTS
twitter.com/htmlkickstart

SKEL.JS

RESPONSIVE LAYOUT SYSTEMS TIE THEIR USERS TO A SPECIFIC GUI STACK. SKEL IS DIFFERENT

Adding Skel to your website immediately changes the behaviour of your client's browsers. This is because a group of stylesheets are added, thereby overriding some of the more annoying per-tag formatting specified by browser vendors.

HTML KICKSTART

CREATING IMPRESSIVELY-LOOKING WIDGETS IS HARD. 99LIME PROVIDES A SET OF COOL ONES IN A DEDICATED FRAMEWORK

Lists, tables, buttons and styled text blocks require significant formatting. Embedding HTML5 Elements solves most of these problems. For example, creating coloured buttons becomes as easy as adding an attribute or two:

```
001 <button class="blue"><i class="icon-
star"></i> .blue</button>
```

In addition to that, the framework comes with the well-known icon set from Font Awesome. This means that you can use a few hundred well-known symbols without having to play around with images and

iFrame-based videos should be embedded inside a flex-video class. It ensures that the clip's scale remains correct, independent of the screen size and display settings of the client's device:

```
001 <div class="flex-video">
002 <iframe width="420" height="315" src="//
www.youtube.com/embed/<VID>" frameborder="0"
allowfullscreen></iframe>
003 </div>
004
```

GUI BONANZA

Our screenshot shows a part of an overview known as the Foundation Kitchen Sink. It contains one instance of every control found in the exhaustive GUI stack of the framework. Feel free to select from alerts, buttons, drop-down lists, tables and loads of other widgets which might help your application.

COMPATIBILITY

Developers working on international applications will be delighted to know that the framework comes with support for right-to-left languages such as Arabic.

The current version of Foundation is compatible with all major mobile and desktop browsers. Sadly, its support for Internet Explorer is limited to IE9 and up. Any users who are stuck on older versions of Microsoft's workhorse will have to live with all kinds of weird issues.

SASS INTEGRATION

Typing long lists of boring markup is a time waster. ZURB develops Foundation using the SCSS preprocessor: uncompiled source files are provided for programmers working on Sass-based projects.

Since users can change the size of the window, the Breakpoint Manager feature provides callbacks, which notify your website when specific sizes are reached:

```
001 skel.on('+small', function() {
002 /* Turn on feature for small displays */
003 });
004 skel.on('-small', function() {
005 /* Turn off feature for small displays */
006 });
```

Skel also provides a simple responsive grid that can be used for arranging controls on the screen. For example, a set of rows are created via the following set of markups:

```
001 <div class="row">
002 <div class="2u">Two</div>
003 <div class="4u">Four</div>
004 <div class="6u">Six</div>
005 </div>
```

GETSKEL.COM
github.com/n33/skel



TYPESCRIPT

THE SCALABLE LANGUAGE COMPILES TO JAVASCRIPT ON ANY HOST, BROWSER, AND OPERATING SYSTEM

TypeScript wants to be a better JavaScript. It achieves this goal by resorting to the tired and true approach of **transpiling**. This means that your code is transformed to actual JavaScript after hitting the save button on the editor. During this process, nonstandard bits of code get replaced with glue logic; potential errors can be found via static analysis.

Microsoft's biggest addition involves the availability of formalised class declarations. As an example, look at the sample greeter class:

```
001 class Greeter {
002   greeting: string;
003   constructor(message: string) {
004     this.greeting = message;
005   }
006   greet() {
007     return "Hello, " + this.greeting;
008   }
009 }
```

Complex object oriented designs can be erected via mixins and interfaces; basic support for generics enables you to create super-reuseable data types, which expand the usability of logic. Very large programs can even be compartmentalised by the use of modules. They permit you to hide and expose logic as needed - the module shown in the snippet exposes but one of its members:

```
001 module Validation {
002   export interface Validator {
003     isOK(s: string): boolean;
004   }
005   var lRegex = /^[A-Za-z]+$/;
006   var nRegex = /^[0-9]+$/;
007   . . .
008 }
```

TypeScript's relatively rigid syntax improves IDE support. Recent versions of Visual Studio deliver amazingly intelligent suggestions when asked to complete half-typed statements. Accessing code written from third parties is greatly simplified: well-written libraries check the correctness of invocations at compile time.

DECLARE A VARIABLE TYPE

In JavaScript, a field declared with var can take any type. TypeScript permits you to specify the type of value stored in a variable at compile time.

```
001 var height: number = 6;
002 var isDone: boolean = false;
003 var name: string = "bob";
```

DECLARE A CONSTRAINT

Methods can be provided with information about the types which they are to process. For example, a function can be made to enforce an object with a numeric property called index.

```
001 function enforceThis(myObj: {index:
number})
```



MOOTOOLS

JQUERY HAS ESTABLISHED ITSELF AS A ONE-STOP SHOP FOR ALL KINDS OF JS GOODNESS. THIS LIBRARY WANTS TO COMPETE

MooTools provides a smorgasbord of useful functions and these will range from DOM manipulation to event management. The developers even went so far as to throw in a basic class framework that works very similar to TypeScript:

```
001 var Rocket = new Class({
002   initialize: function(age){
003     this.age = age;
004   }
005 });
006 var Bisnovat = new Class({
007   Extends: Rocket,
008   . . .
009 });
```

Picking between MooTools and jQuery is - by and large - a question of taste. MooTools aims to provide useful tools to JavaScript developers, whereas jQuery promises to change the way JavaScript itself is written.

```
002 {
003 }
004
```

FAIL ON COMPILE

Invoking the aforementioned method with a noncompatible parameter yields an error during transpiling. This ensures that the mistake will be detected even if the code is not run during testing.

HARNESS THE ANY

When interfacing with legacy JavaScript code, type checking must be disabled. This can be done by using the any variable type: the TypeScript compiler reads it as 'here be dragons'.

```
001 var notSure: any = 4;
```



WAKANDA

NODE.JS STARTED JAVASCRIPT'S JOURNEY TO THE SERVER SIDE. THIS FRAMEWORK TIES UP SOME LOOSE ENDS

Wakanda differs from Node.JS in that it offers a one-stop-shop solution for all questions related to web development. The individual modules of an application communicate via a proprietary HTTP-based protocol - it achieves more than decent performance.

The front- and backend live in a Wakanda-provided IDE, which hides many implementation details from you. This is both good and bad: creating data stores and similar classes in a graphical editor means that you can work faster due to not needing to bother with technical details. On the other hand, this precise lack of depth can become problematic when the solutions themselves become very complex.



KENDO MOBILE UI

ON MOBILE APPS, SIMILARITY IS GOOD. KENDO'S UI STACK IS A TRUE MASTER OF MIMICRY

Kendo UI sees itself as a complete solution for the client-side part of your application. Telerik provides a set of charting classes, a data-binding engine and a large selection of jQuery UI-based widgets with additional styles to choose from.

Most widgets can be created from the markup or they can be created via a constructor function. For example, an autocomplete widget can be written into an arbitrary input tag as per following:

```
001 $(function() {
002 $("#animal").kendoAutoComplete({
003   dataSource: [ "Ant", "Antelope", "Badger",
004     "Beaver", "Bird" ] });
005 });
```

Single-page applications tend to be based on a set of three control groups: an application object that handles

page activation, and one or more pages, which consist of layouts and individual views.

Mobile-first websites start out with the declaration of an application object, which is then invoked for toggling. Forms can then be inserted via a nested div tag declaring header, footer and content panes:

```
001 <div data-role="view">
002 <div data-role="header">Header</div>
003 <a data-role="button">Click Me!</a>
004 <div data-role="footer">Footer</div>
005 </div>
006 <script>
007 var app = new kendo.mobile.Application();
008 </script>
009
```

FLEXIBILITY IS KEY

Many UI stack vendors can not resist the urge to act as evangelists for their favourite back-end technology. Telerik's commercial focus protects you from such shenanigans: Kendo UI integrates itself with AngularJS and KnockoutJS; the GUI stack itself can be combined with Twitter Bootstrap.

Please keep in mind that Kendo UI is not fully open sourced. Deploying advanced features in a commercial application requires the purchase of a licence; a 30-day trial is made available for evaluation purposes.

KENDO WIDGETS

Kendo provides a set of phone-optimised widgets with ten different themes that mimic the look of Windows Phone, Android, iOS and BlackBerry. Telerik frequently changes them as the host platform's UI stacks change.

ENYO

PALM'S NEXT-GENERATION USER-INTERFACE FRAMEWORK CAN NOW BE RUN ON PCS, SMART TVS AND MOBILE PHONES

The planning process for a next-generation GUI stack for WebOS exposed a key weakness in JavaScript. Its creation process of reusable components is actually quite difficult due to the prototype-based nature of the language itself.

Enyo has addressed this problem by introducing a design pattern known as 'kinds'. Each kind realises a class, and these can then be instantiated in order to create the actual object that you may need. However, you might never actually need to create a kind of your own and this is all because Enyo ships with a large selection of svelte UI widgets.

ENYOJS.COM
twitter.com/enyojs

AMAZIUM

GETTING STARTED WITH YAML CAN BE TIRESOME. AMAZIUM MAKES IT EASY BY PROVIDING PREDEFINED STYLESHEETS

Should you choose to deploy Amazium in your application, feel free to expect an extraordinarily simple integration process. Amazium uses a system of 12-column grids for ease of setup and most elements can be deployed via a single <div> tag as long as it bears the correct class attribute.

Like most other GUI frameworks, Amazium ships with a selection of form widgets and a set of layout managers, and these will handle the widgets' arrangement. One unique feature is that of automatic image scaling as the window size changes, thereby ensuring optimal presentation across platforms.

AMAZIUM.CO.UK
github.com/OwlyStuff/Amazium

FOUR MUST-KNOW FRAMEWORKS IN 2015 EMSCRIPTEN

github.com/kripken/emscripten

GOOD FOR: Running C++ applications in a web browser of your choice

This superingenious framework lets you compile C++ code for your browser.

EXT.JS

sencha.com/products/extjs/

GOOD FOR: Creating front to end solutions with complex data access layers

Ext.JS is bursting with features, which makes accessing databases a breeze.

PEBBLE.JS

bit.ly/15IH3PI

GOOD FOR: Putting your web content onto Pebble OS-based smartwatches

Most wristwatches will soon be programmable. PebbleJS mobilises web apps without a line of C.

VAADIN

vaadin.com/home

GOOD FOR: Bringing Java code to the web without total rewrites

Vaadin's Java Server technology lets you create entire sites without touching HTML5 markup.

FIVE TO FOLLOW



Standing on the shoulders of Twitterati giants can improve your skills

JEREMY ASHKENAS

twitter.com/jashkenas

Jeremy develops solutions like CoffeeScript.

THE NEXT WEB

twitter.com/thenextweb

This account discusses must-know web design topics.

WINDOWS DEVS

twitter.com/windevs

Windevs is a source of useful tips and hints for Visual Studio.

MOZILLA HACKS

twitter.com/mozhacks

Discover interesting changes to web technologies before they get implemented.

TOMI AHONEN

twitter.com/tomiahonen

An excellent source for all things mobile.



DEVELOP WITH PYTHON

Don't be fooled into thinking Python is a restrictive language or incompatible with the modern web. Explore options for building Python web apps and experience rapid application development

WHY?

PYTHON IS AN INCREDIBLY POWERFUL PROGRAMMING LANGUAGE. FIRST RELEASED IN 1991, COMPANIES LIKE GOOGLE AND NASA HAVE BEEN USING IT FOR YEARS

Thanks to the introduction of the Web Server Gateway Interface (WSGI) in 2003, developing Python web apps for general web servers became a viable solution as opposed to restricting them to custom solutions.

Python executables and installers are widely available from the official Python site at www.python.org.

Mac OS X users can also benefit greatly from using Homebrew to install and manage their Python versions. Whilst OS X comes bundled with a version of Python, it has some potential drawbacks. Updating your OS may clear out any downloaded packages, and Apple's implementation of the library differs greatly from the official release. Installing using Homebrew helps you to keep up to date and also means you get the Python package manager pip included. Once Python is installed the first package to download should be virtualenv using 'pip install virtualenv', which enables you to create project-specific shell environments. You can run projects on separate versions of Python with separate project-specific packages installed. Check out the detailed Hitchhiker's Guide to Python for more information: docs.python-guide.org/en/latest.

FRAMEWORKS

LET'S TAKE A LOOK AT SOME OF THE FRAMEWORKS AVAILABLE WHEN DEVELOPING PYTHON WEB APPLICATIONS

DJANGO DJANGOPROJECT.COM

GOOD FOR: LARGE DATABASE-DRIVEN WEB APPS WITH MULTIUSER SUPPORT AND SITES NEEDING HEAVILY CUSTOMISABLE ADMIN INTERFACES

Django contains a lot of impressive features, all in the name of interfaces and modules. These include autowiring, admin interfaces and database migration management tools by default for all of your projects and applications. Django will help to enable rapid application development for enterprise-level projects, whilst also enabling a clear modular reusable approach to code using subapplications.

WERKZEUG WERKZEUG.POCOO.ORG

GOOD FOR: API CREATION, INTERACTING WITH DATABASES AND FOLLOWING STRICT URL ROUTES WHILST MANAGING HTTP UTILITIES

Werkzeug is the underlying framework for Flask and other Python frameworks. It provides a unique set of tools that will enable you to perform URL routing processes as well as request and response objects, and it also includes a powerful debugger.

TORNADO TORNADOWEB.ORG

GOOD FOR: WEB SOCKET INTERACTION AND LONG POLLING DUE TO ITS ABILITY TO SCALE TO MANAGE VAST NUMBERS OF CONNECTIONS

Tornado is a networking library that works as a nonblocking web server and web application framework. It's known for its high performance and scalability and was initially developed for friendfeed, a real-time chat system.



FLASK FLASK.POCOO.ORG

GOOD FOR: CREATING FULL-FEATURED RESTFUL APIS. ITS ABILITY TO MANAGE MULTIPLE ROUTES AND METHODS IS VERY IMPRESSIVE

Flask aims to provide a set of commonly used components such as URL routing and templates.

Flask will also work on controlling the request and response objects, all-in-all this makes it a lightweight but powerful microframework.

PYRAMID PYLONSPROJECT.ORG

GOOD FOR: HIGHLY EXTENSIBLE AND ADAPTABLE TO ANY PROJECT REQUIREMENT. NOT A LIGHTWEIGHT SYSTEM EITHER

Heavily focused on documentation, Pyramid brings all the much needed basic support for most regular tasks. Pyramid is open source and also provides a great deal of extensibility - it comes with the powerful Werkzeug Debugger too.

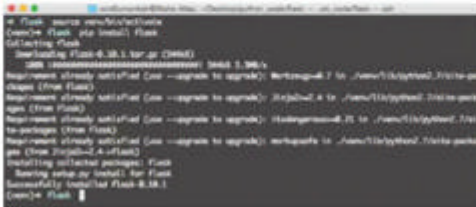
CREATE AN API

Let us explore the Flask microframework and build a simple yet powerful RESTful API with minimal code

1 INSTALL FLASK

Create a new directory inside of which your project will live. Open a Terminal window and navigate to be inside your new directory. Create a new virtual environment for this project, placed inside a new directory called 'venv', and activate it. Once inside the new virtual shell, proceed to installing Flask using the 'pip install Flask' command.

```
virtualenv venv
. venv/bin/activate
pip install Flask
```



2 CREATE INDEX

Create a new file in the root of the project location called 'index.py'. The sample API will use a SQLite database, so we need to import that module for use in the application. We'll also import some core components from the Flask module to handle request management and response formatting as well as some other functions. The minimum import for a Flask application is Flask itself.

```
import sqlite3
from flask import Flask, request, g,
redirect, url_for, render_template, abort,
jsonify
```

3 DECLARE CONFIG

For a small application we can declare configuration options as upper-case name value pairs inside the main module, which we'll do now. Here we can define the path and name of the SQLite database and also set the Flask debug output to True for development work. Initialise the Flask application to a namespace and then import the config values set directly above it. We then run the application. All routes must be placed above these last two lines.

```
# Config
DATABASE = 'tmp/api.db'
DEBUG = True
app = Flask(__name__)
app.config.from_object(__name__)
# Add methods and routes here
if __name__ == '__main__':
    app.run()
```

4 CONNECT TO DATABASE

With the database path defined, we need a way to create connection to the database for the application to obtain data. Create a new method called 'connect_db' to manage this for us. As a method we can call it when we set up a prerequisite hook shortly. This will return a new open connection using the database details set in the configuration object.

```
def connect_db():
    return sqlite3.connect(app.
config['DATABASE'])
```

5 DATABASE SCHEMA

Our SQLite database will only contain one table. Create a new file called 'schema.sql' in the root of the project directory. This file will contain the SQL commands required to create the table and populate it with some sample bootstrapped data.

```
drop table if exists posts;
create table posts (
    id integer primary key autoincrement,
    title text not null,

    text text not null
);
```

```
insert into posts (title, text) values
('First Entry', 'This is some text');
insert into posts (title, text) values
('Second Entry', 'This is some more
text');
```

```
insert into posts (title, text) values
('Third Entry', 'This is some more text
(again)');
```

6 INSTANTIATE THE DATABASE

To populate the database with the new table and any associated data, we will need to import and apply the schema to the database. Add a new module import at the top of the project file to obtain the 'contextlib.closing()' method. What we will do next is create a method to initialise the database by reading the contents of schema.sql and executing it against the open database.

```
from contextlib import closing
def init_db():
    with closing(connect_db()) as db:
        with app.open_resource('schema.sql',
mode='r') as f:
            db.cursor().executescript(f.read())
            db.commit()
```

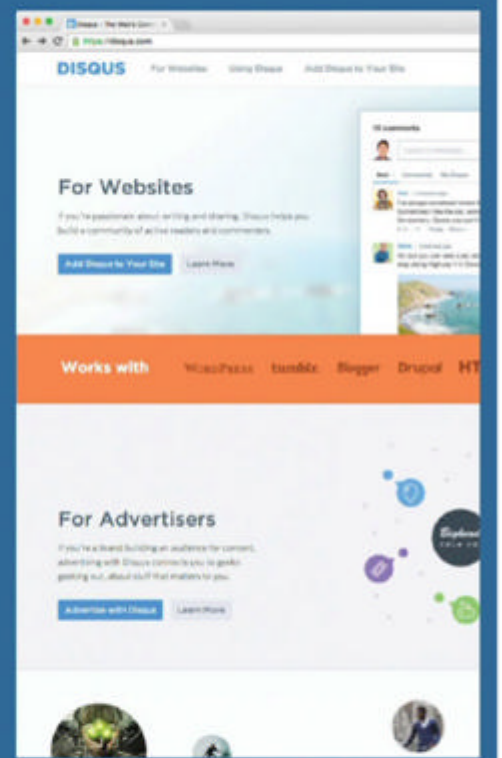
PYTHON IN THE WILD

INTERESTED IN PYTHON DEVELOPMENT? YOU'D BE IN GOOD COMPANY WITH BIG NAMES CURRENTLY USING IT

Disqus, the popular social interaction comment service provider, has been implementing their production applications in Python for a very long time. Python's benefit for the development team was its ability to scale effectively and cater for a large number of consumers whilst also providing an effective underlying API for internal and external use. The company are now starting to run some production apps in Go, but the majority of code still runs on Python.

World-renowned image sharing service Instagram and social pin board Pinterest have also implemented Python as part of their web stack, opting for Django to assist with the functionality and ability to cater for the many thousands of content views and requests made to their services.

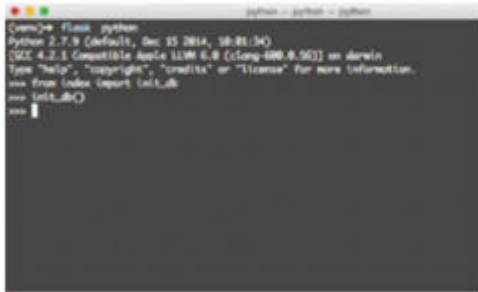
Mozilla, Atlassian's Bitbucket repository service, and popular satire site The Onion have all been noted as using Django for their products.



7 POPULATE THE DATABASE

To populate the database you can now run the `init_db` inside an active python shell. To do so enter a shell by typing 'python' inside your environment, and then running the command below. Alternatively, you can use the `sqlite3` command and pipe the `schema.sql` file into the database.

```
# Importing the database using the
init_db method
python
>>> from index import init_db
>>> init_db()
# Piping the schema using SQLite3
sqlite3 /tmp/api.db < schema.sql
```



8 REQUEST DB CONNECTION

With the database created and populated we need to be able to ensure we have an open connection and close it accordingly when finished. Flask has some decorator methods to help us achieve this. The `before_request()` method will establish the connection and stores it in the `g` object for use throughout the request cycle. We can then close the connection after the cycle using the `teardown_request()` method.

```
@app.before_request
def before_request():
    g.db = connect_db()
@app.teardown_request
def teardown_request(exception):
    db = getattr(g, 'db', None)
    if db is not None:
        db.close()
```

9 DISPLAY POSTS

Create your first route so that we can return and display all available posts. To query the database we execute a SQL statement against the stored `db` connection. The results are then mapped to values using Python's `dict` method and saved as the `posts` variable. To render a template we then call `render_template()` and pass in the file name and the variable to display as the second argument. Multiple variables can be passed through as a comma-separated list.

```
@app.route('/')
def get_posts():
    cur = g.db.execute('select title, text
```

```
from posts order by id desc')
    posts = [dict(title=row[0], text=row[1])
              for row in cur.fetchall()]
    return render_template('show_posts.
html', posts=posts)
```

10 TEMPLATE OUTPUT

Flask expects templates to be available within the `templates` directory in the root of the project, so make sure that you create that directory now. Next, add a new file called 'show_posts.html'. The dynamic values are managed using Jinja2 template syntax, the default templating engine for Flask applications. Save this file in the `templates` directory.

```
<ul class=posts>
  {% for post in posts %}
  <li><h2>{{ post.title }}</h2>{{ post.
text|safe }}
  {% else %}
  <li>Sorry, no post matches your
request.
  {% endfor %}
</ul>
```

11 MAKE AN API RESPONSE

To create an API response we can define a new route with a specific API endpoint. Once again, we query the database for all posts. The data is then returned as JSON, using the `JSONify` method to do so. We can add specific values such as post count and a custom message if you wish, as well as the actual posts variable, formatted as JSON.

```
@app.route('/api/v1/posts/',
methods=['GET'])
def show_entries():
    cur = g.db.execute('select title, text
from posts order by id desc')
    posts = [dict(title=row[0], text=row[1])
              for row in ur.fetchall()]
    return jsonify({'count': len(posts),
'posts': posts})
```

12 GET A SPECIFIC POST

To obtain a specific post from the API we need to create a new route, which will accept a dynamic value as part of the URI. We can also choose to use this route for multiple request methods, which are in this case `GET` and `DELETE`. We can determine the method by checking the `request.method` value and run it against a conditional `if/else` statement.

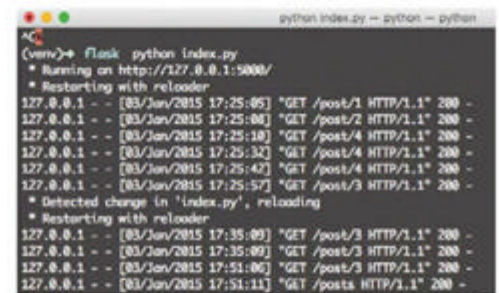
```
@app.route('/api/v1/posts/<int:post_id>',
methods=['GET', 'DELETE'])
def single_post(post_id):
    method = request.method
    if method == 'GET':
        cur = g.db.execute('select title,
text from posts where id =?', [post_id])
```

```
posts = [dict(title=row[0],
text=row[1]) for row in cur.fetchall()]
return jsonify({'count': len(posts),
'posts': posts})
elif method == 'DELETE':
    g.db.execute('delete from posts where
id = ?', [post_id])
return jsonify({'status': 'Post
deleted'})
```

13 RUN THE APPLICATION

To run your Flask application, navigate using the active Terminal window into the root of the project. Ensuring you are in an active virtual environment Python shell, enter the command to run the main index file. The built-in server will start and the site will be accessible in the browser on default port local address `http://127.0.0.1:5000`.

```
python index.py
```



14 API JSON OUTPUT

The root of the application will render the template we previously created. Multiple routes can be generated to create a rich web application. Visiting an API-specific URL in the browser will return the requested data as cleanly formatted JSON. The ability to define custom routes like a versioned RESTful endpoint is incredibly powerful.

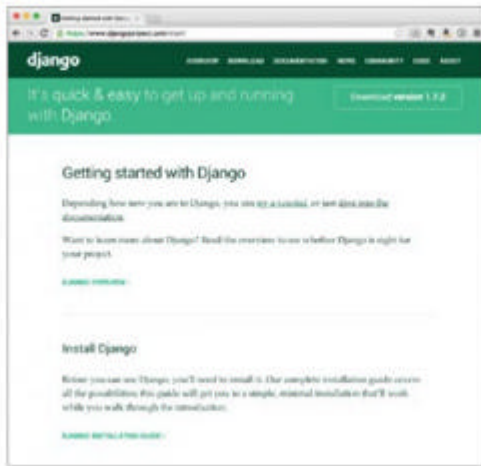


API made easy

The Flask microframework really helps you build microsites and APIs quickly and efficiently with very little core setup or management of overly heavy libraries. Detailed documentation and extended guides can be found on the official project site: flask.pocoo.org

DJANGO APPLICATION DEVELOPMENT

Django is a full Python web-app framework with impressive command-line tools available to assist development tasks



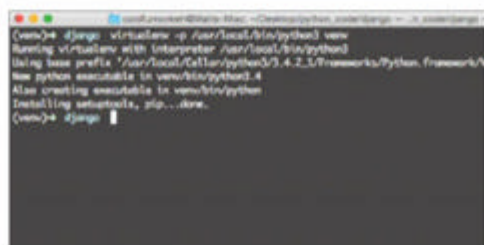
INSTALLING DJANGO

THE INSTALLATION OF DJANGO IS RELATIVELY EASY ONCE YOU HAVE PYTHON INSTALLED. SEE FOR YOURSELF AS WE BUILD A SIMPLE APP

1 CREATE VIRTUAL ENVIRONMENT

Create a new directory for your project and navigate inside it using a new Terminal window. Create a new virtual environment for this project, opting to use the latest Python 3. Your Python 3 location may vary, so be sure to set the correct path for the binary package.

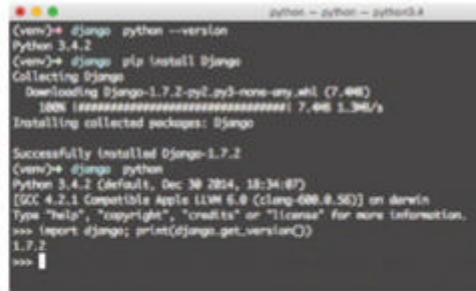
```
virtualenv -p /usr/local/bin/python3 venv
```



2 ACTIVATE AND INSTALL

Using your Terminal window, activate the virtual environment to start the project-specific shell. VirtualEnv has a local version of the Python package manager pip installed, so it's fairly straight forward to run the command to install Django.

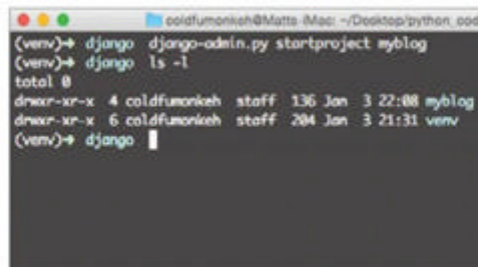
```
. venv/bin/activate
pip install Django
```



3 CREATE CORE PROJECT

The Django install contains some incredibly useful command-line tools, which will help you to run a number of repetitive and difficult tasks. Let's use one of them to create a fresh project structure for us. Run the `django-admin.py` script with the name of the project that you want created.

```
django-admin.py startproject myblog
```



4 INITIAL MIGRATION

Navigate into the project directory via the Terminal window. Some of the installed apps included in the project generation require database tables. Using the helper, run a migration command to create all of these automatically. The Terminal window will keep you informed of all of your progress and what has been applied from the migration.

```
cd myblog
python manage.py migrate
```

5 CREATE APP

Each Django project is made up of at least one application or module. Run the `startapp` command to create a new blog app module, which will generate the required code adjacent to the main project structure.

```
python manage.py startapp blog
```

DATABASE MODELS AND MIGRATION

DJANGO'S ABILITY TO MANAGE THE MIGRATION AND MAINTENANCE OF DATABASE SCHEMA AND PROJECT MODELS IS VERY IMPRESSIVE

1 GENERATE THE MODEL

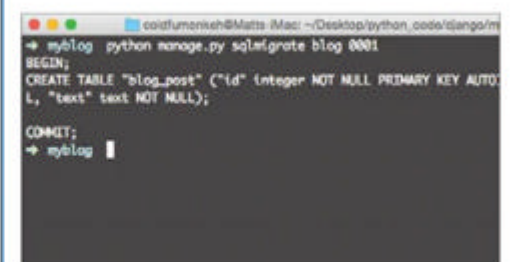
Open `blog/models.py` and create the first model class, providing the property names and types for each. You can dig deeper into field types via the docs here: [bit.ly/1yn1kn](#). Once complete, open `myblog/settings.py` and add the blog app to the list of allowed installed applications so that the project will load it.

```
# blog/models.py
class Post(models.Model):
    title = models.CharField(max_
length=200)
    text = models.TextField()
# myblog/settings.py
INSTALLED_APPS = (
    'django.contrib.admin',
    ...,
    'django.contrib.staticfiles',
    'blog'
)
```

2 DATA MIGRATION

Any creation of models or changes to data need to be migrated. To do so we need to make migration files from the model data, which generate sequentially numbered files. Then we run a specific migration to generate the required SQL and the final migrate command performs the database execution.

```
python manage.py makemigrations blog
python manage.py sqlmigrate blog 0001
python manage.py migrate
```

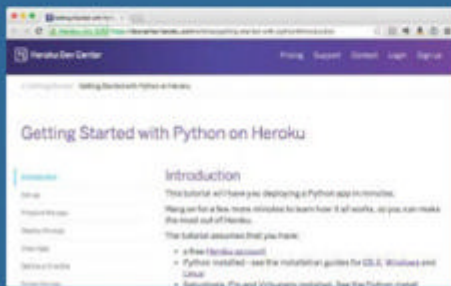


HOSTING PYTHON APPS

HEROKU

heroku.com

This app is perhaps one of the most well-known cloud hosting providers. Their stack server environments support a number of core web app languages including Python as standard. Their unique Toolbelt command-line features and integration with Git repositories, as well as being incredibly quick and easy to scale and improve performance, makes them an obvious choice. A free account will let you run a Python web app on one dyno instance without any cost.



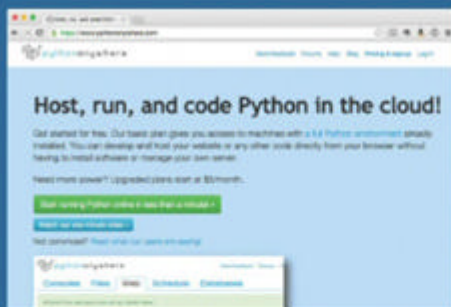
Heroku's impressive hosting solutions cater perfectly for Python web apps with great guides to help you.

PYTHON ANYWHERE

<https://www.pythonanywhere.com>

Another hosted option, and one created specifically for Python applications in general is Python Anywhere. The free basic option plan has enough weight and power behind it to get you up and running with a Python web app without having to scale, but as soon as your project gains traction, you can switch plans and boost your plans performance.

It offers an incredibly impressive range of modules as standard, available to import into your application immediately to get you started, including Django and Flask should you need them.



Python Anywhere was created by developers especially for Python web apps

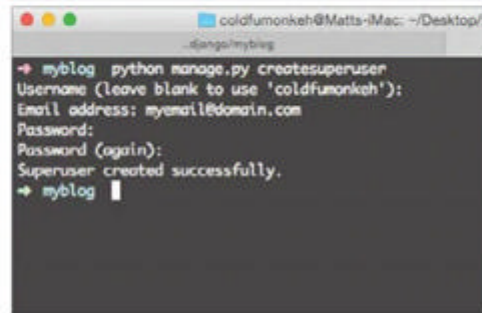
AUTOWIRING THE ADMIN INTERFACE

ADMIN SECTIONS CAN BE PROBLEMATIC IN THEIR OWN RIGHT. DJANGO PROVIDES AN EXTENSIBLE ADMIN INTERFACE FOR YOU

1 CREATE ADMIN USER

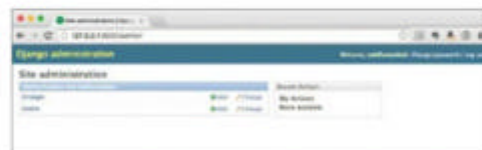
Django makes content administration incredibly easy and has an admin section available in a default project as standard at <http://127.0.0.1:8000/admin>. To log in you need to create a superuser account. Run the associated command and specify user details as required to then proceed and log in.

```
python manage.py createsuperuser
```



2 SWITCH ON BLOG MANAGEMENT

Having logged in to the administration interface you will be greeted with features to manage users and group roles and privileges, which alone are very powerful and provided for you by Django. There is not yet, however, any access to manage our blog posts so let's turn that on.



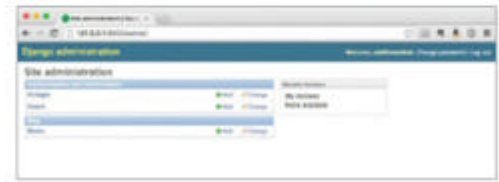
3 ENABLE ADMIN MANAGEMENT

To enable our module and associated models to be managed through the admin interface, we need to register them with the admin module. Open `blog/admin.py` and then go on to import and register the models in turn (we only have one of these currently though). Save the file and refresh the admin site to see the posts that are now available to manage.

```
from django.contrib import admin
```

```
# Register your models here.
from blog.models import Post
```

```
admin.site.register(Post)
```



4 CREATE A VIEW

With the admin interface accepting new submissions for our post class we'll create a view page to display them. Open `blog/views.py` and import the `Post` class from the models. Create a method to obtain all posts from the database and output them as a string.

```
from django.http import HttpResponse
from blog.models import Post
```

```
def index(request):
    post_list = Post.objects.order_by('-id')[:5]
    output = '<br />'.join([p.title for p in post_list])
```

```
return HttpResponse(output)
```

5 MANAGE THE URLS

Create `blog/urls.py` and add the code to import the views that were just made in the module and the accompanying URL patterns. Open `myblog/urls.py` and add the URL function call to implement a new URL for the app to display the view. Visit <http://127.0.0.1:5000/blog> in your browser to render the new view.

```
# blog/urls.py
```

```
from django.conf.urls import patterns,url
from blog import views
urlpatterns = patterns('',
    url(r'^$', views.index, name='index'),
)
```

```
# myblog/urls.py
urlpatterns = patterns('',
    url(r'^blog/', include('blog.urls')),
    url(r'^admin/', include(admin.site.urls)),
)
```

Using the dev server

Django ships with a very helpful built-in development server, which will help you out by autocompiling and reloading after you have completed all of your file changes. All you have to do to start the server is to run the 'python manage.py runserver' command from your Terminal window within the project directory.

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We last looked at Meteor in issue 224 when it was at version 0.8; since then the project has matured and, crucially, reached the milestone of version 1 (we'll be using 1.0.2.1). Every aspect of Meteor has markedly improved,

from the homepage and documentation to the community and codebase itself.

Meteor is not a single library, Meteor is a host of projects, which include: the software libraries, tools such as the build tool, Isobuild, standards formalisation, and services like the official package server.

Meteor projects run on Node and use MongoDB to store data. As it's all written in JavaScript, the same code can run on the client and server. Meteor uses this to create 'reactivity', namely that changes are reflected immediately and propagated to every connected user.

To highlight the changes to Meteor, we'll build a basic ordering system for a fictional restaurant. This exercise will introduce you to Iron Router, adding packages, database communication and reactivity to name a few.

01 Install Meteor

If you don't already have Meteor installed then you can do so in a command-line program (like Terminal.app) to install it. Only Mac and Linux systems are currently supported, but Windows support is "coming soon". This downloads a script, which then handles installing the Meteor command-line program (in previous versions this was called mtr).

```
001 $ curl https://install.meteor.com/ | sh
```

02 Run Meteor

Navigate to the folder you wish to contain the project folder. The following commands will fetch all of the code you need to run a basic Meteor app, so change directory into it and then start running the app.

```
001 $ meteor create menu-order
002 $ cd menu-order
003 $ meteor
```

03 Check you're working

Unless you close the Terminal window you won't need to close or start Meteor again as it automatically picks up code changes in a process called Hot Code Refresh (HCR) where it pushes newly found code to the client as the file is saved. You can check it's working by going to <http://localhost:3000/>. Remove the HTML, CSS and JS files it created for you but leave the .meteor folder alone.

04 Create the project structure

Next we're going to create the folders that will house our code. The client folder contains code that is never run on the server and the server folder does the opposite. Files stored in lib will be run before client and server code. Meteor is pretty smart at finding files and will minify them alphabetically.

```
001 client
002 helpers
```

- 003 stylesheets
- 004 templates
- 005 admin
- 006 application
- 007 includes
- 008 menu
- 009 table
- 010 lib
- 011 collections
- 012 server

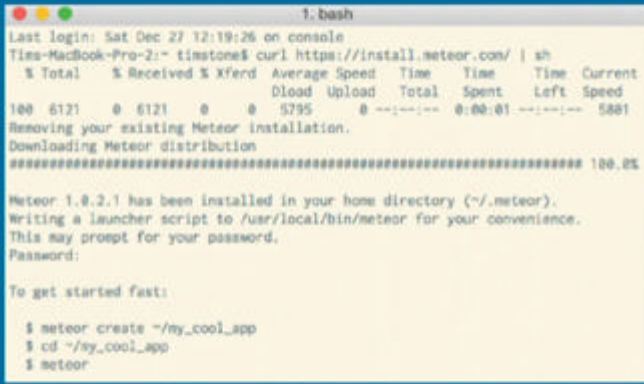
05 Make the master layout

We'll create 'layout.html' and this will contain all of the other templates. Meteor uses Spacebars: a template system like Handlebars but tailored for Meteor. The > denotes that this is partial and will be replaced by the template named 'header', whereas 'yield' is a helper from Iron Router that acts as a placeholder for content. The other templates will be rendered within it.

```
001 <template name="layout">
002 <div class="container">
003   {{> header}}
004   <main role="main" class="row-fluid col-md-6">
005     {{> yield}}
006   </main>
007 </div>
008 </template>
009
```

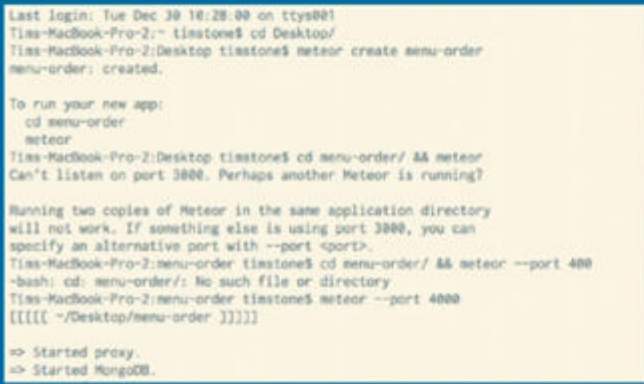
06 Add packages

Packages are first or third-party libraries that add functionality to your project. We're going to add Iron Router (a routing library for Meteor), Twitter Bootstrap for styles, an accounts manager, a spinner to show while loading, and the Underscore utility library.




<Above>

- Installing Meteor is very simple on Mac and Linux systems. This simplicity embodies many of the philosophies core to Meteor




<Above>

- Meteor makes getting up-and-running very simple by rolling database, web server, building and minification into one command



<Above>

- Adding packages in one window automatically causes the server to restart and push those packages to the client and server



<Above>

- Once Iron Router is installed, but not configured, it'll show this screen to prompt you to set it up in subsequent runs

07 Configure routes

Within the lib folder create a file called 'Router.js'. The configuration block tells Iron Router to use the 'layout' template as the default layout for each page. Add routes by calling the .route() method and passing the URL string to match as well as the name of the associated layout file. We're also overriding the default layout template on the kitchen route so it won't inherit that layout.

```
001 Router.configure({
002   layoutTemplate: 'layout'
003 });
004 Router.route('/', {name: 'menu'});
005 Router.route('/kitchen', { name: 'admin', layoutTemplate: null
006 });
```

08 Create a header template

The header template doesn't exist yet, so let's create an empty template folder in the 'includes' folder. 'loginButtons' is added by the accounts-ui package - it comes with Meteor and adds a log-in system out of the box!

09 Create a menu template

We've got various parts rendering now, but they can't find the menu! Let's rectify that. Create a file called 'menu.html'. To repeat the block, simply replace Starters with the property name like main_course, for example.

10 Place the menu

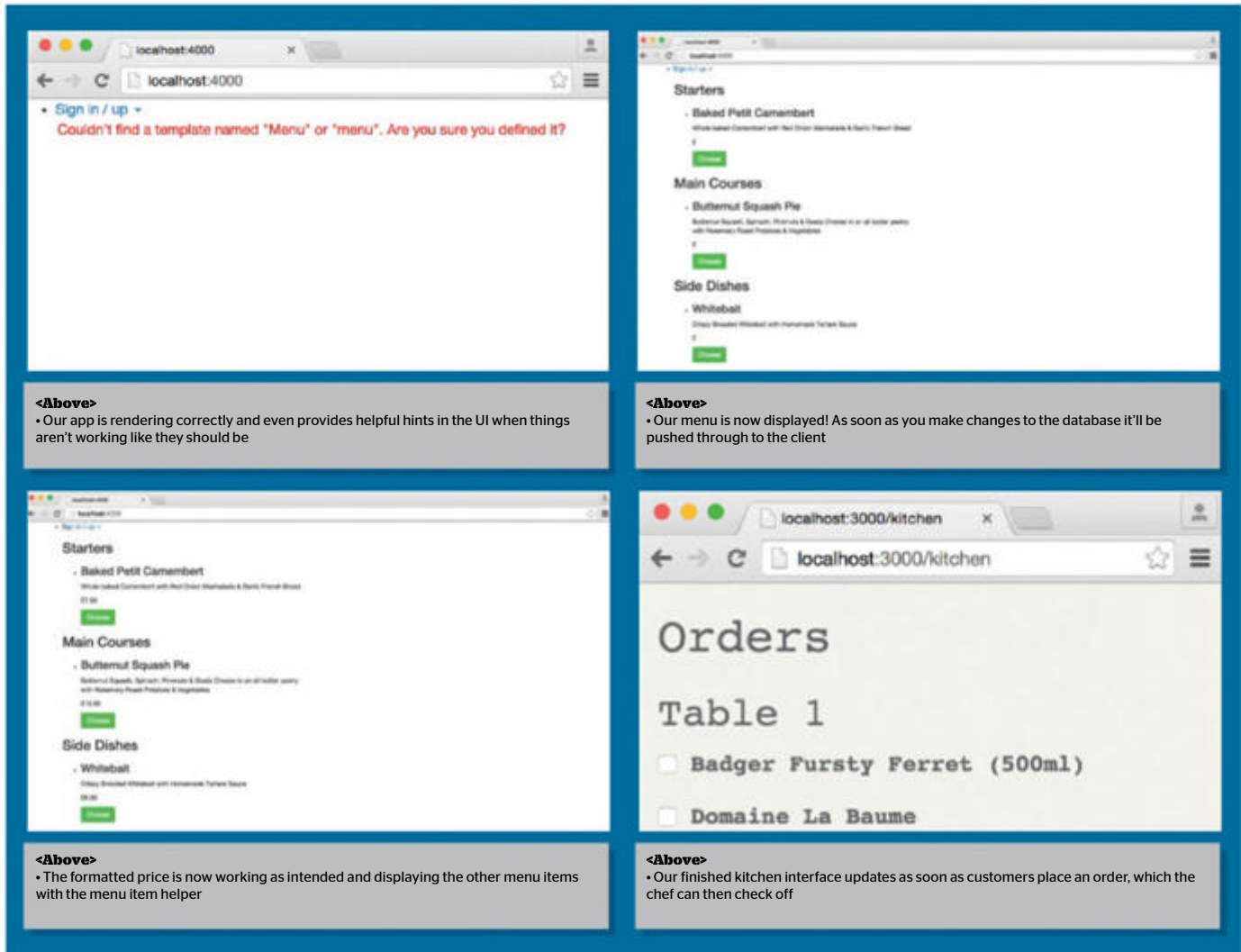
Where does the menu come from? We're going to store the menu in the MongoDB as a collection. Within lib/collections, create a file called 'menu.js'. Then create another file called 'publications.js' in the server folder. This will tell the server to enable the client access to the menu collection and give both the client and server access to the Menu variable.

```
001 // lib/collections/menu.js
002 Menu = new Mongo.Collection('menu');
003 // server/publications.js
004 Meteor.publish('menu', function() {
005   return Menu.find();
006 });
007
```

11 Get a menu helper

Create another file called 'menu.js' within templates/menu. The second part of the property (Template.foo) is the name of the template. Helpers are variables within the template, so use this helper like {{menu}}. It's returning a reference to the Menu collection and it returns all of the menus that it can find.

```
001 Template.menu.helpers({
002   menu: function () {
```

<Above>
 • Our app is rendering correctly and even provides helpful hints in the UI when things aren't working like they should be

<Above>
 • Our menu is now displayed! As soon as you make changes to the database it'll be pushed through to the client

<Above>
 • The formatted price is now working as intended and displaying the other menu items with the menu item helper

<Above>
 • Our finished kitchen interface updates as soon as customers place an order, which the chef can then check off

```
003   return Menu.find();
004 }
005 });
006
```

12 Insert menu data
 The next step is to add the menu to the database. Within a browser console follow the GitHub Gist link (shortened below for your convenience) and copy and paste the JSON between the parenthesis. As soon as you do this, the view should update with the new menu data from the database.

```
001 Menu.insert(
002   // JSON from http://bit.ly/1vE0Fo0
003 );
004
005
```

13 Create the menu item template
 Unfortunately you still won't see anything! Why? We referenced a template called menuItem that we haven't created yet. But once this is done, the menu will be displayed beautifully. Within templates/menu create a file called 'menu_item.html'. As you would with other template systems, reference object properties with the double curly brackets.

Atmosphere and packages
 Packages extend Meteor with great functionality: at the time of 0.8 Atmosphere (<http://atmospherejs.com>) wasn't officially part of Meteor, but now support is baked right in.

14 Fix the prices
 Hooray, our menu is rendering! But no price is showing up, that's because instead of just outputting {{price}} we're outputting {{formattedPrice}}. As it comes through as a number we should format it as a proper, consistent price. Create a file called 'menu_item.js'. 'this' references the actual object from the menu collection and toFixed transforms the number from 6 to 6.00.

```
001 Template.menuItem.helpers({
002   formattedPrice: function () {
003     return this.price.toFixed(2);
```

```
004 }
005 });
```

15 Template events

Events to templates are added in a novel way (although unchanged since 0.8). Each listener is the event followed by a CSS selector. This makes them highly readable and ensures that they're all kept in the same place. The event is passed through and we can reference the current item as 'this'.

```
001 Template.menuItem.events({
002   'click button': function (e) {
003     /* next step */
004   }
005 });
```

16 Add an order

Our button is going to change behaviour depending on if it has a class called choose or not. If it does then we're going to create a new order by inserting into the Orders table. We're getting the table information from the logged-in user (each table could have its own account) so the kitchen knows who ordered what.

```
001 if (e.target.classList.contains('choose')) {
002   e.target.innerText = 'Remove';
003   this.orderId = Orders.insert({
004     table: {
005       name: Meteor.user().username,
006       id: Meteor.userId()
007     },
008     item: this
009   });
010 } else {
011   /* next step */
012 }
013 e.target.classList.toggle('choose');
```

17 Remove an order

When the user clicks the button we toggle the class of 'choose' and show Remove text instead. Removing an item from the database is just as easy as adding one, call remove with the ID of the record you wish to remove, optionally you can have a callback to handle errors and successes.

```
001 var self = this;
002 Orders.remove(this.orderId, function (error) {
003   if (error) {
004     alert(error.reason);
005   } else {
006     alert(self.name + ' was removed. ');
007   }
008 });
009 e.target.innerText = 'Choose';
```

18 Secure the app

Meteor includes a couple of convenience packages, which make it easy to get it up and running quickly, but it shouldn't be used in real projects - these are autopublish and insecure. Autopublish publishes the entire database to all clients, and insecure enables all database writes by default. Let's remove those.

```
001 $ meteor remove autopublish
002 $ meteor remove insecure
```



Reactive rendering with Blaze and Tracker

A part of Meteor that's integral to how it works, but not yet mentioned, is the UI library Blaze. The library includes Spacebars and a number of other packages for dealing with HTML and JavaScript, so you don't have to worry about dealing directly with the DOM in most cases, you just write your template. Blaze isn't tied down to just Spacebars, though. If you prefer writing your markup in Jade then it supports that too, it's simply a way of creating a reactive interface. It does this by utilising a library called Tracker which enables 'transparent reactive programming'. Tracker was originally called Deps, which we touched on briefly last time in issue 224. Tracker enables any library to register what dependencies to listen for and be notified when they change.

19 Subscribe to menu

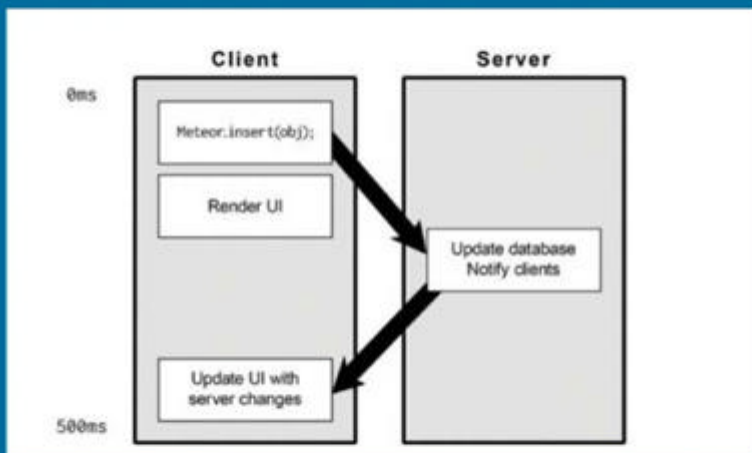
Uh oh, our menu has disappeared! This is because although the server is publishing the menu we're not subscribing to it client-side. Create yet another file called 'main.js' in client/templates. This subscribes to not just the published menu, but a collection that we haven't created yet called 'orders'. As soon as you save this, the menu will reappear.

```
001 Meteor.subscribe('menu');
002 Meteor.subscribe('orders');
003
```

20 Kitchen template

Our menu now successfully places orders, but our fictional kitchen needs to see the orders as they come through. First we'll create a new template to show these orders called 'kitchen.html'. {{table}} is the name of the table (the username, we've called my users 'Table 1', 'Table 2' and so on). An exclamation mark denotes a Spacebar's comment.

```
001 <template name="kitchen">
002   <div class="container kitchen-view">
003     <h1>Orders</h1>
004     <ul>
005       {{#each tableOrders}}
006         <h2>{{table}}</h2>
007         {{! next step}}
008       {{/each}}
009     </ul>
010   </div>
011 </template>
012
```

Built-in latency compensation with Meteor

This sounds like a complicated process but Meteor makes it seamless. When you make a change to the database, that change is performed on the client immediately and then when the database comes back with a response, it then updates the client and UI. This behaviour is part of the reactivity built-in to Meteor and makes Meteor apps perceived performance faster than it actually is because the user always gets an immediate response. In the case of collections you can disable this on a case-by-case basis with `{ reactive: false }` when you set up `find()`, eg with `Collection.find({}, { reactive: false })`. This is also useful if you know the source won't change.

Deploying your Meteor project

Meteor apps can now be deployed using services other than the official 'meteor deploy', like Nitrous, Modulus, and Meteor Up.

21 List orders

We'll simply output the item's name and a checkbox that could be used to notify the patron when their food is cooked or simply as an internal reference. We could also limit the fields returned from the server within the helper if keeping requests lean were a priority.

```
001 {{#each orders}}
002 <li>
003 <label>
004 <input type="checkbox">
005 {{item.name}}
006 </label>
007 </li>
008 {{/each}}
```

22 Kitchen helper

We've seen `Collection.find()` a few times but this doesn't actually get the records. It returns a 'cursor' to it. `.fetch()` gets the records and because a subset of the database is replicated on the client, it's instantaneous. We are then grouping each order by the table that it's associated with using Underscore's `groupBy()` method.

23 Map table data

We then use another Underscore method called `.map()`, which transforms each item in the array so we end up with a structure that looks like `'[{ table: 'Table 1', orders: [] }, ...]'`. We can then iterate over this in our kitchen template and easily output each table's orders. The first argument is the array of orders and the second is the key.

```
001 return _.map(groupedTables, function(orders, table) {
002 tableOrders: function () {
003 return {
004 table: table,
005 orders: orders
006 };
007 });
```

24 Order permissions

In a new file under `lib/collections/orders.js` we're going to add another Mongo collection. We're also specifying that the client can insert or remove an order, but not update it. Instead of just returning true you could add specific instructions like `'return Meteor.user().roles.indexOf('admin') > -1'` (note that we'd also need to use the `meteor-roles` package).

```
001 Orders = new Mongo.Collection('orders');
002 Orders.allow({
003 insert: function() {
004 return true;
005 },
006 remove: function() {
007 return true;
008 }
009 });
```

25 Publish orders

Within `server/publications.js` we need to add another publish block beneath the menu one to publish the orders collection. Meteor includes a pared down version of Mongo on the client known as MiniMongo, which is why we can use Mongo commands client-side.

```
001 Meteor.publish('orders', function() {
002 return Orders.find();
003 });
004
```

26 Loading indicator

When we added the Meteor packages for this project we added one called 'spin', which is a simple package that shows a CSS spinner. We'll use it to show the user we're doing something while it loads menu data. Create a file called `loading.html` - it contains the template that points to the spinner partial.

```
001 <template name="loading">
002 {{> spinner}}
003 </template>
004
```

27 Configure Iron Router

Finally we configure Iron Router to show the loading template when it's waiting to subscribe to the menu. You can also return an array like `return ['Meteor.subscribe('menu'), Meteor.subscribe('orders')]` if you wanted to wait for both. We now have a system that takes orders and automatically updates the kitchen when they arrive!

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Build, test and deploy an app with Firefox WebIDE

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The web is a series of linked files and resources: when you want to see something, you go to a site and all of the resources related to what you want to see are retrieved.

Given the prominence of certain mobile operating systems in development and design trends, you could be forgiven for thinking that the web is old-fashioned and that native is the way of the future. Head to an app store, download your app (assuming it works with your device) and then use said app in a nice, tidy bundle. That system works well on the surface, but as soon as an app comes along that brushes the owner up the wrong way or presents a challenge to the seat of power, there's nothing to stop them from snuffing the life out of it. Just try and download Firefox onto iOS, for example. Well, what if we could have the best of both worlds? The openness and interoperability of the web, but with the neatness and discoverability of having a native app – that's what packaged apps are, and in this tutorial we'll be looking at the offering from Mozilla for building packaged web apps with its shiny new WebIDE.

01 Enable the WebIDE

Unlike Android Studio or Xcode, the WebIDE is not a stand-alone app, rather it is a part of every Firefox browser. To enable the WebIDE simply enter 'about:config' in the URL bar, search for 'devtools.webide.enabled' without the quotes and switch the value from false to true then restart Firefox.

02 Open the WebIDE

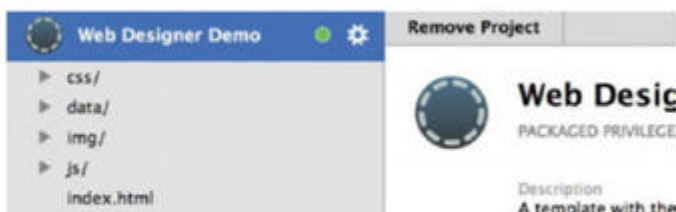
Once Firefox has reopened, you can launch the WebIDE by going to Tools>Web Developer>WebIDE. Click it and a new window will pop open. That's the WebIDE, and it's where we're going to be spending the next few steps looking around.

03 Create a new project

In the toolbar of the WebIDE click the Open App button. A drop-down menu will appear allowing us to create various types of Firefox Apps. Click New App and then select Privileged Empty App. Enter a name for your app ('WD Demo' will do) and click next, then select a folder you want to work from. This will create a bare-bones app that we can use for our own purposes.

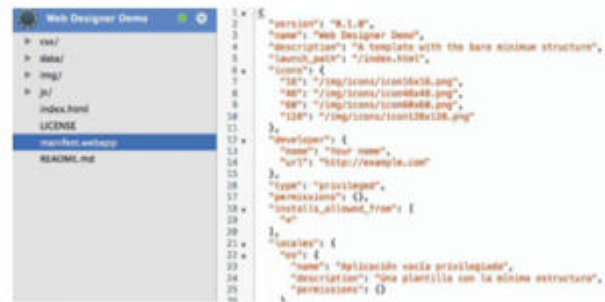
04 Prepare our own app

Firefox has built a basic app for us already, we have HTML, JavaScript and CSS but we're not going to use any of these – we are going to replace them instead. Navigate to your project folder and delete everything in it except for manifest.webapp, LICENSE and README.md and copy over the contents of the folder WD App from this tutorial's resources folder on FileSilo.



05 Examine the manifest


So, what is a manifest? Well, it's a file that describes a project to the system that has to run in. If you click on manifest.webapp in the IDE, you'll be able to see some of its contents. Here, we can describe the languages that the app will work in, where the icon files are for the app, author details and any permissions that the app needs to run certain functions.




06 Add permissions to the manifest

If you flick through the code we've just added to our Firefox app, you'll see that it's a simple app for calculating the distance between your current position and three universities in the UK: Oxford, Cambridge and Hull. In order to access the GPS in our app, we need to add the geolocation permission to the manifest. In the permissions object of our manifest, insert the following:

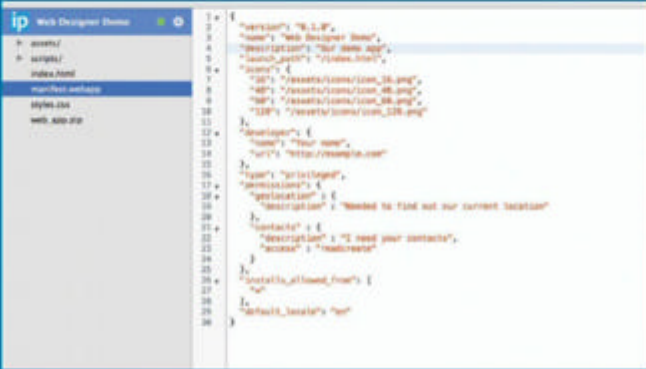
```
001
002 ...
003 "permissions": {
004   "geolocation" : {
005     "description" : "Needed to find out our current
006     location"
007   }
008 }
```



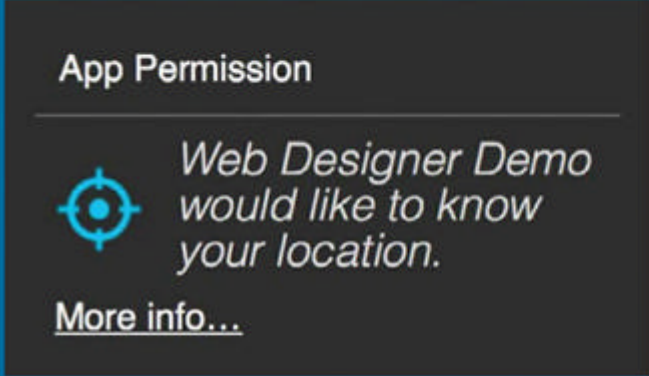
<Above>
 • Enabling the WebIDE is super simple. If you're using Firefox Nightly or Aurora, it's already set to go!



<Above>
 • The WebIDE is pretty Spartan when first fired up, but there is actually a lot of power hidden in this UI



<Above>
 • The app's manifest will describe everything about our app to the system that has to run or display it



<Above>
 • Our app will ask for permissions once and then will remember our selection for all of the subsequent runs

Is native faster?
 Yes, almost always, but is it noticeable to the user? Fancy graphics are very appealing, but aren't necessary in making a good app. If you can design an app that does its job well, the average user won't notice that it's a web app unless you tell them.

```
008 ...
009
```

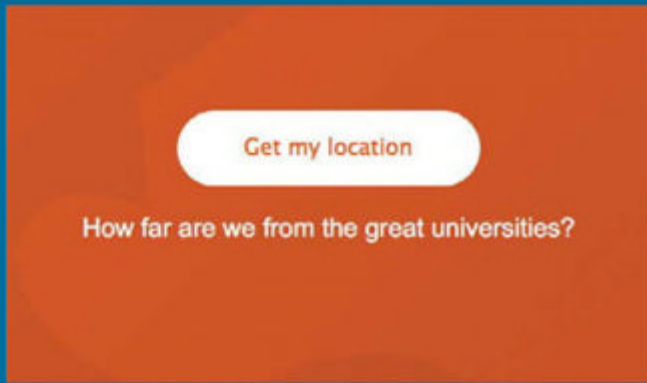
07 Understand permissions
 Some APIs require specific permissions in order for you to use them. The geolocation API is a fairly simple one, so all we need to do is ask for access, but for something like the Contacts API, we need to request a specific type of access, we do this by adding an access property to our permissions object.

```
001 ...
002 "permissions": {
```

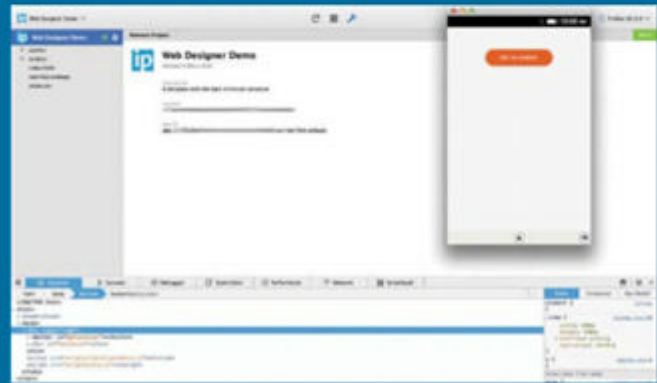
```
003     "geolocation" : {
004         "description" : "Needed to find out our current
Location"
005     },
006     "contacts" : {
007         "description" : "We want to add contacts to your address
book",
008         "access" : "createonly"
009     }
010 },
011 ...
012 ...
```

08 Add app icons
 In our manifest file, there is an icons property. Here we point our app to the image files (either JPG or PNG) that we want to display on our home screen/app install/notifications. Our app icons are in the /assets/icons folder, so we'll add that now.

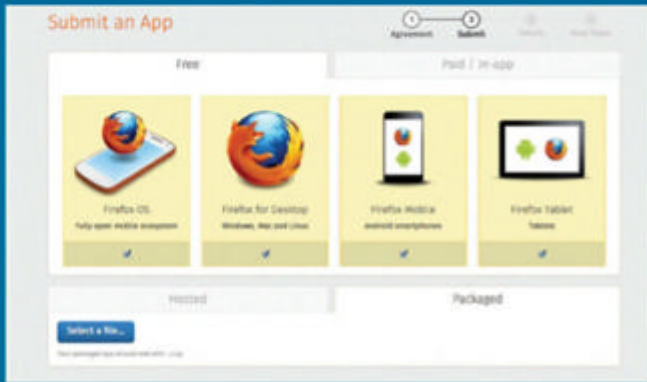
```
001 ...
002 "icons": {
003     "16": "/assets/icons/icon_16.png",
004     "48": "/assets/icons/icon_48.png",
```

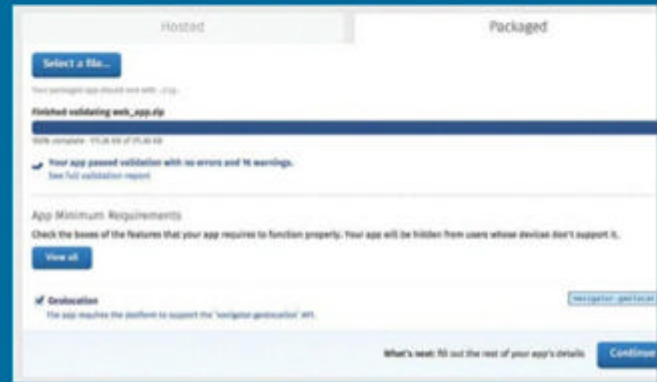
<Above>
• Our bare-bones app for testing our permissions and deployment process. Orange is the new black after all, and it is the best colour in this scenario



<Above>
• We can use the built-in Firefox dev tools to debug our code in the simulator and on our mobile devices too



<Above>
• Just like the web itself, almost anywhere that can run Firefox can install a Firefox app alongside native ones



<Above>
• Mozilla do all the hard work in validating our work, this helps to assure quality for the user and simplicity for app designers

Firefox apps on iOS?
Apple has always refused any app for its devices that serves web pages but doesn't use Safari. As such, Mozilla has never released an iOS browser, but lately some interesting GitHub repos have appeared. So there's work on Firefox for iOS, but will it ever come to fruition?

```
005 "60": "/assets/icons/icon_60.png",
006 "128": "/assets/icons/icon_128.png"
007 },
008 ...
```

09 Start the simulator
Now we have the basics of our new Firefox app all together. So let's fire it up and see if it all works! In the top-right of the IDE, you'll see a Select Runtime drop-down menu like the one on the right of this Step. Click it and select Firefox OS 2.0. A new window will open, this is our Firefox OS Simulator. It's a whole device, right in our browser. Pretty neat, eh?

SIMULATORS

- Firefox OS 1.3
- Firefox OS 1.4
- Firefox OS 2.0**
- Install Simulator

OTHER

- Remote Runtime
- Chrome Desktop

10 Install our app

Installing an app on an OS is often a painful process, but not with Firefox Apps – there's no provisioning, no sign-up to a developer portal, we just hit the play button in the centre of the toolbar on the IDE. This will install and run your app in the simulator.



11 Run the app

Right now, we can see our app in all its bare-bones glory. If we hit the big orange 'Get my location button', we'll see a prompt asking for access to our GPS. If we enable the app to 'remember our choice', the prompt won't appear on subsequent runs, it'll just execute the code.

12 Debug our app

No app creation is a bug-free experience. If something goes wrong in our Firefox app, we can use the familiar Web Console used throughout Firefox to debug our new app. If you head back to the WebIDE, you'll see a spanner icon next to the play button we used to install our app. Click that and the console will open inside the IDE window.

13 Package our app

Now that we have a basic functioning app, it's time to share it with the world. In order to publish our Firefox app on the Marketplace, we need to ZIP up all of our project files and upload it to the Firefox Marketplace. With a method of your choosing, add everything in your project folder to a ZIP file.

14 The Firefox Marketplace

Head over to <https://marketplace.firefox.com> and in the top-right, hit the Register button. A new window will open, follow the process until you have a Firefox Marketplace account. Remember, this address will be publicly viewable for each app you publish as an app/developer support email.

15 Submit our app

Now that you have a shiny new developer account, go ahead and log in to <https://marketplace.firefox.com/developers> and select 'submit an app' in the web page header. You'll be asked what platforms your app will be able to run on. The coolest thing about Firefox apps is that they will install on almost any platform that Firefox runs on!

16 Upload our packaged app

Just beneath our platform selection, there is a tab labelled 'Packaged'. Our app is packaged, so we'll use that to upload our app. Click it and select the ZIP file you created to upload your app to the Mozilla servers.

Code library

The Manifest, manifest

The manifest is the backbone of our packaged apps, by making it as descriptive as possible we can create a more enticing offering.

Here, we give details about our app, its version number, name and description. All of these will be visible as the app is installed and when it's displayed on the Firefox Marketplace.

This is our launch path. Here we will place a path to the file that we want to start our app from. Just like a web page, index.html is the entry point to load all of our images, CSS and JavaScript.

Our app icons. Each device has different screen sizes and resolutions, as well as different instances in which the icon may be used (like notifications for example).

The app's permissions. If our app uses any kind of Web API, we need to add an entry for it here, as well as the types of access that API will need (if applicable).

```
001 {
002   "version": "0.1.0",
003   "name": "Web Designer Demo",
004   "description": "Our demo app",
005   "launch_path": "/index.html",
006   "icons": {
007     "16": "/assets/icons/icon_16.png",
008     "48": "/assets/icons/icon_48.png",
009     "60": "/assets/icons/icon_60.png",
010     "128": "/assets/icons/icon_128.png"
011   },
012   "developer": {
013     "name": "Your name",
014     "url": "http://example.com"
015   },
016   "type": "privileged",
017   "permissions": {
018     "geolocation": {
019       "description": "Needed to find out our current location"
020     },
021     "contacts": {
022       "description": "I need your contacts",
023       "access": "readcreate"
024     }
025   },
026   "installs_allowed_from": [
027     "*"
028   ],
029   "default_locale": "en"
030 }
```

17 Validate your app

As soon as your app has finished uploading, Mozilla will start to work on validating your app. It will do this by checking whether your packaged app's manifest.webapp files has any errors on it. After that it will then proceed to checking the permissions you have requested and whether any of these conflict (CORS can be tricky, for example).

18 Fill in the details

Now that we've uploaded our app, we have to fill in some details about what it is, what it does and what it looks like. Anything that can be automatically filled in from the app's manifest will already be present in all of the correct places.

19 Fill in the Privacy Policy

One of the areas to fill in is Privacy Policy. There are no rules for what you can put here, but the simpler the better. There are guides on how to write one out there on the internet, but something like 'We will never

share your data with third parties' will also suffice to satisfy the Marketplace reviewers.

20 Content rating

Some territories require an age rating on all kinds of digital media. In order to publish our app, we need to obtain an age rating certificate. After clicking 'next steps' there will be a 'Create an IARC Ratings Certificate' button. This will open a new window asking you a series of questions about our app. Once you've answered them all, our app will then be assigned the appropriate age rating certificate.

21 Go through the review process

Mozilla wants to check what you're putting on their Marketplace is a quality product and not something malicious. This process is powered by volunteers, so it may take three to four days to get your app checked, depending on the queue. You can check your place in the queue and the app status at <https://marketplace.firefox.com/developers/submissions>.

GLOBAL RATING TOOL

INTERNATIONAL AGE RATING COALITION

English (American)

Content Questions Section Help

Please indicate whether your app contains any of the following types of content and respond accordingly to all follow-up questions. Note that only content that the app comes installed with should be evaluated here, all possible User Generated Content should be listed under "Interactive Elements" upon completion of the "Content" section.

Violence
Including inferences of, references to, or depictions of violence Yes No

Fear
Pictures or sounds likely to be scary or horrifying Yes No

Age ratings

Mozilla is a family-friendly brand - they fight for equality in technology and for the rights of individuals across the web and beyond. Having age ratings on apps is mandatory in some territories, but it's also a responsible course of action to take when operating on any marketplace that young people can access. This process may seem a little much for your hack project or egg-timing app, but it's as painless as possible and adds that little mark of quality next to your work proving that you, like Mozilla, are a responsible party. When it comes to internationalising your app, the age rating certificate automatically assigns itself the equivalent location-appropriate certificate for that locale - without any intervention on the developers' part. It's quite helpful and wonderfully seamless.

22 Edit your submission

If, while your app is being reviewed, you find you want to change its details or quickly update a bug you've missed, you can quickly upload a new packaged file by following the 'Add new version' link in the My Submissions section of the developer hub. This saves both you, and the reviewer, time.

23 Delete your app

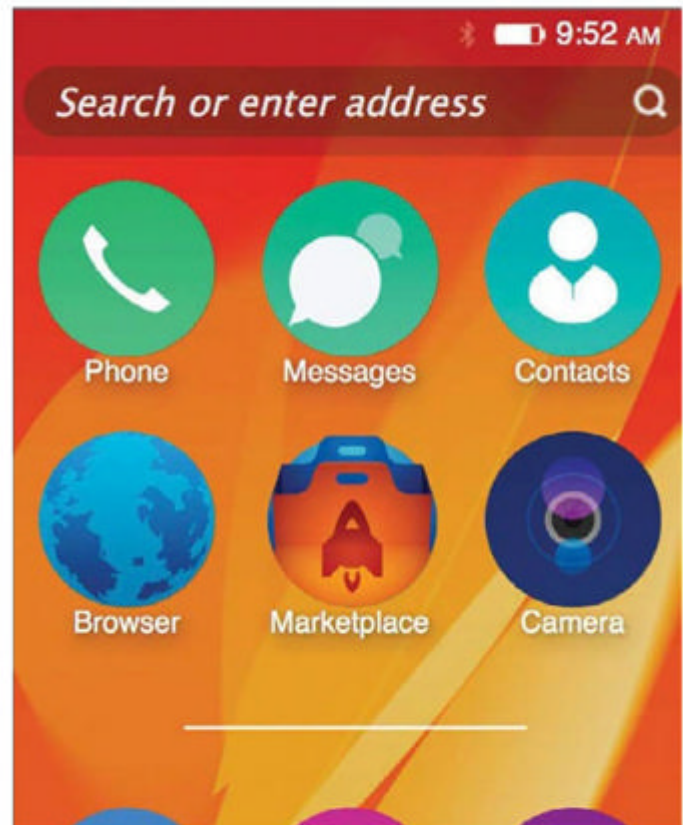
You may have to completely remove your app from the Marketplace. You can do that by heading to the Status & Versions page in the submission area of the dev portal. Scroll to the bottom and click Delete App. This will completely remove your app from the Marketplace, so make sure that you use this cautiously!

24 Install the approved app

Once you've been approved - congratulations! You can now install your app on your various devices. If you head to your app's newly public listing page, you'll see a lovely green button say Install. The effect this has varies depending on platform. On FFOS, it'll be installed to the home screen of your device. On Android it will be installed seamlessly alongside your native apps, and on Windows/Mac it'll be installed in your Applications folder.

25 Run your app

When it is finally run, the app will take on the aesthetics of the OS it's on, making you feel right at home when using it. On Windows and Mac, it will open in its own window, just like any other app. On Android, a splash screen will appear with your icon as the app loads and then its home screen will present itself. On Firefox OS, it will jump straight into the app, just as if you'd loaded it in from right inside your browser.



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111WebHost <small>.com</small> 111webhost.com	Budget Web Hosting Pack	N/A	£10	1GB	1GB	5	✓	✗	Add-on	N/A	✗	✓	✓	✗
	WordPress Web Hosting Pack	N/A	£20	5GB	2GB	100	✓	✓	Add-on	N/A	✗	✓	✓	✗
	Start-up Web Hosting Pack	N/A	£25	5GB	Unlimited	100	✓	✓	Add-on	N/A	✗	✓	✓	✗
	Unlimited Web Hosting Pack	N/A	£50	Unlimited	Unlimited	Unlimited	✓	✓	Add-on	N/A	✗	✓	✓	✗
	Unlimited Multi-site Web Hosting Pack	N/A	£300	Unlimited	Unlimited	Unlimited	✓	✓	Add-on	N/A	✗	✓	✓	✗
123-reg (www.123-reg.co.uk)	Starter	0845 859 0018	£29.88	1GB	5GB	20	✗	✗	✗	✓	✓	✓	✓	✗
123-reg (www.123-reg.co.uk)	Plus	0845 859 0018	£59.88	5GB	50GB	500	✓	✗	✗	✓	✓	✓	✓	✗
123-reg (www.123-reg.co.uk)	Pro	0845 859 0018	£107.88	10GB	100GB	750	✓	✗	✗	✓	✓	✓	✓	✗
123-reg (www.123-reg.co.uk)	Bus Pro	0845 859 0018	£179.88	20GB	Unlimited	1,000	✓	✗	✗	✓	✓	✓	✓	✗
123-reg (www.123-reg.co.uk)	Plus (MS)	0845 859 0018	£59.88	2GB	25GB	100	✓	✗	✗	✓	✓	✓	✓	✗
123-reg (www.123-reg.co.uk)	Pro (MS)	0845 859 0018	£107.88	5GB	50GB	500	✓	✗	✗	✓	✓	✓	✓	✗
123-reg (www.123-reg.co.uk)	Bus Pro (MS)	0845 859 0018	£179.88	10GB	150GB	1,000	✓	✗	✗	✓	✓	✓	✓	✗
2020Media (www.2020media.com)	Light User	0870 321 2020	£45	20MB	1GB	3	✓	✓	✓	✓	✓	✓	✓	✗
2020Media (www.2020media.com)	Everyday	0870 321 2020	£100	200MB	10GB	15	✓	✓	✓	✓	✓	✓	✓	✗
2020Media (www.2020media.com)	Business/Pro	0870 321 2020	£275	500MB	20GB	50	✓	✓	✓	✓	✓	✓	✓	✗
2020Media (www.2020media.com)	JAVA Tomcat	0870 321 2020	£300	100MB	3GB	15	✓	✓	✓	✓	✓	✓	✓	✗
2020Media (www.2020media.com)	ASP.Net	0870 321 2020	£275	100MB	3GB	15	✓	✓	✓	✓	✓	✓	✓	✗
4D Hosting (www.4dhosting.com)	Big Web Hosting	0207 183 0602	£60	5GB	Unlimited	20	✓	✓	✓	✓	✓	✓	✓	✓
4D Hosting (www.4dhosting.com)	Bigger Web Hosting	0207 183 0602	£120	10GB	Unlimited	75	✓	✓	✓	✓	✓	✓	✓	✓
4D Hosting (www.4dhosting.com)	Biggest Web Hosting	0207 183 0602	£180	20GB	Unlimited	100	✓	✓	✓	✓	✓	✓	✓	✓
4D Hosting (www.4dhosting.com)	Big VPS	0207 183 0602	£204	75GB	500GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
4D Hosting (www.4dhosting.com)	Bigger VPS	0207 183 0602	£360	100MB	1,000GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
4D Hosting (www.4dhosting.com)	Biggest VPS	0207 183 0602	£720	200GB	1,500GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
Blackfoot Hosting Ltd (www.blackfoot.co.uk)	Home	N/A	£40	500MB	5GB	5	✓	✓	✓	✓	✗	✓	✓	✗
Blackfoot Hosting Ltd (www.blackfoot.co.uk)	Business	N/A	£50	1GB	20GB	100	✓	✓	✓	✓	✗	✓	✓	✗
Blackfoot Hosting Ltd (www.blackfoot.co.uk)	eCommerce	N/A	£100	2GB	40GB	200	✓	✓	✓	✓	✗	✓	✓	✗
Blackfoot Hosting Ltd (www.blackfoot.co.uk)	Professional	N/A	£150	3GB	60GB	300	✓	✓	✓	✓	✗	✓	✓	✗
Blacknight (www.blacknight.com)	Minimus	35359 918 3072	£45	10GB	200GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✗
Blacknight (www.blacknight.com)	Medius	35359 918 3072	£79	20GB	400GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✗
Blacknight (www.blacknight.com)	Maximus	35359 918 3072	£45	30GB	600GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✗
CityCM (www.citycm.co.uk)	City250	0330 223 0120	£10.99	250MB	5GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
CityCM (www.citycm.co.uk)	City500	0330 223 0120	£14.99	500MB	10GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
CityCM (www.citycm.co.uk)	City2000	0330 223 0120	£29.90	2GB	50GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
CityCM (www.citycm.co.uk)	City10000	0330 223 0120	£49.90	10GB	100GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
CityCM (www.citycm.co.uk)	CityR10	0330 223 0120	£120	10GB	50GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
CityCM (www.citycm.co.uk)	CityR20	0330 223 0120	£180	20GB	100GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
CityCM (www.citycm.co.uk)	CityR30	0330 223 0120	£240	30GB	150GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
CityCM (www.citycm.co.uk)	City VPS15	0330 223 0120	£180	15GB SSD	400GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
CityCM (www.citycm.co.uk)	City VPS30	0330 223 0120	£300	30GB SSD	600GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
CityCM (www.citycm.co.uk)	City VPS75	0330 223 0120	£420	75GB SSD	600GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
Designwasp (http://designwasp.com)	Starter	0844 372 9848	£30	3GB	20GB	1,000	✓	✓	✗	✓	✓	✓	✓	✗
Designwasp (http://designwasp.com)	Home	0844 372 9848	£40	10GB	50GB	10,000	✓	✓	✗	✓	✗	✓	✓	✗
Designwasp (http://designwasp.com)	Business	0844 372 9848	£60	Unlimited	Unlimited	Unlimited	✓	✓	✗	✓	✗	✓	✓	✗
Designwasp (http://designwasp.com)	Windows Unlimited	0844 372 9848	£60	Unlimited	Unlimited	Unlimited	✓	✓	✗	✓	✗	✓	✓	✗
Designwasp (http://designwasp.com)	Windows Home	0844 372 9848	£40	10GB	50GB	1,000	✓	✓	✗	✓	✗	✓	✓	✗
Designwasp (http://designwasp.com)	CheapHost	0844 372 9848	£10	300MB	100MB	5	✗	✗	✗	✓	✗	✗	✓	✗
Digital Gibbon Ltd (http://digitalgibbon.com)	Cheeky Chimp	NA	£0	500MB	Unlimited	5	✓	✗	✓	✓	NA	✓	✓	✗
Digital Gibbon Ltd (http://digitalgibbon.com)	Digital Gibbon	NA	£12	5GB	Unlimited	10	✓	✗	✓	✓	NA	✓	✓	✗
Digital Gibbon Ltd (http://digitalgibbon.com)	Silverback	NA	£24	Unlimited	Unlimited	Unlimited	✓	✓	✓	✓	NA	✓	✓	✗
Digital Gibbon Ltd (http://digitalgibbon.com)	Wordpress hosting	NA	£12	5GB	Unlimited	10	✓	✗	✓	✓	NA	✓	✓	✗
Donhost (www.donhost.co.uk)	Reseller Unix	0845 226 5566	£399.99	Unlimited	Unlimited	Unlimited	✓	✗	✓	✓	✓	✓	✓	✗
Donhost (www.donhost.co.uk)	Reseller Windows	0845 226 5566	£499.99	Unlimited	Unlimited	Unlimited	✓	✗	✓	✓	✓	✓	✓	✗
Donhost (www.donhost.co.uk)	Enterprise	0845 226 5566	£89.99	1GB	2GB	250	✓	✗	✓	✓	✓	✓	✓	✗
Donhost (www.donhost.co.uk)	Commerce	0845 226 5566	£179.99	2GB	5GB	500	✓	✗	✓	✓	✓	✓	✓	✗
Donhost (www.donhost.co.uk)	Designer	0845 226 5566	£119.99	1GB	2GB	250	✓	✗	✓	✓	✓	✓	✓	✗
Donhost (www.donhost.co.uk)	Developer	0845 226 5566	£259.99	2GB	5GB	500	✓	✗	✓	✓	✓	✓	✓	✗

Featured host of the month: **111WebHost** 111webhost.com



Getting more out of one of our quality listed hosting providers

111WebHost is a provider committed to making website hosting easy to use while offering the best possible value. It provides solutions for small- and medium-sized businesses as well as individuals – and web designers and developers are high on their list. 111WebHost offers a range of top-value packages starting at

the ridiculously low price of £1 per month. For this, users get 1GB of webspace and 1GB of monthly traffic. For those looking for more, there is 5GB of webspace and unlimited traffic for just £2.50 a month. Unlimited webspace and traffic is available for just £5 a month. They also provide specialist hosting for WordPress, Joomla and Drupal.

NAME AND URL	PACKAGE	PHONE NUMBER	COST PER YEAR	WEB SPACE	MONTHLY BANDWIDTH	POP3 ACCOUNTS	DATABASE SUPPORT	SHOPPING CART	VIRUS FILTER	FIREWALL	PHONE SUPPORT	EMAIL SUPPORT	WEB CONTROL PANEL	SERVICE LEVEL AGREEMENT
eHosting (www.ehosting.com)	Starter	0844 999 4100	£23.88	1GB	25GB	10	x	x	x	x	x	✓	✓	✓
eHosting (www.ehosting.com)	Personal	0844 999 4100	£59.88	2.5GB	Unlimited	50	✓	x	x	x	x	✓	✓	✓
eHosting (www.ehosting.com)	Expert	0844 999 4100	£95.88	5GB	Unlimited	250	✓	x	x	x	x	✓	✓	✓
eHosting (www.ehosting.com)	Virtual	0844 999 4100	£227.88	50GB	Unlimited	Unlimited	✓	x	x	x	✓	✓	✓	✓
Equipphase (www.equipphase.net)	Bronze	0121 314 4865	£30	200MB	2GB	10	✓	✓	x	✓	x	✓	✓	✓
Equipphase (www.equipphase.net)	Silver	0121 314 4865	£42	400MB	5GB	20	✓	✓	x	✓	x	✓	✓	✓
Equipphase (www.equipphase.net)	Gold	0121 314 4865	£72	800MB	10GB	100	✓	✓	x	✓	x	✓	✓	✓
Equipphase (www.equipphase.net)	Platinum	0121 314 4865	£114	1,200MB	40GB	200	✓	✓	✓	✓	✓	✓	✓	✓
Eurofasthost.com (www.eurofasthost.com)	Email Only	02380 249 823	£40	1GB	2GB	10	x	x	✓	✓	✓	✓	✓	✓
Eurofasthost.com (www.eurofasthost.com)	Essential	02380 249 823	£75	2GB	5GB	10	x	x	✓	✓	✓	✓	✓	✓
Eurofasthost.com (www.eurofasthost.com)	Superior	02380 249 823	£140	5GB	10GB	25	✓	✓	✓	✓	✓	✓	✓	✓
Eurofasthost.com (www.eurofasthost.com)	Premium	02380 249 823	£250	10GB	25GB	100	✓	✓	✓	✓	✓	✓	✓	✓
Evohosting (www.evohosting.co.uk)	Starter	N/A	£29.99	500MB	1GB	3	✓	✓	✓	✓	x	✓	✓	✓
Evohosting (www.evohosting.co.uk)	Home	N/A	£54.99	2.5GB	30GB	50	✓	✓	✓	✓	x	✓	✓	✓
Evohosting (www.evohosting.co.uk)	Business	N/A	£79.99	6.5GB	Unlimited	Unlimited	✓	✓	✓	✓	x	✓	✓	✓
Evohosting (www.evohosting.co.uk)	eCommerce	N/A	£159.99	30GB	Unlimited	Unlimited	✓	✓	✓	✓	x	✓	✓	✓
Fasthosts (www.fasthosts.co.uk)	Personal	0808 168 6777	£32.87	5GB	Unlimited	50	✓	x	✓	✓	✓	✓	✓	x
Fasthosts (www.fasthosts.co.uk)	Business Bronze	0808 168 6777	£58.38	50GB	Unlimited	500	✓	Option	✓	✓	✓	✓	✓	x
Fasthosts (www.fasthosts.co.uk)	Business Silver	0808 168 6777	£76.39	Unlimited	Unlimited	Unlimited	✓	Option	✓	✓	x	✓	✓	x
Fasthosts (www.fasthosts.co.uk)	Business Gold	0808 168 6777	£101.89	Unlimited	Unlimited	Unlimited	✓	Option	✓	✓	x	✓	✓	x
Fasthosts (www.fasthosts.co.uk)	WD Starter	0808 168 6777	£149.99	20GB	Unlimited	Unlimited	✓	Option	Option	✓	x	✓	✓	x
Fasthosts (www.fasthosts.co.uk)	WD Advanced	0808 168 6777	£199.99	Unlimited	Unlimited	Unlimited	✓	Option	Option	✓	x	✓	✓	x
Giacom (www.giacom.com)	Business Pro	0800 542 7500	£199	100MB	2GB	100	✓	Option	Option	✓	✓	✓	✓	✓
Heart Internet (www.heartinternet.co.uk)	Starter Professional	0845 644 7750	£29.80	2.5GB	10GB	1,000	x	x	x	✓	x	✓	✓	✓
Heart Internet (www.heartinternet.co.uk)	Home Professional	0845 644 7750	£89.99	Unlimited	Unlimited	10,000	✓	✓	x	✓	x	✓	✓	✓
Heart Internet (www.heartinternet.co.uk)	Business Professional	0845 644 7750	£129.99	Unlimited	Unlimited	Unlimited	✓	✓	x	✓	x	✓	✓	✓
Heart Internet (www.heartinternet.co.uk)	Reseller Professional	0845 644 7750	£349.99	Unlimited	Unlimited	Unlimited	✓	✓	x	✓	x	✓	✓	✓
Hostway (www.hostway.co.uk)	Silver	0808 180 1880	£79.50	150MB	3GB	5	x	Option	✓	✓	x	✓	✓	x
Hostway (www.hostway.co.uk)	Gold	0808 180 1880	£139.50	300MB	5GB	10	✓	Option	✓	✓	✓	✓	✓	x
Hostway (www.hostway.co.uk)	Gold Plus	0808 180 1880	£189.50	450MB	10GB	30	✓	Option	✓	✓	✓	✓	✓	x
Hostway (www.hostway.co.uk)	Platinum	0808 180 1880	£359.50	600MB	20GB	50	✓	Option	✓	✓	✓	✓	✓	x
Hostway (www.hostway.co.uk)	Platinum Plus	0808 180 1880	£599.50	1.2GB	40GB	10	✓	Option	✓	✓	✓	✓	✓	x
Hostway (www.hostway.co.uk)	Email Plus	0808 180 1880	£49.95	50MB	N/A	5	N/A	N/A	N/A	✓	x	✓	✓	x
LD Hosts (http://ldhosts.co.uk)	LD Budget (Linux)	07891 235858	£11.88	1GB	1GB	500	✓	✓	x	✓	✓	✓	✓	✓
LD Hosts (http://ldhosts.co.uk)	LD Home (Linux)	07891 235858	£23.88	10GB	10GB	5,000	✓	✓	x	✓	✓	✓	✓	✓
LD Hosts (http://ldhosts.co.uk)	LD Pro (Linux)	07891 235858	£41.88	50GB	50GB	20,000	✓	✓	x	✓	✓	✓	✓	✓
LD Hosts (http://ldhosts.co.uk)	LD Unlimited (Linux)	07891 235858	£60	Unlimited	Unlimited	Unlimited	✓	✓	x	✓	✓	✓	✓	x
LD Hosts (http://ldhosts.co.uk)	Windows Home	07891 235858	£17.88	2GB	2GB	1,000	✓	✓	x	✓	✓	✓	✓	x
LD Hosts (http://ldhosts.co.uk)	Windows Unlimited	07891 235858	£60	Unlimited	Unlimited	Unlimited	✓	✓	x	✓	✓	✓	✓	x
Media Temple (http://mediatemple.net)	Shared-Server Pro	+1 310 841 5500	£64	2GB	1TB	1,000	✓	✓	✓	✓	✓	✓	✓	✓
Media Temple (http://mediatemple.net)	Shared-Server Advanced	+1 310 841 5500	£109	5GB	1.5TB	5,000	✓	✓	✓	✓	✓	✓	✓	✓
NameHog (www.namehog.net)	Email Only	01604 212 904	£11.99	2.5GB	15GB	10	x	x	✓	✓	✓	✓	✓	✓
NameHog (www.namehog.net)	Starter	01604 212 904	£36.99	10GB	150GB	Unlimited	x	x	✓	✓	✓	✓	✓	✓
NameHog (www.namehog.net)	Home Pro	01604 212 904	£59.99	25GB	Unlimited	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
NameHog (www.namehog.net)	Business	01604 212 904	£109.99	Unlimited	Unlimited	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
Namesco (www.names.co.uk)	StartUp Plus	0845 363 3632	£89.99	500MB	5GB	10	✓	✓	✓	✓	✓	✓	✓	✓
Namesco (www.names.co.uk)	Business	0845 363 3632	£149.99	2,000MB	20GB	100	x	x	✓	✓	✓	✓	✓	✓
Namesco (www.names.co.uk)	Business Plus	0845 363 3632	£89.99	3,000MB	30GB	200	✓	✓	✓	✓	✓	✓	✓	✓
Namesco (www.names.co.uk)	Designer	0845 363 3632	£239.88	1GB	20GB	200	✓	✓	✓	✓	✓	✓	✓	✓
Namesco (www.names.co.uk)	Designer Plus	0845 363 3632	£479.88	Unlimited	30GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓



DEVELOPER	0800 808 5450	£32.89	1GB	Unlimited	500	✓	✓	✓	✓	✓	✓	✓	✓	✓
ONE	0800 808 5450	£109.99	5GB	Unlimited	1000	✓	✓	✓	✓	✓	✓	✓	✓	✓
RESELLER	0800 808 5450	£274.89	Unlimited	Unlimited	1000	✓	✓	✓	✓	✓	✓	✓	✓	✓
VM500 Server	0800 808 5450	£300	20GB	Unlimited	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓	✓
2200DC Server	0800 808 5450	£720	160GB	Unlimited	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓	✓
3000DC Server	0800 808 5450	£1,200	2x500GB	Unlimited	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓	✓
2600QC Server	0800 808 5450	£1,800	2x500GB	Unlimited	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓	✓

To advertise here contact Daniel
 daniel.gunton@imagine-publishing.co.uk
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Continued...

NAME AND URL	PACKAGE	PHONE NUMBER	COST PER YEAR	WEB SPACE	MONTHLY BANDWIDTH	POP3 ACCOUNTS	DATABASE SUPPORT	SHOPPING CART	VIRUS FILTER	FIREWALL	PHONE SUPPORT	EMAIL SUPPORT	WEB CONTROL PANEL	SERVICE LEVEL AGREEMENT
Netplan (www.netplan.co.uk)	Shared 100	0207 1000 424	£60	100MB	1GB	5	✓	✓	✓	✓	✓	✓	✓	✓
Netplan (www.netplan.co.uk)	VS100	0207 1000 424	£600	5GB	5GB	5	✓	✓	✓	✓	✓	✓	✓	✓
Netplan (www.netplan.co.uk)	VS200	0207 1000 424	£1,000	10GB	10GB	10	✓	✓	✓	✓	✓	✓	✓	✓
Netplan (www.netplan.co.uk)	VS300	0207 1000 424	£2,000	15GB	50GB	20	✓	✓	✓	✓	✓	✓	✓	✓
Netplan (www.netplan.co.uk)	Dedicated Servers	0207 1000 424	£3,000+	73GB+	1,500GB	100+	✓	✓	✓	✓	✓	✓	✓	✓
 Patchman Web Hosting www.patchman-hosting.co.uk	Bronze Package (Linux)	01642 424 237	£35.88	1GB	Unlimited	1	1	✓	Option	✓	✓	✓	✓	✓
	Silver Package (Linux)	01642 424 237	£59.88	3GB	Unlimited	3	3	✓	Option	✓	✓	✓	✓	✓
	Gold Package (Linux)	01642 424 237	£83.88	5GB	Unlimited	25	5	✓	Option	✓	✓	✓	✓	✓
Reddex UK (www.reddexuk.com)	Reddex Design Starter	0843 289 4625	£18	1GB	Unlimited	10	✓	✓	✓	✓	✓	✓	✓	✓
Reddex UK (www.reddexuk.com)	Reddex Design Business	0843 289 4625	£59.88	10GB	Unlimited	100	✓	✓	✓	✓	✓	✓	✓	✓
Streamline.net (www.streamline.net)	Trial (3 month)	0844 941 1000	N/A	10GB	Unlimited	1,000	✓	Option	✓	✓	✓	✓	✓	✓
Streamline.net (www.streamline.net)	Starter	0844 941 1000	£23.88	500MB	Unlimited	20	✓	Option	✓	✓	✓	✓	✓	✓
Swish Hosting (www.swishhosting.co.uk)	Email	08445 67 69 71	£18	-	Unlimited	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
Swish Hosting (www.swishhosting.co.uk)	Windows Hosting	08445 67 69 71	£66	-	Unlimited	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
Tidy Web Hosting (www.tidywebhosting.co.uk)	Entry	0844 884 9100	£25	100MB	1GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
Tidy Web Hosting (www.tidywebhosting.co.uk)	Home	0844 884 9100	£50	500MB	5GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
TwentyHost (www.twentyhost.co.uk)	Basic55	0845 641 0776	£24	100MB	1,500MB	25	✓	✓	✓	✓	✓	✓	✓	✓
TwentyHost (www.twentyhost.co.uk)	Standard55	0845 641 0776	£45	200MB	3,000MB	50	✓	✓	✓	✓	✓	✓	✓	✓
TwentyHost (www.twentyhost.co.uk)	Business55	0845 641 0776	£70	500MB	7,500MB	100	✓	✓	✓	✓	✓	✓	✓	✓
TwentyHost (www.twentyhost.co.uk)	Advanced55	0845 641 0776	£110	1,000MB	15,000MB	200	✓	✓	✓	✓	✓	✓	✓	✓
UK2.NET (www.uk2.net)	Starter Hosting	0808 168 2427	£24	500MB	1GB	✓	✓	✓	✓	✓	✓	✓	✓	✓
UK2.NET (www.uk2.net)	Business Hosting	0808 168 2427	£54	Unlimited	Unlimited	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
VARIHOST (www.varihost.net)	WordPress Basic	0208 144 7057	£47.88	2GB	10GB	10	✓	✓	✓	✓	✓	✓	✓	✓
VARIHOST (www.varihost.net)	WordPress Plus	0208 144 7057	£71.88	4GB	100GB	100	✓	✓	✓	✓	✓	✓	✓	✓
VARIHOST (www.varihost.net)	WordPress Extra	0208 144 7057	£119.88	unlimited	Unlimited	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
WebFusion (www.webfusion.co.uk)	Fusion Professional	0845 130 1602	£107.40	5GB	50GB	1,000	✓	✓	✓	✓	✓	✓	✓	✓
WebFusion (www.webfusion.co.uk)	Fusion Business	0845 130 1602	£179.40	10GB	150GB	1,500	✓	✓	✓	✓	✓	✓	✓	✓
Z-Host (z-host.co.uk)	Z-100	N/A	£15	100MB	10GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
Z-Host (z-host.co.uk)	Z-200	N/A	£21	100MB	10GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
Z-Host (z-host.co.uk)	Z-500	N/A	£42	500MB	20GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
Z-Host (z-host.co.uk)	Z-1000	N/A	£60	1GB	40GB	Unlimited	✓	✓	✓	✓	✓	✓	✓	✓
Zen Internet (www.zen.co.uk)	Bronze (Linux)	0845 058 9000	£47.88	2GB	10GB	10	✓	✓	✓	✓	✓	✓	✓	✓
Zen Internet (www.zen.co.uk)	Silver (Linux)	0845 058 9000	£95.88	5GB	50GB	25	✓	✓	✓	✓	✓	✓	✓	✓
Zen Internet (www.zen.co.uk)	Gold (Linux)	0845 058 9000	£143.88	10GB	100GB	50	✓	✓	✓	✓	✓	✓	✓	✓
Zen Internet (www.zen.co.uk)	Platinum (Linux)	0845 058 9000	£239.88	50GB	250GB	100	✓	✓	✓	✓	✓	✓	✓	✓
Zen Internet (www.zen.co.uk)	Reseller (Linux)	0845 058 9000	£479.88	150GB	500	250	✓	✓	✓	✓	✓	✓	✓	✓

Golden rules to top hosting We identify and explain the key criteria for success...

- 1 The best resources for you**
 Selecting your ideal package is largely determined by the kinds of resources and quantity of features you require from your hosting solution. Key aspects such as web space and monthly bandwidth are important for those services likely to be subjected to heavy amounts of traffic, which is why package solutions for enterprise applications are typically much more expensive. The general rule of thumb is not to buy more than you need or underestimate potential requirements.
- 2 Competitive and reliable**
 The hosting market is big business and hosting providers do try to drive prices down in a bid to entice your custom. Use our chart to compare costs, but be sure to visit the vendor websites to keep track of the latest deals, as they do change. Remember that low price should not always be a deciding factor and that paying a premium for a more reliable, trusted and experienced vendor can offer you much better value for money in the long term.
- 3 Putting you in control**
 Modern hosting is all about giving customers the power to set up, monitor and maintain their web space with minimal fuss. Most commercial vendors offer access to award-winning and intuitive control panels that enable you to log in remotely and intuitively tweak your account - without the need to relay complicated instructions down the phone. Be sure to find out from your potential host as much as you can about the control panel and request a demo.
- 4 Fantastic customer support**
 If all else fails and you need some extra help to get your hosting back online, then a commitment to future customer support is key. Many vendors offer a service-level agreement which outlines what you can expect here, however most will be more explicit about whether phone support is included or email contact is preferred. Think about what you need for your own peace of mind and factor good, comprehensive technical support against the price.

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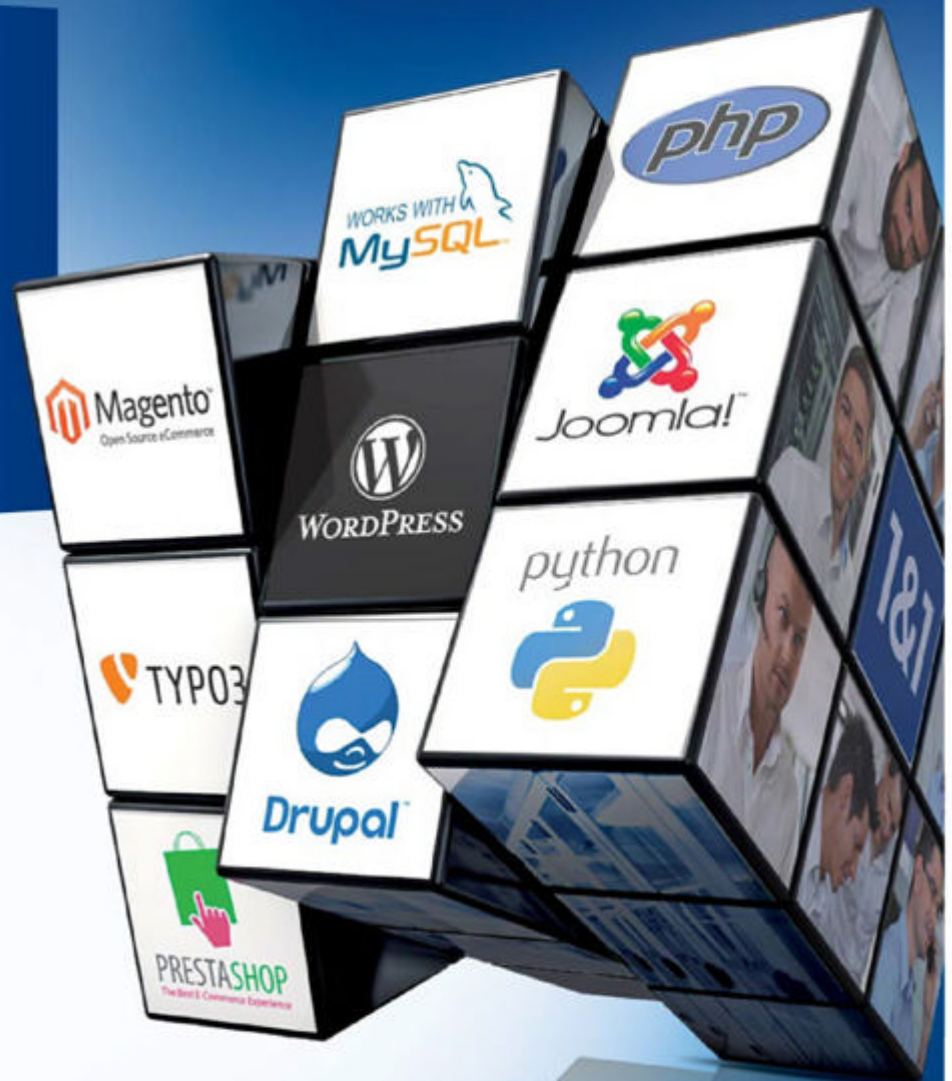
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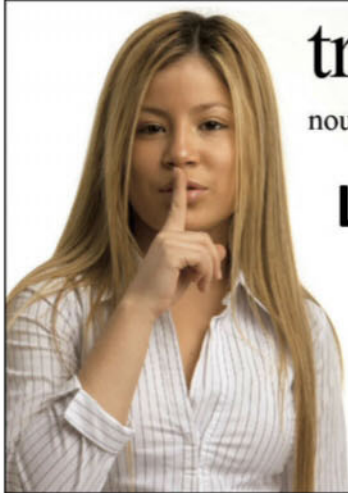


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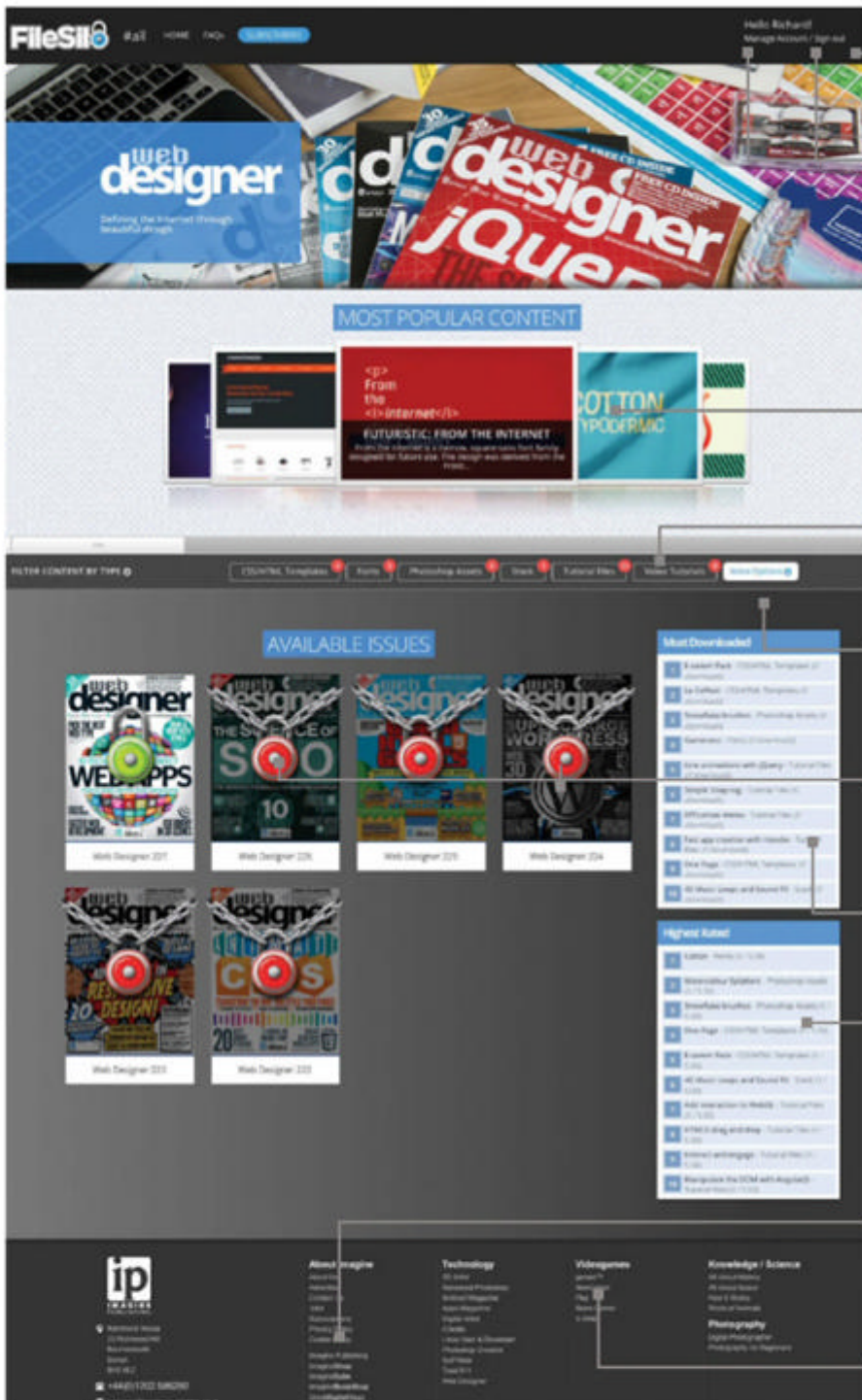
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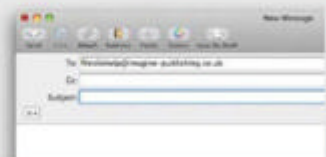


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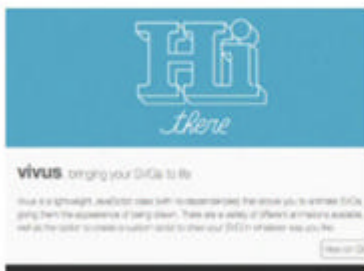
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