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Foundations

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WILEY
A John Wiley and Sons, Ltd, Publication

This edition first published 2013

Registered office

John Wiley & Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, United Kingdom

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978-1-118-35654-8

A catalogue record for this book is available from the British Library.

ISBN 978-1-118-35654-8 (paperback); ISBN 978-1-118-42516-9 (ebook); 978-1-118-42514-5 (ebook); 978-1-118-42515-2 (ebook)

Printed in the U.S. at Command Web Missouri

About the Author

IAN LUNN (DEVON, UK) is a Freelance Front End Developer, passionate about building the future of the web using technologies such as CSS3 and HTML5. With a Higher National Diploma in Internet Technology, Ian combines his education with expertise in CSS, HTML, JavaScript, and WordPress to build creative and effective websites and applications. Ian's enthusiasm for utilizing cutting edge technologies is matched by his dedication for advocating them; sharing his knowledge with the community, in the form of blog tutorials and open source projects.

Follow @IanLunn on Twitter (www.twitter.com/IanLunn) where he shares links and ideas about web design and development.

Publisher's Acknowledgements

Some of the people who helped bring this book to market include the following:

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Introduction

YOU'RE READING *CSS3 FOUNDATIONS* at an exciting time. Right now, the way in which the web is styled is undergoing changes, and with the constant advancement of technology, that doesn't look to end any time soon. The web is already a beautiful place, but with more features allowing you to style a page than ever, the possibilities of what can be created are endless.

Who Should Read This Book?

CSS3 Foundations is for those completely new to styling web pages, but also makes as a great reference for those familiar with CSS too—particularly when you want to remind yourself of the newest CSS features that you may not have committed to memory.

Ideally, you have a basic understanding of HTML (Hypertext Markup Language) but it's not essential. The HTML that makes up the web page built upon throughout *CSS3 Foundations* is provided for you and described in Chapter 2. So, whether you've chosen to start learning CSS before HTML, or vice versa, you'll be gently eased into both technologies.

If you're a hobbyist, somebody looking to make a career change into the wonderful world of the web industry, an owner of a website that is need of restyling, or a web designer/developer looking to upgrade your skills to the most recent techniques and methods in use today, *CSS3 Foundations* is for you.

What You Will Learn

CSS3 Foundations aims to get you not just hitting the ground running, but hopping, stepping, and jumping too!

You'll go from the very basics of styling a web page; changing the background color, the size of text, and so on, all the way through to more advanced topics such as animations and media queries, which allow you to change a page's layout for different sizes of device.

Although the easiest topics come first and slowly progress to reach the more advanced chapters, the way in which *CSS3 Foundations* is laid out represents the workflow I, and many other people in the web industry use to create a website. So, as well as learning CSS, you'll also learn a "best practice" approach that can be applied to real-world projects, to make pages not just great to look at, but easy to update and robust enough to be viewed on a wide range of devices too (such as desktop computer and mobile phone).

You'll also learn methods and techniques not described in the CSS specification (the official technical document that explains CSS), which web designers and developers have relied on for years to make the most of CSS.

How to Use This Book

In Chapter 2, I'll introduce you to a fictitious company that has asked you to create a web page—there's no pay but the experience is golden! You'll be able to download the necessary project files to get started. This download contains updated project files for each chapter (which are sometimes broken into milestones for the bigger chapters). I'll let you know when a milestone is reached and you can either use the project files to compare to your own work, or switch to that milestone's project files in case you didn't follow the steps that came before it.

Depending on your current experience with CSS, you may decide to jump ahead to the chapters that interest you most -- that's fine, the beginning of each chapter will let you know which project files to start with.

Once you've finished reading *CSS3 Foundations,* it'll make a great desktop companion for when you need to remind yourself on how to use a feature or solve a particular problem. Each property description includes useful information for quick reference, such as the property's initial value, browser compatibility, and so on. If you're unfamiliar with those terms, I'll explain those too!

Using This Book with Treehouse

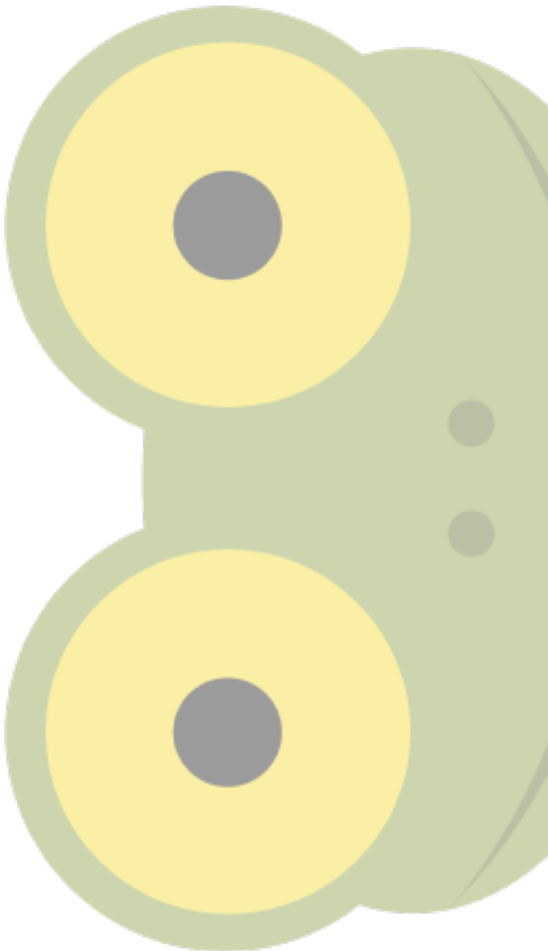
By no means do you need to be a member of Treehouse to make the most out of *CSS3 Foundations,* but the two sit nicely together. Although both aim to be extensive, there's certainly always something extra to learn.

What's more, Treehouse's video courses are often followed by fun, interactive challenges that put what you've learned to the test. You can redo a challenge as many times as you like until you feel comfortable with the topic being covered.

Treehouse also has a great community (which I am pleased to be a part of), so if at any time you have a question or want to show off your CSS skills, come and join in!

part 1

Introduction



chapter one

Understanding CSS and the Modern Web

IN THIS CHAPTER, you'll learn what the modern web is and why CSS is so important to it.

What Is the Modern Web?

Most importantly, the web today is what it has always been—accessible information. Unlike the early days of the web, though—when it was just a collection of text files—the modern web has grown to support many differing media formats and now, more than ever, many differing ways to access information.

No longer do you just sit at a desktop computer to "log on." Nowadays, you sit on a beach reading the news on a tablet device, you go to a coffee shop with laptop in hand to chat with friends in different countries, and you try to refrain from laughing at pictures of cats playing keyboards while viewing a smart phone on a train journey. The information on the web is practically infinite (more content is created than you could ever consume), and the way in which you access that information continues to grow.

The modern web is an exciting media to be a part of. It is continuously growing and so too are the technologies behind it.

What Is CSS?

Cascading Style Sheets (CSS) is a simple language defining styles that can be applied to HTML. Where HTML describes the structure of a web page, CSS describes its presentation.

An international community called the World Wide Web Consortium (W3C) writes and maintains the CSS specifications that define and standardize the way in which people should write the CSS language and browser vendors (the people who make web browsers) should implement it. Because the CSS specification has grown since its introduction in 1996, the latest version, CSS3, has been broken up into modules so that each defines a part of CSS, making the overall specification easier to maintain.

You can find the CSS specifications at `www.w3.org/Style/CSS/`. Because these specifications are very much technical and in depth, you may find them off-putting. I know I do! Although they are useful to refer to from time to time, by no means do you need to read them. *CSS3 Foundations* takes a much more simple and friendly approach to your understanding of CSS3.

Before you take a closer look at what CSS can offer, you should first understand the current state of CSS. You may have noticed I referred to both CSS and CSS3. What's the difference?

CSS refers to all three levels of the specification: CSS Level 1 (CSS1), CSS Level 2 (CSS2), and CSS Level 3 (CSS3). Each level of CSS builds on its predecessor. CSS2 had a shaky start and many issues came to light, leading to a revision of this specification and the release of CSS2.1. So, CSS3 contains aspects of its predecessor CSS2.1, and CSS2.1 contains aspects of CSS2 and CSS1.

Although each CSS level builds on its predecessor, where relevant, a level recommends a particular feature from its predecessor no longer be used and thus deprecated. This means that when referring to CSS3, one is actually referring to all the features made available throughout CSS, except those that have been deprecated.

In *CSS3 Foundations*, you learn CSS3, which includes not just the newest of features, but also those from the previous CSS levels that experienced designers and developers have relied on for years.

The Role of CSS

The main purpose of CSS is to separate structure (HTML) from presentation (CSS). Figure 1-1 shows a web page that consists only of HTML, without any CSS.

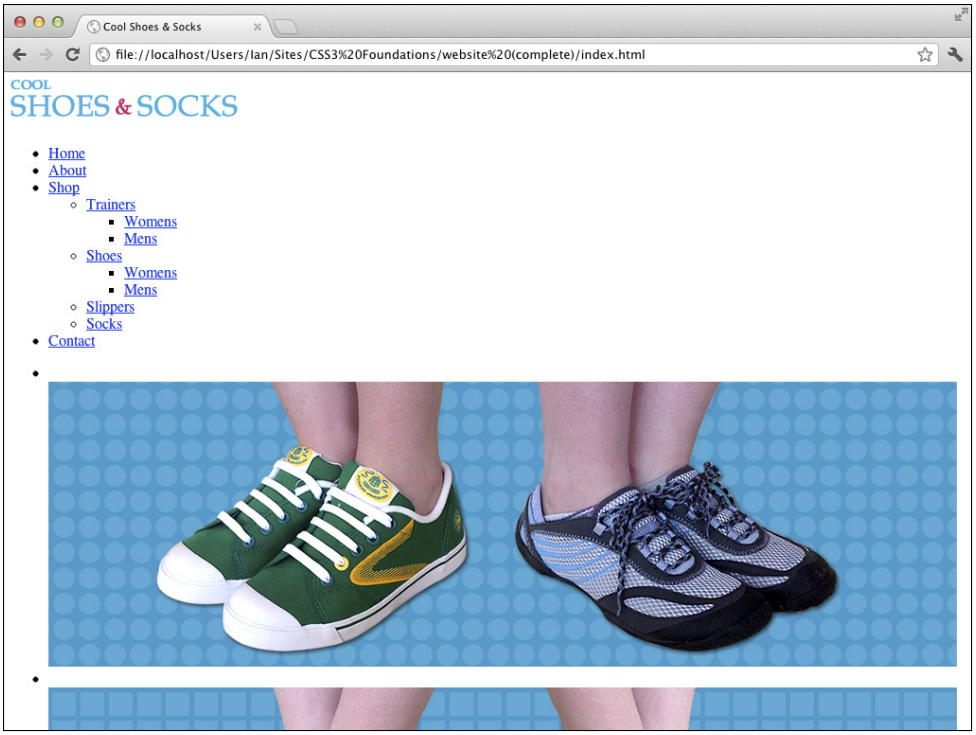


FIGURE 1-1 A web page without any CSS.

Figure 1-2 shows the same web page *with* CSS applied to it—a huge difference, one that makes the page much more attractive.

In the early days of styling web pages, structure and presentation were mixed together. Presentation was directly applied to structure, meaning that maintaining pages became an arduous task. If, for example, somebody decided that the main title on each page of a website should be changed from black to blue and that site consisted of 10 pages, you had to change the style for that title 10 times.

By separating structure and presentation, you gain numerous advantages:

- A Cascading Style Sheet can be shared across multiple web pages.
- Sites are easier to maintain and become more flexible.
- The styles applied to a web page can be tailored to suit multiple devices/environments.

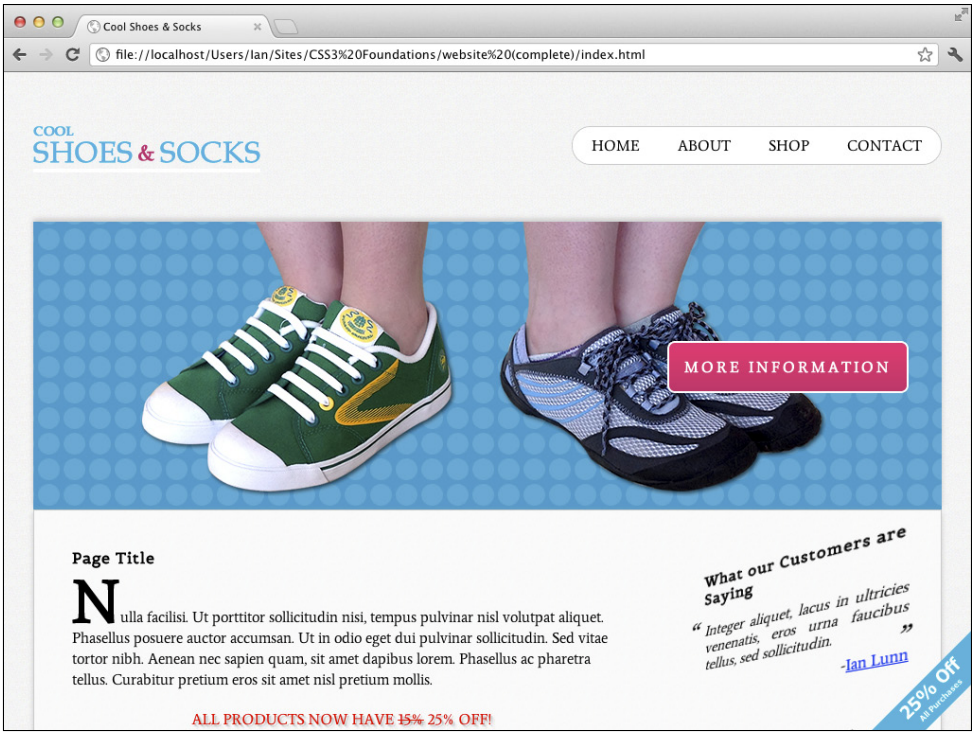


FIGURE 1-2 A web page with CSS.

In the modern web, the role of CSS is more important than ever. As technology has advanced and the ways in which you access the web are more diverse, CSS must evolve to accommodate both users wanting to access information over the web and developers wanting to present that information in a particular way. I say *developers,* but really I mean anyone. The web is not just for the technically minded. Open information is for everyone, and CSS aims to be as easy and open to use as possible, allowing anyone to style information.

The most important aspect of CSS is backward compatibility. Because each new level of the specification builds on the last, CSS remains backward compatible. Although features may become deprecated, they still work in existing browsers because new levels only add new functionality or refine existing definitions. By working backward first, the specification then has the opportunity to pave a solid path into the future.

CSS3 offers many new features to push the web forward and help improve the accessibility and presentation of information. With the emergence of multiple ways to access the web, one of CSS3's most important features is the Media Queries module, which builds on media types.

When CSS2 was developed, it became apparent there was a need to serve different styles based on how web pages were being accessed, so media types were introduced. These media types allowed for specifying different styles for particular devices, such as screen (intended for color computer displays), print (intended for printers and printed documents), and handheld (intended for small screen devices with limited bandwidth).

With such a varied range of handheld devices on the market today, defining those devices within the handheld category certainly isn't descriptive enough. Likewise, desktop displays differ greatly in features too.

CSS3's Media Queries module builds on media types, allowing a developer to query particular aspects (such as width and height) of the device and environment on which a web page is being viewed and specify styles to be applied only when certain conditions are met.

The specification also adds new presentational features such as gradients and rounded corners to make easier some of the tasks developers have been doing for years, more ways to select the elements to be styled (called Selectors), and web fonts, which sees the number of fonts you can safely use go from tens to thousands—if not tens of thousands!

Working Draft and the CSS Process

At the time of writing, the overall CSS3 specification is incomplete. To make reading and implementing it easier, the specification is broken up into modules. While some of these modules are complete, others are still being written or tested. Modules go through varying stages to determine how far from being complete they are and also serve as an indication of whether you should use them:

- **Working Draft**—A module that is incomplete and still being worked on.
- **Last Call**—A module that is considered to be complete. This module will move toward Candidate Recommendation unless significant issues arise.
- **Candidate Recommendation**—All known issues are resolved and the features of the module are ready to be implemented into web browsers.
- **Proposed Recommendation**—Features of the module are implemented in at least two web browsers and the module is reviewed by W3C Members one last time.
- **Recommendation**—The module is complete.

When implementing features from modules that are Working Draft or Last Call, those features should be used with a vendor prefix; this ensures you are using experimental features in a way that prevents incompatibilities should there be changes to modules in the future.

You'll learn exactly what a vendor prefix is and how to use them in Chapter 5.

More information about the CSS process can be found at `www.w3.org/Style/2011/CSS-process#rectrack`.

All in all, CSS3 makes creating web pages easier and more exciting than ever. So, at the time of writing, as the specification is in Working Draft status, can you use it yet?

Absolutely! Modern browsers already have great support for CSS3 because the sooner you start using it, the sooner you can provide feedback and improve the future of CSS. The W3C consists not only of member organizations and its full-time staff but the public, too. By using CSS3 today, you can have your say in its future. Just by using a feature of CSS3 is giving your stamp of approval to it.

Throughout *CSS3 Foundations*, you learn to use CSS3 in a safe way that is compatible with both existing browsers that have some or no CSS3 support and future browsers, in the case of features being redefined prior to the specification reaching its Recommendation status.

Modern Browsers

A web browser is, at its core, an engine that renders HTML, CSS, and other technologies, turning them into a functional web page. Browsers also offer features such as bookmarking, history management, developer tools and many others, including support for add-ons that allow for extending a browser's capabilities.

So, which browser should you use to create your website? All of them! Okay, you don't need to download them all right now, but it is important to test the websites you build in a range of browsers (and devices).

Today's Major Browsers

Five major browsers are available today. These browsers are created by organizations—often referred to as browser vendors or vendors for short—and are made free to download and use.

- Google Chrome (`www.google.com/chrome`)
- Apple Safari (`www.apple.com/safari`)
- Mozilla Firefox (`www.mozilla.org/firefox/new`)
- Opera (`www.opera.com`, both browser and vendor are referred to as Opera)
- Microsoft Internet Explorer (`http://windows.microsoft.com/en-US/internet-explorer/downloads/ie`)

I personally like to create websites using Chrome. I feel its web developer tools are the most useful for the way I work, and it is often ahead of the rest when implementing the latest CSS features.

Throughout the book, I use Chrome as my main browser (and test other browsers in Chapter 15). I recommend avoiding Microsoft Internet Explorer versions 7–9 as a browser to use while creating a web page because its features aren't as consistent as the others listed, but if you'd like to use Safari, Firefox, or Opera, feel free. The development tools, which I use and refer to, are similar between browsers, and I don't use a feature if it doesn't exist in another browser.

At the time of writing, Microsoft Internet Explorer 10 is available as a preview but hasn't officially been released.

Browser Engines (Layout Engines)

Knowing which engine these browsers support is also useful:

- **WebKit (**`www.webkit.org/`**)**—Both Google Chrome and Apple Safari use this open source engine. Although these browsers use the same engine, they may have implemented it in a slightly different way, so you shouldn't expect one to render the page exactly the same as the other. Always test in both to make sure. That said, in most cases, consistency between these browsers is very good. Android Browser also uses WebKit, which together with Safari (used on Apple's iPhone, iPad, and iPod products) makes it the most-used browser engine on mobile devices.
- **Gecko (**`www.developer.mozilla.org/en/Gecko`**)**—Mozilla Firefox uses Gecko, another open source project.
- **Presto (**`www.opera.com/docs/specs/`**)**—Available only as a part of Opera products.
- **Trident (**`www.en.wikipedia.org/wiki/Trident_(layout_engine)`**)**—Available only as a part of Microsoft's products.

These engines are used not only by desktop and mobile browsers but also by other products such as e-mail clients and word editing software.

What Is Open Source Software?

Open source software is that which is made available for use and modification completely free. This is a great way to open up a project to everybody and, in turn, enhance the project by having many people improving it at the same time. *CSS3 Foundations* uses a few open source projects, and no doubt, you'll come across many on your own in the future.

Browser Usage Statistics

Although browsers are free to download and use, the web browser market is very much a competitive place. As mentioned, vendors are all trying to push the web forward, but they also stand to gain a lot from people using their particular browser. Some vendors have other products that they want to profit from. The bigger their share of the market, the more they are able to push these products and services.

Tables 1-1 and 1-2 present the usage statistics provided by `www.netmarketshare.com` in July 2012 (the time of writing).

Table 1-1 Desktop Browser Usage

Browser	Total Market Share
Internet Explorer	54.02%
Firefox	20.06%
Chrome	19.08%
Safari	4.73%
Opera	1.60%
Others (below 1%)	0.34%

Table 1-2 Mobile/Tablet Browser Usage

Browser	Total Market Share
Safari	65.79%
Android Browser	19.17%
Opera Mini	10.45%
BlackBerry	1.45%
Others (individually below 1%)	2.56%

Older Browsers on the Modern Web

Unfortunately, the modern web—with all its fancy new features—comes with excess baggage in the form of older web browsers that are still in use today. Although the W3C, browser vendors, and the web community/industry are working to push the web forward, there are many web users who are either unaware of or unable to embrace this change.

Before looking at which of the browsers still in use today could be deemed as being old, Table 1-3 shows the breakdown of market share into individual version numbers.