

Content

Introduction

xv

Section 1 The essential concepts and skills

| | | |
|-----------|--|-----|
| Chapter 1 | Introduction to web development | 3 |
| Chapter 2 | How to code, test, and validate a web page | 45 |
| Chapter 3 | How to use HTML to structure a web page | 85 |
| Chapter 4 | How to use CSS to format the elements of a web page | 123 |
| Chapter 5 | How to use the CSS box model for spacing, borders, and backgrounds | 167 |
| Chapter 6 | How to use CSS for page layout | 201 |
| Chapter 7 | How to work with lists, links, and navigation menus | 239 |
| Chapter 8 | How to use Responsive Web Design | 281 |

Section 2 Page layout and Responsive Web Design

| | | |
|------------|--|-----|
| Chapter 9 | How to use Flexible Box Layout for page layout and RWD | 323 |
| Chapter 10 | How to use Grid Layout for page layout and RWD | 351 |

Section 3 More HTML and CSS skills as you need them

| | | |
|------------|--|-----|
| Chapter 11 | How to work with images and icons | 391 |
| Chapter 12 | How to work with tables | 421 |
| Chapter 13 | How to work with forms | 447 |
| Chapter 14 | How to add audio and video to your website | 505 |
| Chapter 15 | How to work with fonts and printing | 529 |
| Chapter 16 | How to use CSS3 transitions, transforms, animations, and filters | 549 |

Section 4 Web design and deployment

| | | |
|------------|---|-----|
| Chapter 17 | How to design a website | 571 |
| Chapter 18 | How to deploy a website on a web server | 607 |

Section 5 Other skills for professional web developers

| | | |
|------------|---|-----|
| Chapter 19 | How JavaScript and jQuery are used to enhance web pages | 629 |
| Chapter 20 | When and how to use third-party development tools | 661 |

Appendices

| | | |
|------------|---|-----|
| Appendix A | How to set up your computer for this book | 685 |
|------------|---|-----|

Expanded contents

Section 1 The essential concepts and skills

| | | |
|------------------|---|-----------|
| Chapter 1 | Introduction to web development | |
| 88 | How web applications work | 4 |
| 88 | The components of a web application..... | 4 |
| 09 | How static web pages are processed | 6 |
| 09 | How dynamic web pages are processed..... | 8 |
| 20 | A survey of web browsers and server-side scripting languages..... | 10 |
| 40 | How client-side JavaScript fits into web development..... | 12 |
| 80 | An introduction to HTML and CSS..... | 14 |
| 80 | The HTML for a web page..... | 14 |
| 001 | The CSS for a web page..... | 16 |
| 001 | A short history of the HTML and CSS standards | 18 |
| 202 | Tools for web development..... | 20 |
| 401 | Text editors for HTML and CSS | 20 |
| 001 | IDEs for web development..... | 22 |
| 001 | FTP programs for uploading files to the web server | 24 |
| 801 | How to view deployed web pages..... | 26 |
| 011 | How to view a web page | 26 |
| 211 | How to view the source code for a web page | 28 |
| 411 | Five critical web development issues..... | 30 |
| 511 | Users and usability | 30 |
| 511 | Cross-browser compatibility | 32 |
| 511 | User accessibility | 34 |
| 511 | Search engine optimization | 36 |
| 511 | Responsive Web Design..... | 38 |

Chapter 2 How to code, test, and validate a web page

| | | |
|-----|--|-----------|
| 131 | The HTML syntax | 46 |
| 851 | The basic structure of an HTML document | 46 |
| 851 | How to code elements and tags | 48 |
| 851 | How to code attributes..... | 50 |
| 851 | How to code comments and whitespace | 52 |
| 451 | The CSS syntax..... | 54 |
| 451 | How to code CSS style rules and comments..... | 54 |
| 451 | How to code basic selectors | 56 |
| 831 | How to use Brackets to work with HTML and CSS files | 58 |
| 831 | How to open and close the folder for a website | 58 |
| 831 | How to open, close, and display files | 60 |
| 831 | How to start a new HTML file | 62 |
| 831 | How to edit an HTML file..... | 64 |
| 831 | How to start and edit a CSS file | 66 |
| 831 | How to use split view and the Quick Edit feature..... | 68 |
| 831 | How to preview an HTML file | 70 |

| | |
|--|------------|
| How to test, debug, and validate HTML and CSS files..... | 72 |
| How to test and debug a web page..... | 72 |
| How to validate an HTML file | 74 |
| How to validate a CSS file | 78 |
| Chapter 3 | |
| How to use HTML to structure a web page | |
| How to code the head section..... | 86 |
| How to code the title element..... | 86 |
| How to link to a favicon | 86 |
| How to include metadata..... | 88 |
| How to code text elements | 90 |
| How to code headings and paragraphs..... | 90 |
| How to code special blocks of text..... | 92 |
| How to code inline elements for formatting and identifying text | 94 |
| How to code character entities | 96 |
| How to code the core attributes..... | 98 |
| How to structure the content of a page..... | 100 |
| How to use the primary HTML5 semantic elements | 100 |
| How to use some of the other HTML5 semantic elements | 102 |
| When and how to code div and span elements..... | 104 |
| How to code links, lists, and images..... | 106 |
| How to code absolute and relative URLs | 106 |
| How to code links..... | 108 |
| How to code lists | 110 |
| How to include images | 112 |
| A structured web page..... | 114 |
| The page layout | 114 |
| The HTML file | 116 |
| Chapter 4 | |
| How to use CSS to format the elements of a web page | |
| An introduction to CSS | 124 |
| Three ways to provide CSS styles for a web page | 124 |
| Two ways to provide for browser compatibility..... | 126 |
| How to specify measurements and colors..... | 128 |
| How to specify measurements..... | 128 |
| How to specify colors..... | 130 |
| How to use the CSS3 color specifications..... | 132 |
| How to code selectors..... | 134 |
| How to code selectors for all elements, element types, ids, and classes | 134 |
| How to code relational selectors | 136 |
| How to code combinations of selectors..... | 138 |
| How to code attribute selectors | 138 |
| How to code pseudo-class and pseudo-element selectors | 140 |
| How to work with Cascading Style Sheets..... | 142 |
| How the cascade rules work | 142 |
| How to use the developer tools to inspect the styles that have been applied | 144 |
| How to work with text | 146 |
| How to set the font family and font size | 146 |
| How to set the other properties for styling fonts | 148 |
| How to set properties for formatting text | 150 |
| How to use CSS3 to add shadows to text..... | 152 |
| How to float an image so text flows around it..... | 154 |

| | |
|---|------------|
| A web page that uses external style sheets | 156 |
| The page layout..... | 156 |
| The HTML file | 158 |
| The CSS file | 160 |
| Chapter 5 How to use the CSS box model for spacing, borders, and backgrounds | |
| An introduction to the box model | 168 |
| How the box model works | 168 |
| A web page that illustrates the box model | 170 |
| How to size and space elements | 172 |
| How to set heights and widths..... | 172 |
| How to set margins..... | 174 |
| How to set padding..... | 176 |
| A web page that illustrates sizing and spacing | 178 |
| The HTML for the web page | 178 |
| The CSS for the web page..... | 180 |
| A version of the CSS that uses a reset selector | 182 |
| How to set borders and backgrounds | 184 |
| How to set borders..... | 184 |
| How to use CSS3 to add rounded corners and shadows to borders | 186 |
| How to set background colors and images..... | 188 |
| How to use CSS3 to set background gradients | 190 |
| A web page that uses borders and backgrounds | 192 |
| The HTML for the web page | 192 |
| The CSS for the web page..... | 194 |
| Chapter 6 How to use CSS for page layout | |
| How to float elements in 2- and 3-column layouts | 202 |
| How to float and clear elements | 202 |
| How to use floating in a 2-column, fixed-width layout..... | 204 |
| How to use floating in a 2-column, fluid layout..... | 206 |
| How to use floating in a 3-column, fixed-width layout..... | 208 |
| Two web pages that use a 2-column, fixed-width layout..... | 210 |
| The home page | 210 |
| The HTML for the home page | 212 |
| The CSS for the home page | 214 |
| The speaker page..... | 218 |
| The HTML for the speaker page | 220 |
| The CSS for the speaker page | 220 |
| How to use CSS3 to create text columns | 222 |
| The CSS3 properties for creating text columns | 222 |
| A 2-column web page with a 2-column article | 224 |
| How to position elements | 226 |
| Four ways to position an element..... | 226 |
| How to use absolute positioning | 228 |
| How to use fixed positioning..... | 228 |
| A sidebar that uses positioning | 230 |

Chapter 7 How to work with lists, links, and navigation menus

| | |
|---|------------|
| How to code lists | 240 |
| How to code unordered lists..... | 240 |
| How to code ordered lists..... | 242 |
| How to code nested lists..... | 244 |
| How to code description lists | 246 |
| How to format lists..... | 248 |
| How to change the bullets for an unordered list..... | 248 |
| How to change the numbering system for an ordered list..... | 250 |
| How to change the alignment of list items..... | 252 |
| How to code links..... | 254 |
| How to link to another page | 254 |
| How to format links..... | 256 |
| How to use a link to open a new browser window or tab..... | 258 |
| How to create and link to placeholders | 260 |
| How to link to a media file | 262 |
| How to create email, phone, and Skype links | 264 |
| How to create navigation menus..... | 266 |
| How to create a vertical navigation menu | 266 |
| How to create a horizontal navigation menu..... | 268 |
| How to create a 2-tier navigation menu | 270 |
| How to create a 3-tier navigation menu | 272 |
| The CSS for a 3-tier navigation menu..... | 274 |

Chapter 8 How to use Responsive Web Design

| | |
|--|------------|
| Introduction to Responsive Web Design..... | 282 |
| The three components of a responsive design..... | 282 |
| How to test a responsive design | 284 |
| How to implement a fluid design..... | 286 |
| Fluid layouts vs. fixed layouts..... | 286 |
| How to convert fixed widths to fluid widths | 288 |
| How to use other units of measure with responsive design | 290 |
| How to size fonts..... | 292 |
| How to scale images..... | 294 |
| A web page with a fluid design | 296 |
| How to use CSS3 media queries | 298 |
| How to control the mobile viewport..... | 298 |
| How to code media queries | 300 |
| Common media queries for a responsive design..... | 302 |
| How to build responsive menus with the SlickNav plugin | 304 |
| A web page that uses Responsive Web Design | 306 |
| The design of the web page..... | 306 |
| The HTML for the web page | 308 |
| The CSS for the web page..... | 310 |

Section 2 Page layout and Responsive Web Design

Chapter 9

How to use Flexible Box Layout for page layout and RWD

| | |
|--|------------|
| Getting started with Flexible Box Layout..... | 324 |
| An introduction to flexbox | 324 |
| How to create your first flexible box | 326 |

| | |
|--|------------|
| How to set flexbox properties | 328 |
| How to align flex items along the main axis | 328 |
| How to align flex items along the cross axis | 330 |
| How to wrap and align wrapped flex items | 332 |
| How to allocate space to flex items | 334 |
| How to change the order of flex items | 338 |
| A responsive web page that uses flexbox | 340 |
| The design of the web page | 340 |
| The HTML for the main structural elements | 342 |
| The CSS for desktop layout | 344 |
| The CSS for mobile layouts | 346 |
| Chapter 10 How to use Grid Layout for page layout and RWD | |
| Getting started with Grid Layout..... | 352 |
| An introduction to Grid Layout..... | 352 |
| How to create a basic grid | 354 |
| How to set the size of grid tracks | 356 |
| How to align grid items and grid tracks | 360 |
| How to define the grid areas for elements | 364 |
| How to use numbered lines | 364 |
| How to use named lines | 366 |
| How to use template areas | 368 |
| How to use the 12-column grid concept | 370 |
| A responsive web page that uses grid | 372 |
| The design of the web page | 372 |
| The HTML for the structural elements | 374 |
| CSS that uses template areas | 376 |
| CSS that uses a 12-column grid | 380 |
| Common page layouts that use grid..... | 382 |
| The headline and gallery layout | 382 |
| The fixed sidebar layout | 382 |
| The advanced grid layout | 384 |

Section 3 More HTML and CSS skills as you need them

| | |
|---|------------|
| Chapter 11 How to work with images and icons | |
| Basic skills for working with images | 392 |
| Types of images for the Web | 392 |
| How to include an image on a page | 394 |
| How to resize an image | 394 |
| How to align an image vertically | 396 |
| How to float an image | 398 |
| Advanced skills for working with images | 400 |
| How to use the HTML5 figure and figcaption elements | 400 |
| How to use the picture element | 402 |
| How to do image rollovers | 404 |
| How to create image maps | 406 |
| Related skills for working with images..... | 408 |
| When to use an image editor | 408 |
| How to get images | 410 |
| How to get and work with icons | 412 |
| How to create favicons | 414 |
| How to work with Scalable Vector Graphics | 416 |

Chapter 12 How to work with tables

| | |
|--|------------|
| Basic HTML skills for coding tables | 422 |
| An introduction to tables..... | 422 |
| How to create a table..... | 424 |
| How to add a header and footer | 426 |
| Basic CSS skills for formatting tables..... | 428 |
| How to use CSS properties to format a table | 428 |
| How to use the CSS3 structural pseudo-classes for formatting tables..... | 430 |
| Other skills for working with tables | 432 |
| How to use the HTML5 figure and figcaption elements with tables..... | 432 |
| How to merge cells in a column or row | 434 |
| How to provide for accessibility | 436 |
| How to nest tables | 438 |
| How to control wrapping..... | 440 |
| How to make a table responsive..... | 442 |

Chapter 13 How to work with forms

| | |
|---|------------|
| How to use forms and controls | 448 |
| How to create a form..... | 448 |
| How to use buttons..... | 450 |
| How to use text fields | 452 |
| How to use radio buttons and check boxes | 454 |
| How to use drop-down lists..... | 456 |
| How to use list boxes | 458 |
| How to use text areas | 460 |
| How to use labels | 462 |
| How to group controls with fieldset and legend elements | 464 |
| How to use a file upload control..... | 466 |
| Other skills for working with forms | 468 |
| How to align controls | 468 |
| How to format controls | 470 |
| How to set the tab order and assign access keys | 472 |

How to use the HTML5 features for data validation 474

| | |
|---|-----|
| The HTML5 attributes and CSS3 selectors for data validation | 474 |
| How to use regular expressions for data validation..... | 476 |
| How to use a datalist to present entry options..... | 478 |

How to use the HTML5 controls 480

| | |
|--|-----|
| How to use the email, url, and tel controls..... | 480 |
| How to use the number and range controls | 482 |
| How to use the date and time controls | 484 |
| How to use the search control for a search function | 486 |
| How to use the color control | 488 |
| How to use the output element to display output data | 490 |
| How to use the progress and meter elements to display output data..... | 492 |

A web page that uses HTML5 data validation..... 494

| | |
|----------------------|-----|
| The page layout..... | 494 |
| The HTML | 496 |
| The CSS | 498 |

Chapter 14 How to add audio and video to your website

| | |
|---|------------|
| An introduction to media on the web | 506 |
| Common media types for video and audio | 506 |
| Video codecs | 508 |
| Audio codecs..... | 510 |
| Audio and video support in current browsers | 512 |
| How to encode media..... | 514 |

| | | |
|-----|---|------------|
| 002 | How to add audio and video to a web page | 516 |
| 002 | How to use the object and param elements | 516 |
| 002 | How to use the embed element | 518 |
| 002 | How to use the HTML5 video and audio elements..... | 520 |
| 002 | A web page that offers both audio and video..... | 522 |
| 002 | The page layout..... | 522 |
| 008 | The HTML | 524 |

Chapter 15 How to work with fonts and printing

| | | |
|-----|---|------------|
| 008 | How to embed fonts in a web page..... | 530 |
| 008 | How to use the CSS3 @font-face selector to embed fonts | 530 |
| 008 | How to use Google Web Fonts..... | 532 |
| 010 | How to use Adobe Edge Web Fonts | 534 |
| 010 | The skills for formatting printed web pages | 536 |
| 010 | How to define the style sheets and style rules for printed pages..... | 536 |
| 010 | Recommendations for print formatting | 538 |
| 010 | CSS properties for printed pages..... | 538 |
| 010 | A two-column web page with print formatting | 540 |
| 010 | The web page | 540 |
| 010 | The links to the style sheets | 540 |
| 010 | The printed page..... | 542 |
| 010 | The CSS for the print style sheet..... | 544 |

Chapter 16 How to use CSS3 transitions, transforms, animations, and filters

| | | |
|-----|---|------------|
| 008 | How to use CSS3 transitions | 550 |
| 008 | How to code transitions..... | 550 |
| 008 | How to create an accordion using transitions..... | 552 |
| 008 | How to use CSS3 transforms | 554 |
| 008 | How to code 2D transforms | 554 |
| 008 | A gallery of images with 2D transforms | 556 |
| 008 | How to use CSS3 animations | 558 |
| 008 | How to code simple animations | 558 |
| 008 | How to set the keyframes for a slide show..... | 560 |
| 008 | How to use CSS3 filters | 562 |
| 008 | How to code filters | 562 |
| 008 | The ten filter methods applied to the same image..... | 564 |

Section 4 Web design and deployment

Chapter 17 How to design a website

| | | |
|-----|--|------------|
| 002 | Users and usability | 572 |
| 002 | What web users want is usability | 572 |
| 002 | The current conventions for usability | 574 |
| 002 | Design guidelines | 576 |
| 002 | Think mobile from the start..... | 576 |
| 002 | Use the home page to sell the site | 578 |
| 002 | Let the users know where they are | 580 |
| 002 | Make the best use of web page space..... | 582 |
| 002 | Divide long pages into shorter chunks | 584 |
| 002 | Know the principles of graphics design | 586 |
| 002 | Write for the web | 588 |

| | |
|---|------------|
| How to design a website | 590 |
| The lifecycle of a website..... | 590 |
| Step 1: Define the audience and set the goals | 592 |
| Step 2: Develop the site map..... | 594 |
| Step 3: Wireframe the critical pages | 596 |
| Step 4: Illustrate the critical pages | 598 |
| Other design considerations..... | 600 |
| Development teams | 600 |
| Top-down design and prototyping..... | 602 |

Chapter 18 How to deploy a website on a web server

| | |
|---|------------|
| How to get a web host and domain name | 608 |
| How to find a web host..... | 608 |
| How to get a domain name..... | 610 |
| How to transfer files to and from the web | 612 |
| How to install FileZilla Client..... | 612 |
| How to connect to a website on a remote web server | 614 |
| How to upload and download files | 616 |
| Four more skills for deploying a website | 618 |
| How to test a website that has been uploaded to the web server..... | 618 |
| How to get your website into search engines | 620 |
| How to control which pages are indexed and visited..... | 622 |
| How to maintain a healthy website | 624 |

Section 5 Other skills for professional web developers

Chapter 19 How Javascript and jQuery are used to enhance web pages

| | |
|---|------------|
| Introduction to JavaScript | 630 |
| How JavaScript works..... | 630 |
| Three ways to include JavaScript in a web page..... | 632 |
| How DOM scripting works | 634 |
| Methods and properties for DOM scripting | 636 |
| How JavaScript handles events | 638 |
| The Email List application in JavaScript | 640 |
| The HTML | 640 |
| The JavaScript | 642 |
| Introduction to jQuery | 644 |
| How to include jQuery in your web pages..... | 644 |
| How to code jQuery selectors, methods, and event methods | 646 |
| The Email List application in jQuery | 648 |
| The HTML | 648 |
| The jQuery | 650 |
| How to use JavaScript and jQuery as a non-programmer | 652 |
| The Image Swap application | 652 |
| A Slide Show application | 654 |
| Three sources for tested JavaScript and jQuery | 656 |

Chapter 20 When and how to use third-party development tools

| | |
|--|------------|
| Introduction to third-party web development tools | 662 |
| Some of the most useful tools | 662 |
| How these tools can make you more productive..... | 662 |

| | |
|--|------------|
| How to use Emmet, Git, and GitHub | 664 |
| How to use Emmet | 664 |
| How to use Git and Github..... | 666 |
| How to use Sass | 668 |
| How to use Sass to nest style rules..... | 668 |
| How to use Sass variables and mixins..... | 670 |
| How to use Bootstrap..... | 672 |
| How to configure Bootstrap | 672 |
| How to use the Bootstrap grid system..... | 674 |
| How to use Bootstrap components..... | 676 |
| How to use Node.js..... | 678 |
| Node.js for server-side development..... | 678 |
| The Node Package Manager | 678 |
| How to use Gulp.js..... | 680 |
| How to install Gulp.js and Gulp.js plugins | 680 |
| How to create and run Gulp.js tasks..... | 680 |

This 4-in edition of our best-selling book integrates all of the HTML and CSS skills that you need today with the proven instructional approach that made the first three editions of this book so popular. And now, this new edition includes chapters on Flexible Box Layout and Grid Layout, which are the latest approaches to laying out web pages.

In short, this is the right book for anyone learning HTML and CSS for the first time. But this is also the right book for any web developer who wants to expand and update your skills...for web designers, JavaScript and jQuery programmers, and even non-programmers...because all web developers need a solid set of HTML and CSS skills and a great on-the-job reference.

What this book covers

To get you started quickly, eight chapters in section 1 present a complete subset of HTML and CSS that shows you how to develop web pages at a professional level. In section 3, for example, you'll learn how to use the new HTML5 semantic elements. Then, chapters 4 through 6 show you how to use CSS and CSS3 to format the HTML, including the CSS3 properties for text and border shadows, rounded corners, and background gradients.

The last chapter in section 1 shows you how to build web pages with responsive Web Design. That means that your pages will look good and display correctly on every type of screen from phone to tablet to desktop computer. This is an essential skill for a modern website, and that's why it's included in section 1.

When you finish the first 8 chapters, you will have the perspective and skills needed to start working on developing professional web pages. Then, you can add to those skills by reading any of the chapters in the next 4 sections...and you don't have to read the sections or chapters in sequence. In other words, you can jump right into the last four sections after you finish section 1.