Chapter 1

Introduction to web development

Web Design and Digital Development 1

Objectives

I.e. The web site is not visible to the outside/public world.

Applied

1. Load a web page from the Internet or an intranet into a web browser.
2. View the source code for a web page in a web browser.

Knowledge

1. Describe the components of a web application.
2. Distinguish between the Internet and an intranet.
3. Describe at a high level HTTP requests and responses.
4. Distinguish between the way a web server processes static web pages and dynamic web pages.
5. Name some major web browsers.
6. Describe the use of JavaScript.

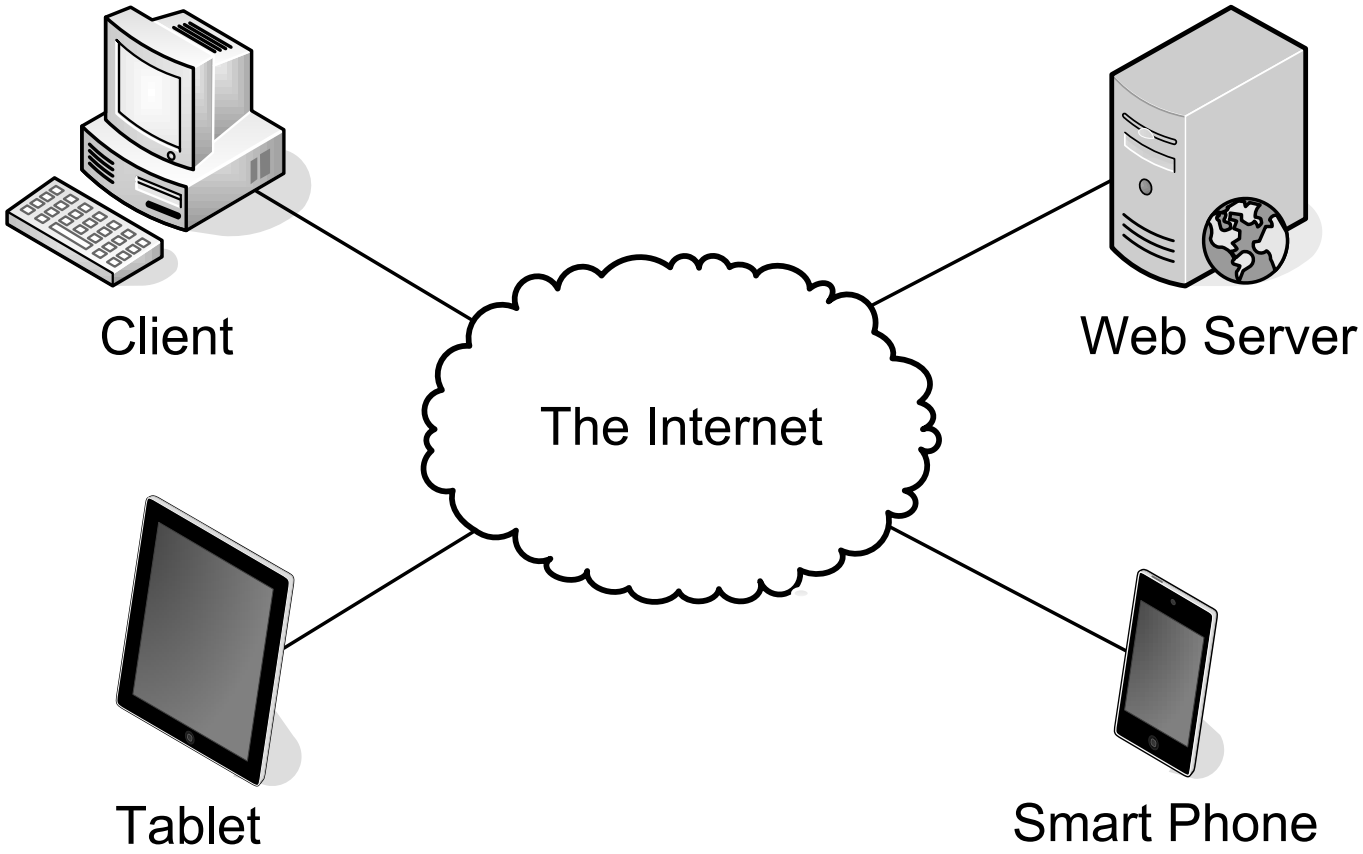
Objectives (cont.)

7. Distinguish between HTML and CSS.
8. Explain web site deployment.
9. Describe the components of an HTTP URL.
10. Distinguish between cross-browser compatibility, user accessibility, and search engine optimization.

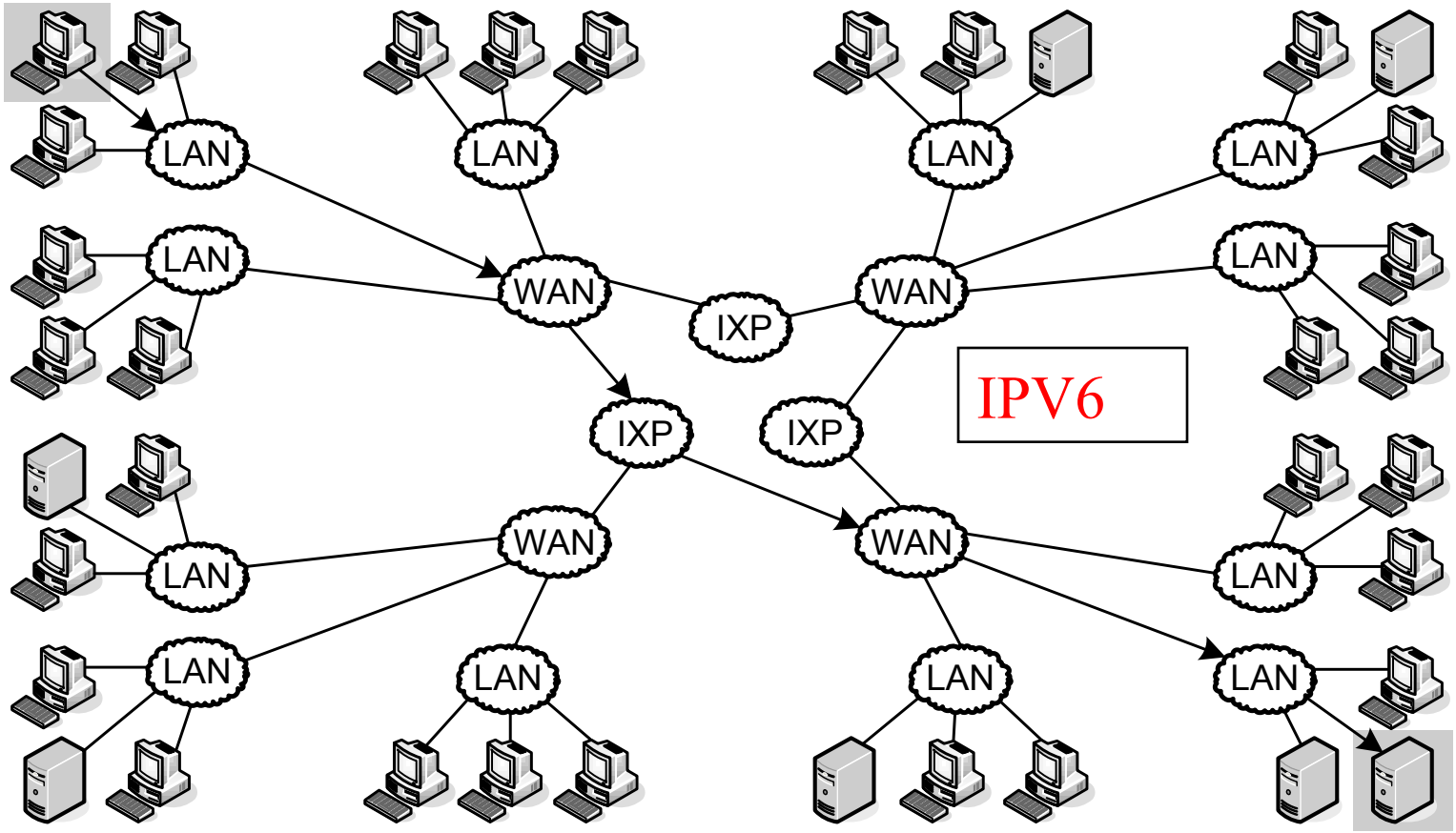
Instructor's Note:

- There are three major languages required to create a web site:
  - HTML – This is the only one that's truly required
  - CSS – Makes things pretty
  - JavaScript – Makes things functional & changes behavior of the page
- Knowledge of a server side scripting language is not necessary.

The components of a web application

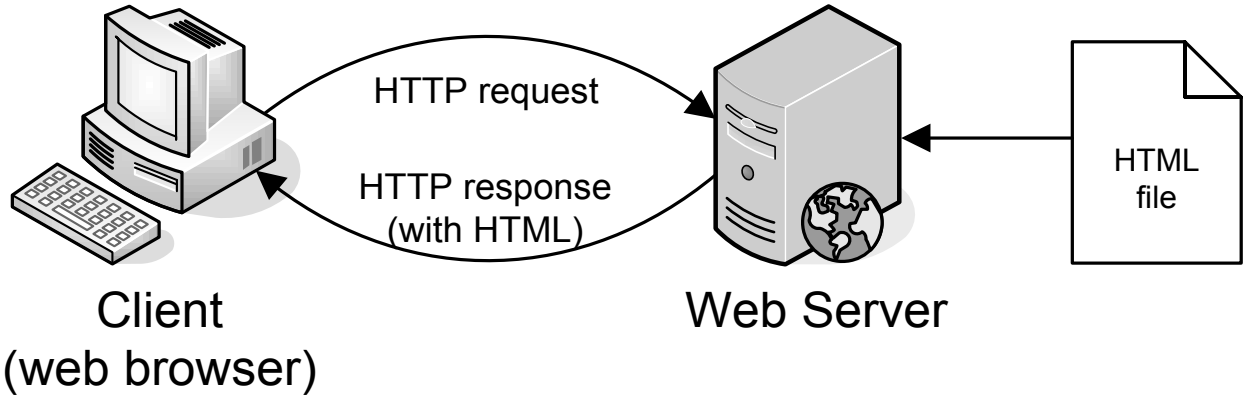


The architecture of the Internet



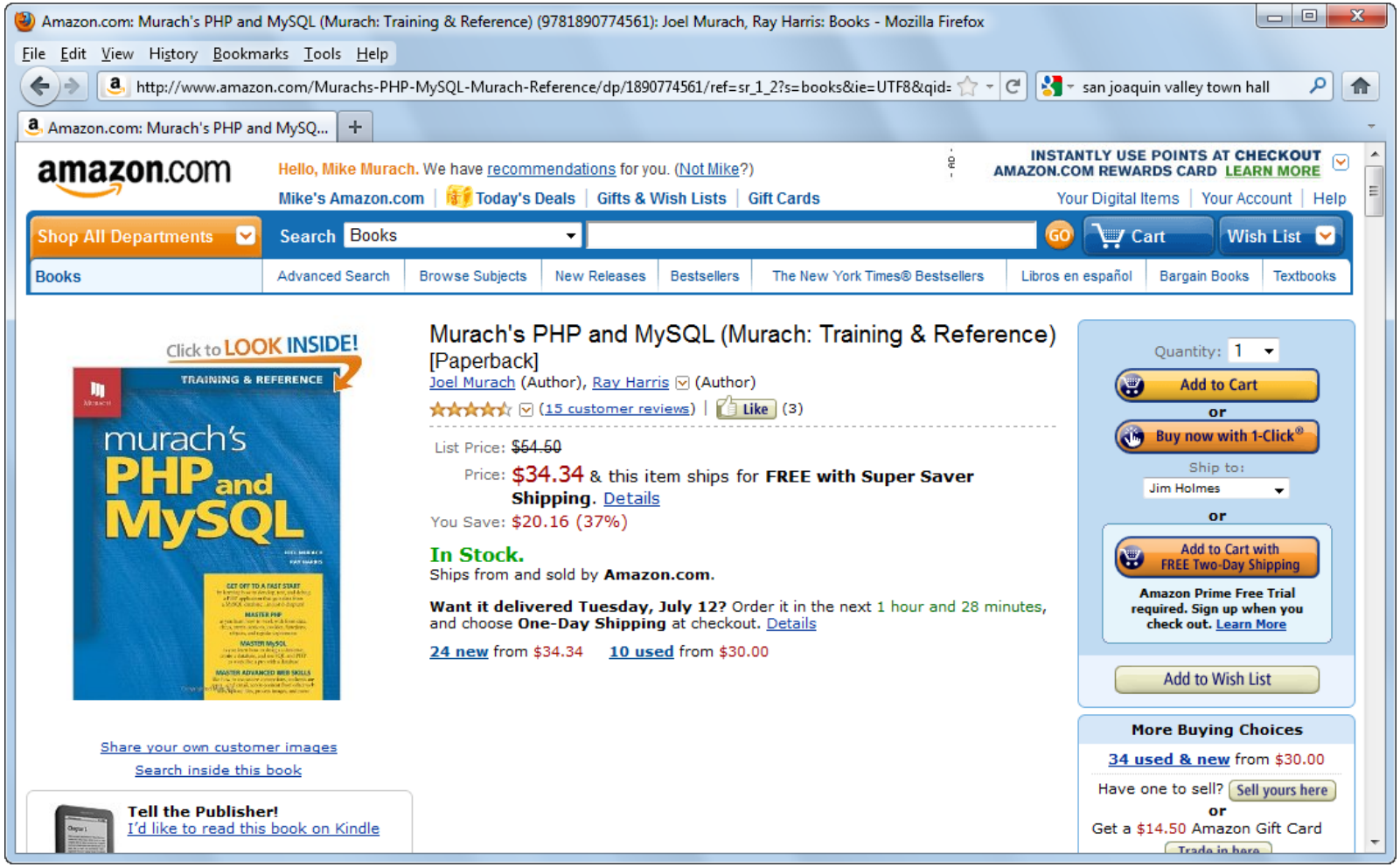
A static web page

How a web server processes a static web page

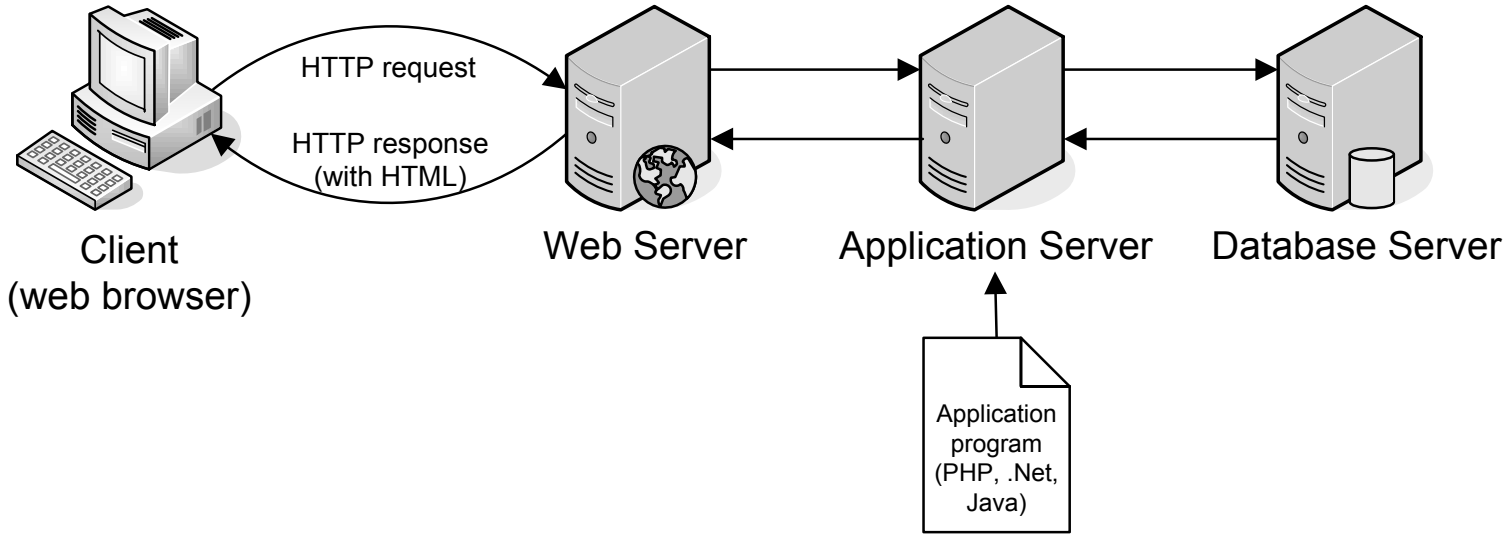


For static web pages, think Word doc: The contents change only when you edit the document. People only see the changes when you share it. In a web context, sharing typically means uploading to a web server.

A dynamic web page at amazon.com



How a web server processes a dynamic web page



The contents of a dynamic web page are still HTML, CSS, and JavaScript. But dynamic pages can react to client input, like web forms.

Note:

- For the most part this course will only work with static web pages.
  - There will be JavaScript which affects the page from the client and not the server.

Web browsers

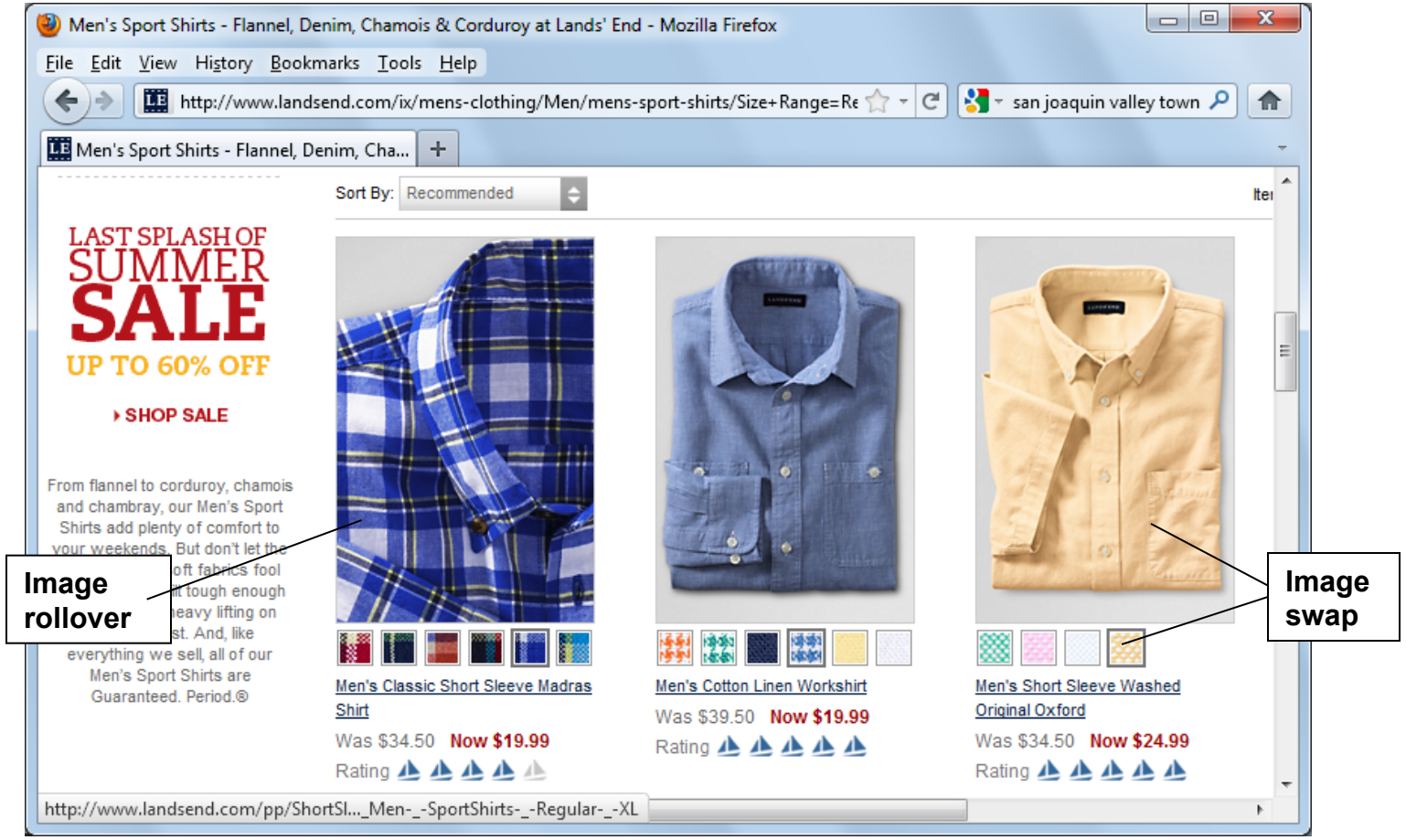
- Internet Explorer
- Firefox
- Chrome
- Safari
- Opera
- Lynx

Each browser interprets the web standards differently, including HTML, CSS, and JavaScript. This is especially true for older versions of IE. If you need to support older browsers (and you usually do), then you need to code around this.

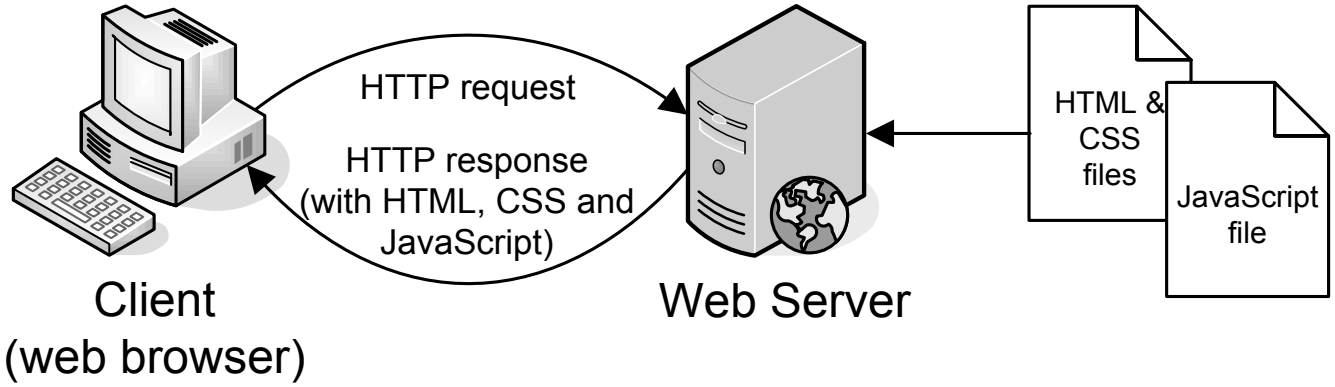
Server-side scripting languages

- .NET
- JSP (Java)
- PHP
- ColdFusion
- Ruby
- Perl
- Python

A web page with image swaps and rollovers



How JavaScript fits into this architecture



Some common uses of JavaScript

- Client-side Data validation (Still needs to be validated on the server!)
- Browser detection
- AJAX, to retrieve info from the server
- Image swaps and rollovers
- Slide shows

The code for an HTML file

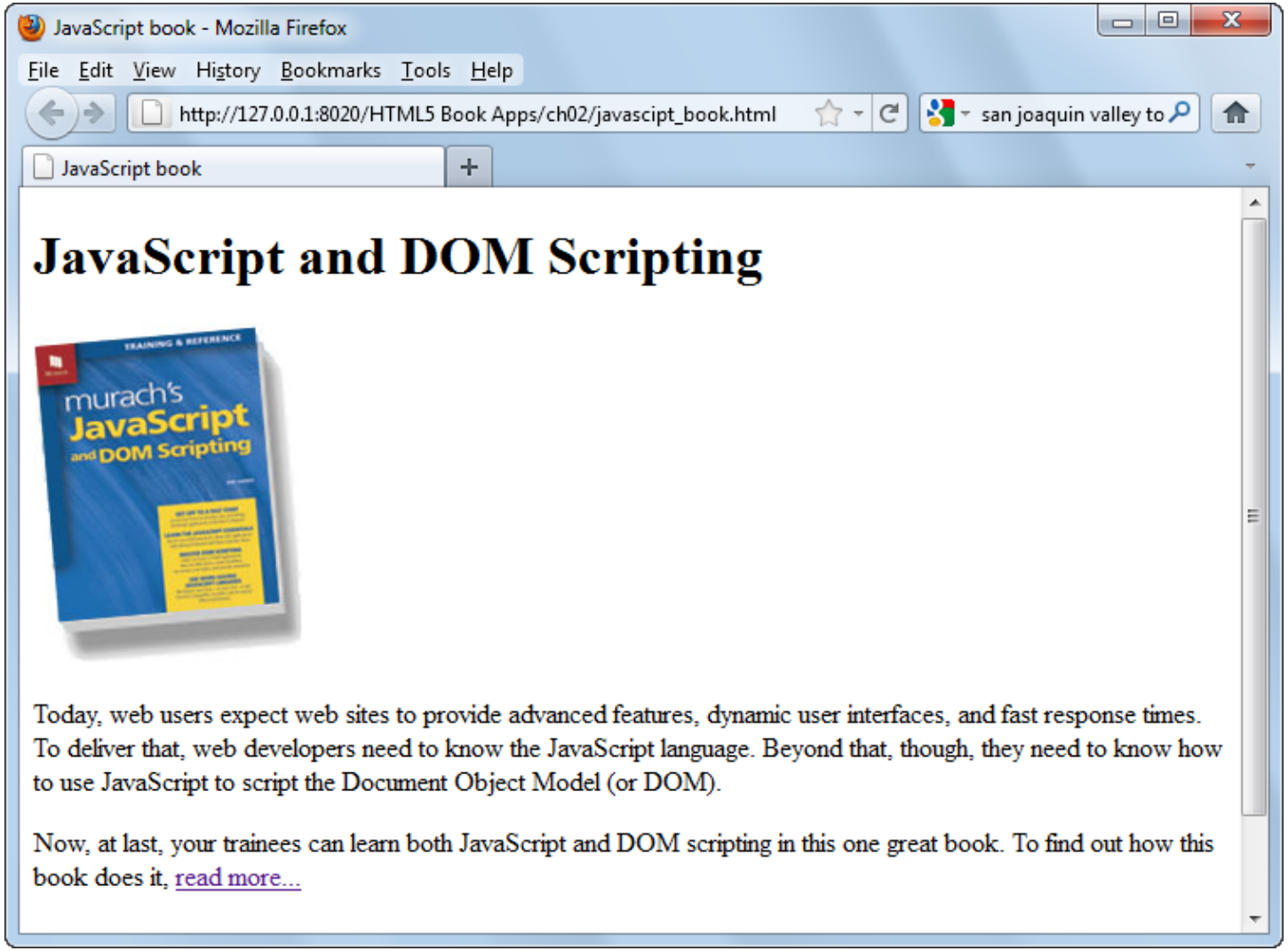
```
<!DOCTYPE html>
<html lang="en">
    <head>
        <meta charset="utf-8">
        <title>JavaScript book</title>
    </head>
    <body>
        <h1>JavaScript and DOM Scripting</h1>
        <img src="javascriptbook.jpg"
             alt="JavaScript Book">
        <p>Today, web users expect web sites to provide
           advanced features, dynamic user interfaces,
           ...
        </p>
        <p>Now, at last, your trainees can learn both
           JavaScript and DOM scripting in this one great
           book. To find out how this book does it,
           <a href="">read more...</a>
        </p><br><br><br>
    </body>
</html>
```

Red items are the minimum tags/elements to create a correct HTML web page/file. (page 15)

Note: You will need this information for your first assignment.

The HTML displayed in a web browser

No styles are applied only "content." (refer to code on the last slide.



The link element for a style sheet

```
<link rel="stylesheet" href="book.css" >
```

External style sheet file located in the same folder as the .html file.

Style Sheets

- Embedded and external style sheets allow you to separate web page content from; its formatting rules. These items contain styles.
- A style code contains two parts:
  - 1. Selector
    - What element(s)/tag(s) will be affected
  - 2. Declaration which contains two parts:
    - Property - I.e. The formatting style
    - Value – I.e. That will be applied/assigned to the property

Styles applied on next slide. -->

The code for an HTML file

```
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           JavaScript and DOM scripting in this one great
           book. To find out how this book does it,
           <a href="">read more...</a>
        </p><br><br><br>
    </body>
</html>
```

Refer to previous html code

The code for the CSS file named book.css

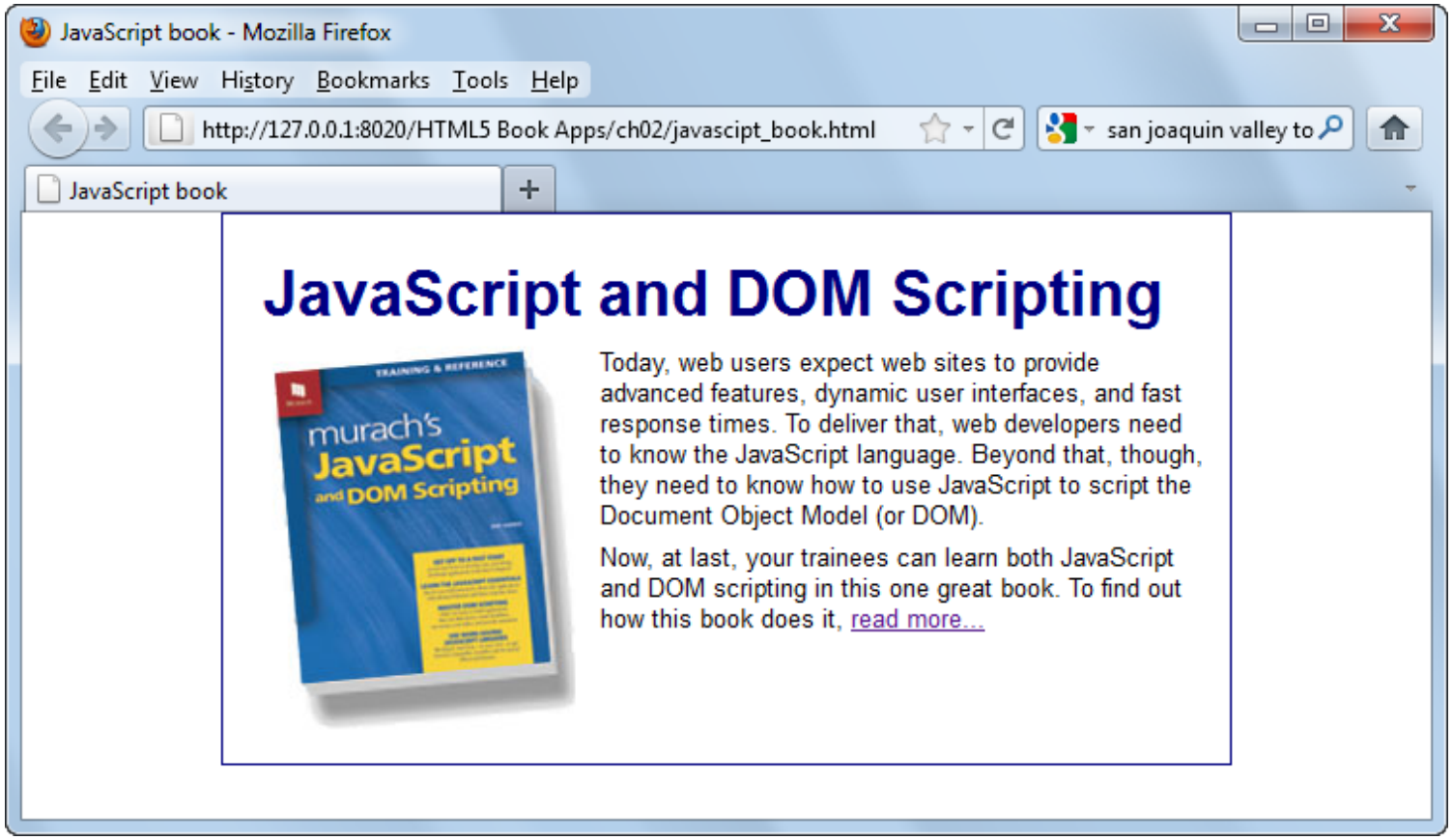
```
body {
    font-family: Arial, Helvetica, sans-serif;
    font-size: 82.5%;
    width: 500px;
    margin: 0 auto;
    padding: 1em;
    border: 1px solid navy; }
h1 {
    margin: 0;
    padding: .25em;
    font-size: 250%;
    color: navy; }
img  {
    float: left;
    margin: 0 1em; }
p {
    margin: 0;
    padding-bottom: .5em; }
```

Page 17

Note:
Selector
Property
Value

With styles applied

The web page displayed in a web browser



Notable releases of the HTML standards

1993	HTML 1.0	Never adopted
1995	HTML 2.0	Adopted in November 1995
1997	HTML 4.0	New features
1999	HTML 4.01	
2000	XHTML 1.0	Reformulates HTML with XML
2001	XHTML 1.1	Content presentation done with CSS
2008	HTML 5	Replaces both HTML 4 and XHTML 1 Still a working draft

HTML 5.1 is a “working draft”

Notable releases of the CSS standards

1996	1.0	Adopted in December 1996
1998	2.0	Adopted in May 1998
2004	2.1	A candidate standard in February 2004 Returned to working draft status in 2005 Became a candidate standard again in 2007
1999	3.0	A modularized version of CSS Earliest drafts in June 1999

Two web sites to become familiar with

- World Wide Web Consortium (W3C): www.w3.org.
- Web Hypertext Application Technology Working Group (WHATWG): www.whatwg.org.

W3C's primary activity is to develop protocols and guidelines that ensure long-term growth for the Web. W3C's standards define key parts of what makes the World Wide Web work. (comprised of interested web professionals)

The **Web Hypertext Application Technology Working Group** (**WHATWG**) is a community of people interested in evolving HTML and related technologies. (instigated by Apple, Opera, and Safari)

Several free text editors

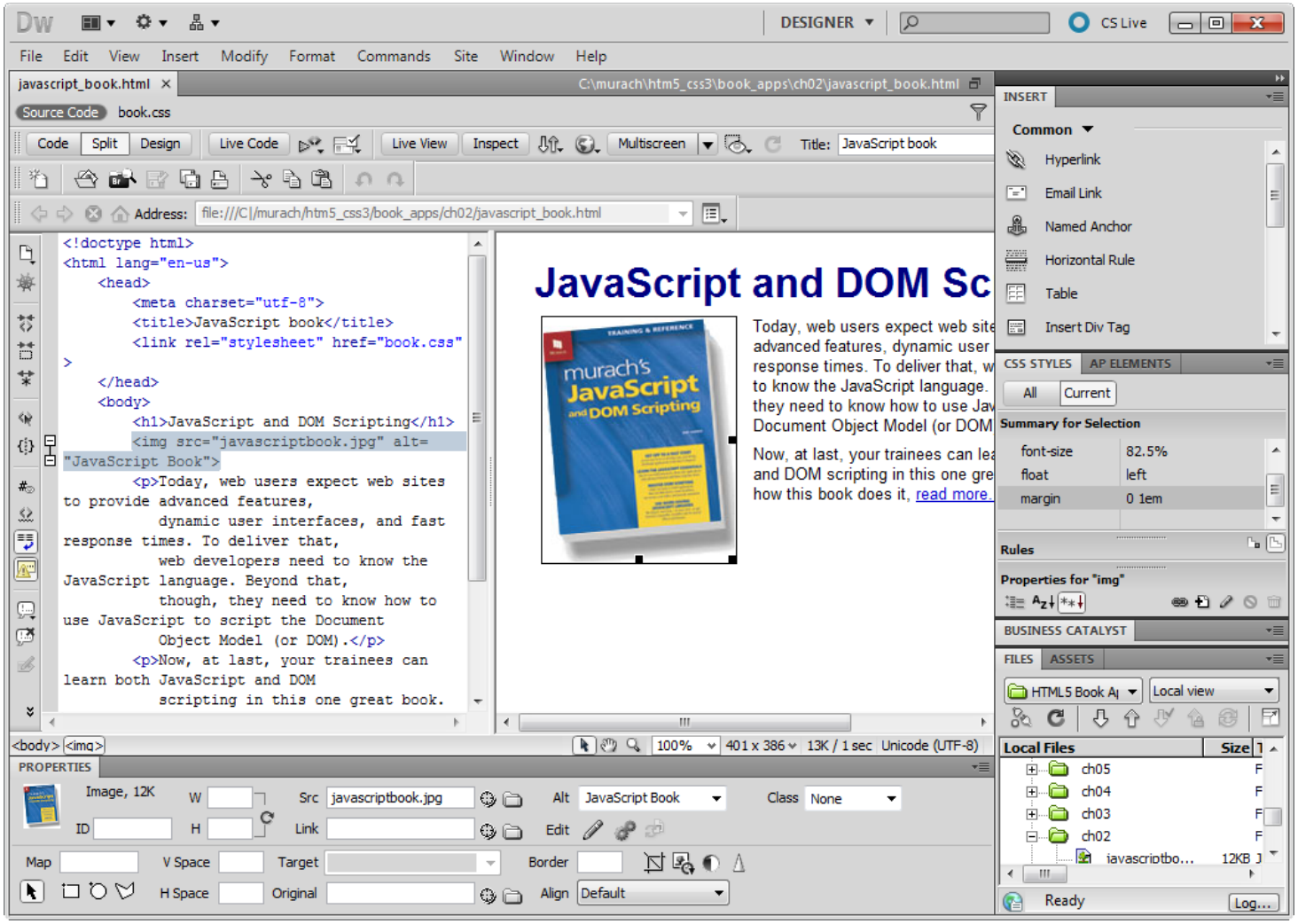
- Notepad++ - Available on all UWSP lab computers
- Vim
- TextWrangler

Stay away from Windows Notepad and Wordpad.

Never use Word or similar for HTML!

Commercial software

Adobe Dreamweaver



Popular IDEs for web development

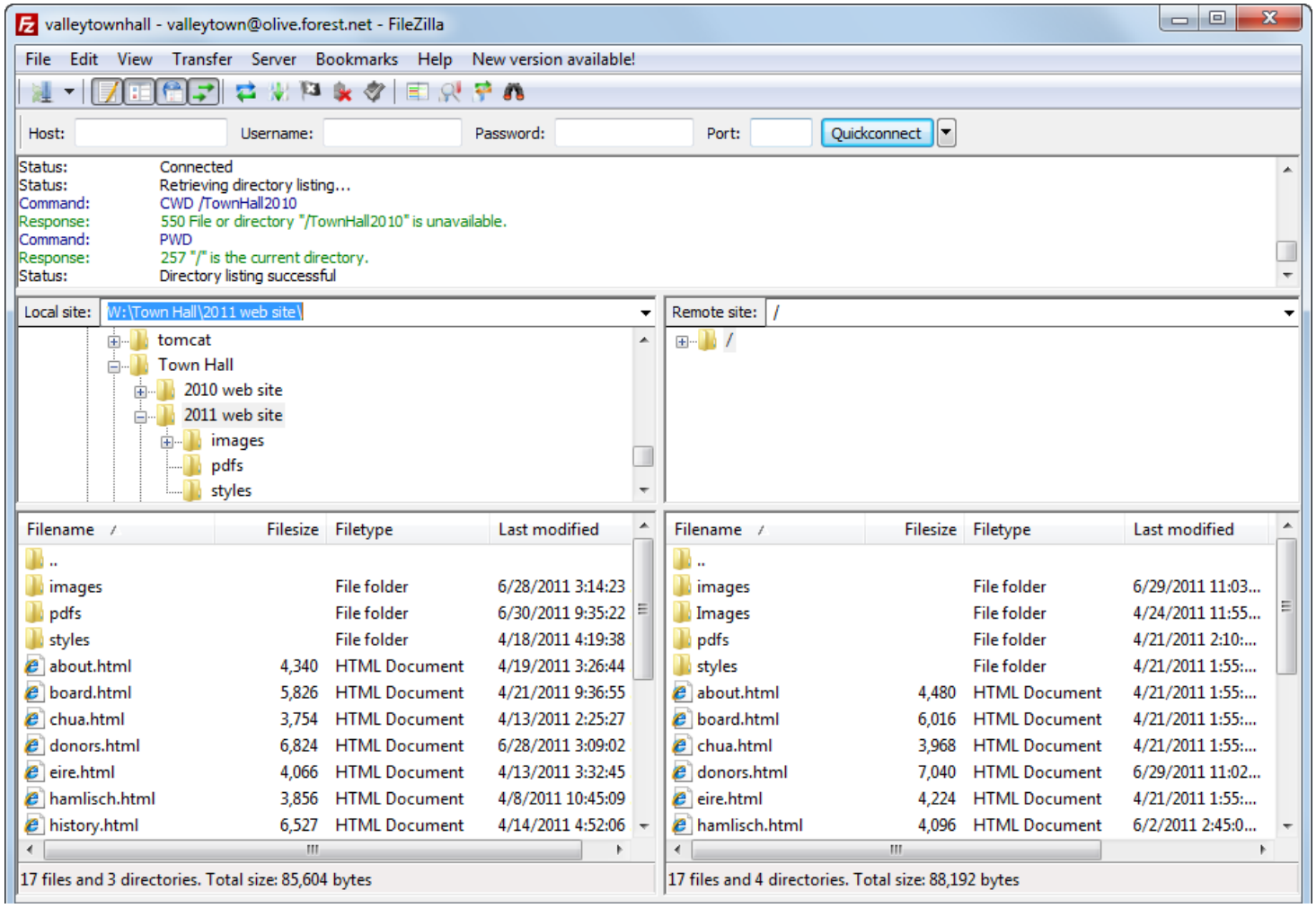
- Adobe Dreamweaver
- Microsoft Expression Web
- Eclipse

Popular suites for web development

- Adobe Creative Suite
- Microsoft Expression Studio

I'd recommend using Notepad++ or similar rather than an IDE.

FileZilla as it is used to upload files



Some popular FTP/SCP programs

- FileZilla
- FTP Voyager
- CuteFTP
- Fetch

The components of an HTTP URL

If no file is specified the web server will attempt to send a default document or directory listing. This behavior is controlled entirely by the server.

Filename Recommendations:

- Always use lower case letters and numbers
  - Never ever use spaces!
  - Stay away from special characters
  - Hyphens and underscores are ok, though underscores are difficult to read.
  - Some characters are reserved. Equals sign (=), ampersand (&), and others
- Special characters need to be URI-encoded.
  - For example, spaces become %20

Critical Development Issues:

1. Cross-browser compatibility
2. User accessibility
3. Search engine optimization

Next, we will take a brief look at these items.

Guidelines for cross-browser compatibility

- Test your web pages on all of the major browsers, including the older versions of these browsers.
- Your stakeholders (the people paying you) will determine which browsers you support.
    - Browser usage will depend on the audience for the site.
        - Tech-focused sites skew towards Chrome/Firefox
    - Stakeholders may need your help determining browser usage. Use the site's Google Analytics and web access logs.
- Use the HTML5 and CSS3 features that are supported by all of the modern browsers.
- Workarounds exist to help mimic new features in down-level browsers.

Accessibility laws that you should be aware of

- The Americans with Disabilities Act (ADA).
- Sections 504 and 508 of the federal Rehabilitation Act.
- Section 255 of the Telecommunications Act of 1996.
- Sites that do business with public entities typically subject to these rules.

Types of disabilities

- Visual
- Hearing
- Motor
- Cognitive

Information sources

- The WebAIM web site: http://www.webaim.org.
- The World Wide Web Consortium (W3C): http://www.w3.org/TR/WCAG.
- W3C also provides a specification called WAI-ARIA (Web Accessibility Initiative—Accessible Rich Internet Applications): http://www.w3.org/TR/wai-aria.

Search engine optimization (SEO)

The most popular search engines

- Google
- Yahoo
- Bing

Let’s review the description on page 35 in the textbook.

End of Chapter 1

- Questions?
- Next Chapter 2