



Computer Science E-75

Building Dynamic Websites

Harvard Extension School

<http://www.cs75.net/>

Lecture 0: HTTP

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<http://www.cs.harvard.edu/~malan/>

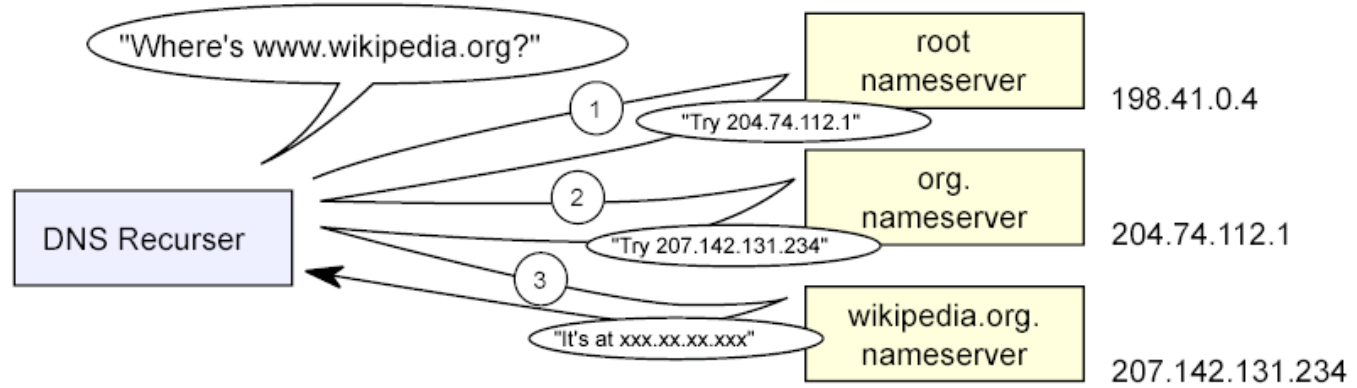
DNS



DNS

- .biz
- .com
- .edu
- .gov
- .info
- .int
- .mil
- .name
- .net
- .org
- .aero
- .asia
- .cat
- .coop
- .jobs
- .mobi
- .museum
- .pro
- .tel
- .travel
- .us
- ...

DNS



DNS

- A
- CNAME
- MX
- NS
- ...

Web Hosts

web hosting

All this for just \$5.95/month!*

Core Resources	SIGN UP NOW!
Disk Storage at signup	500 GB
Automatically Increases Weekly By:	2 GB
Monthly Bandwidth at signup	5.0 TB
Automatically Increases Weekly By:	40 GB
MySQL 5 Databases	Unlimited
Operating System	Debian Linux
User Accounts	SIGN UP NOW!
E-Mail Accounts (POP/IMAP)	Unlimited
Full Shell / FTP Users	Unlimited
E-Mail	SIGN UP NOW!
POP / SMTP Access	<input checked="" type="checkbox"/>
IMAP Access	<input checked="" type="checkbox"/>
Web-Based Email Access	<input checked="" type="checkbox"/>
Procmail Mail Filtering	<input checked="" type="checkbox"/>
Spam Filtering - SpamAssassin	<input checked="" type="checkbox"/>
Email Addresses (Aliases)	Unlimited
Announcement Lists	Unlimited
Discussion Lists	Unlimited
Vacation Auto-Responders	Unlimited
Domains	SIGN UP NOW!
Free Domain Registration (A \$9.95 Value!)	<input checked="" type="checkbox"/>
Free Domain WHOIS Privacy	<input checked="" type="checkbox"/>
Domains Hosted	Unlimited
Subdomains Hosted	Unlimited

Virtual Private Servers



Virtual Private Servers

SuperVPS 100 Specifications

\$229 Monthly	Minimum Server Specs
\$0 Setup	Dual CPU Quad Core Intel Clovertown
4 GB Burst RAM	16 GB FB-DIMM dual-ranked RAM
2 GB Guaranteed RAM	RAID 10 Serial Attached SCSI (SAS) Storage Arrays
100 GB Storage	Hot-Spare drives
3500 GB Monthly Transfer	zero downtime during failure
4 IP Addresses	Hot-Swap drives and fans
Hardware RAID 10	replaceable on the fly
Unlimited Domains	Dual Gigabit Network Interfaces
Unlimited User Accounts	64-bit Swsoft Virtuozzo Kernel
CentOS 4 Operating System	

panel.cs75.net



Your Account

Domain Setup

Site Summary / Statistics / Logs

Change Password

Subdomain Management

Login History

Frontpage Extensions

DNS Management

MySQL Management

Support Center

Password Protected Directories

Installed Perl Modules

File Manager

Create/Restore Backups



E-Mail Management

E-Mail Accounts

Mailing Lists

Catch-All E-Mail

SPAM Filters

Forwarders

Webmail: Squirrelmail

Autoresponders

Webmail: UebiMiau

Vacation Messages

Webmail: Roundcube

Spamassassin Setup

MX Records



Advanced Features

Server Information

Custom Error Pages

SSL Certificates

phpMyAdmin

Cronjobs

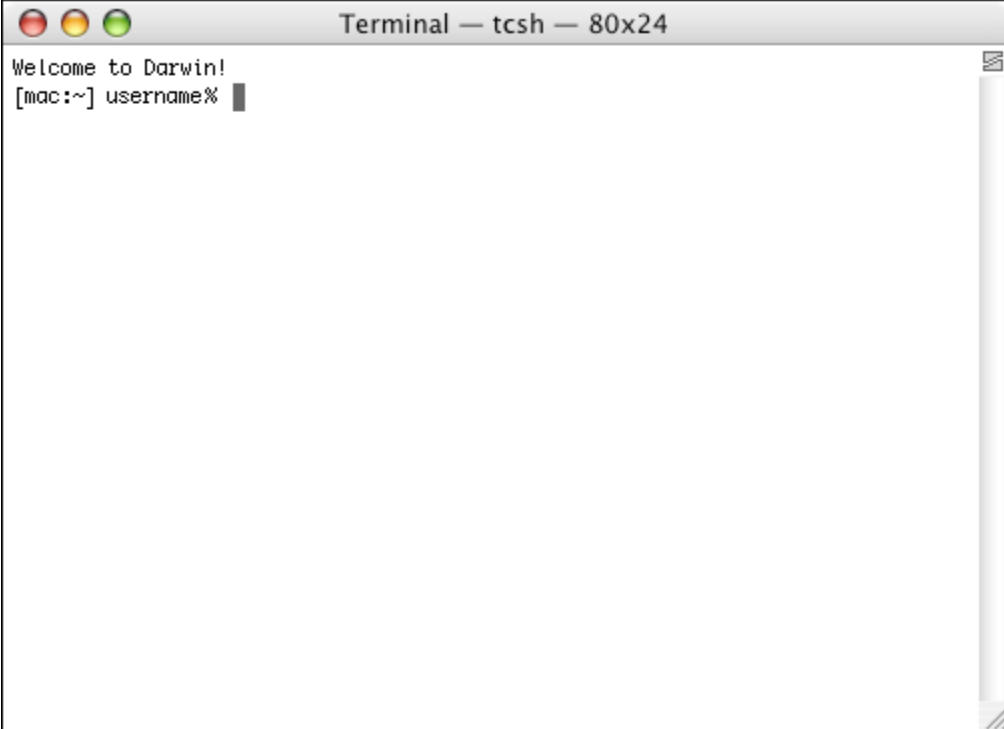
Site Redirection

Mime Types

Domain Pointers

Apache Handlers

SSH



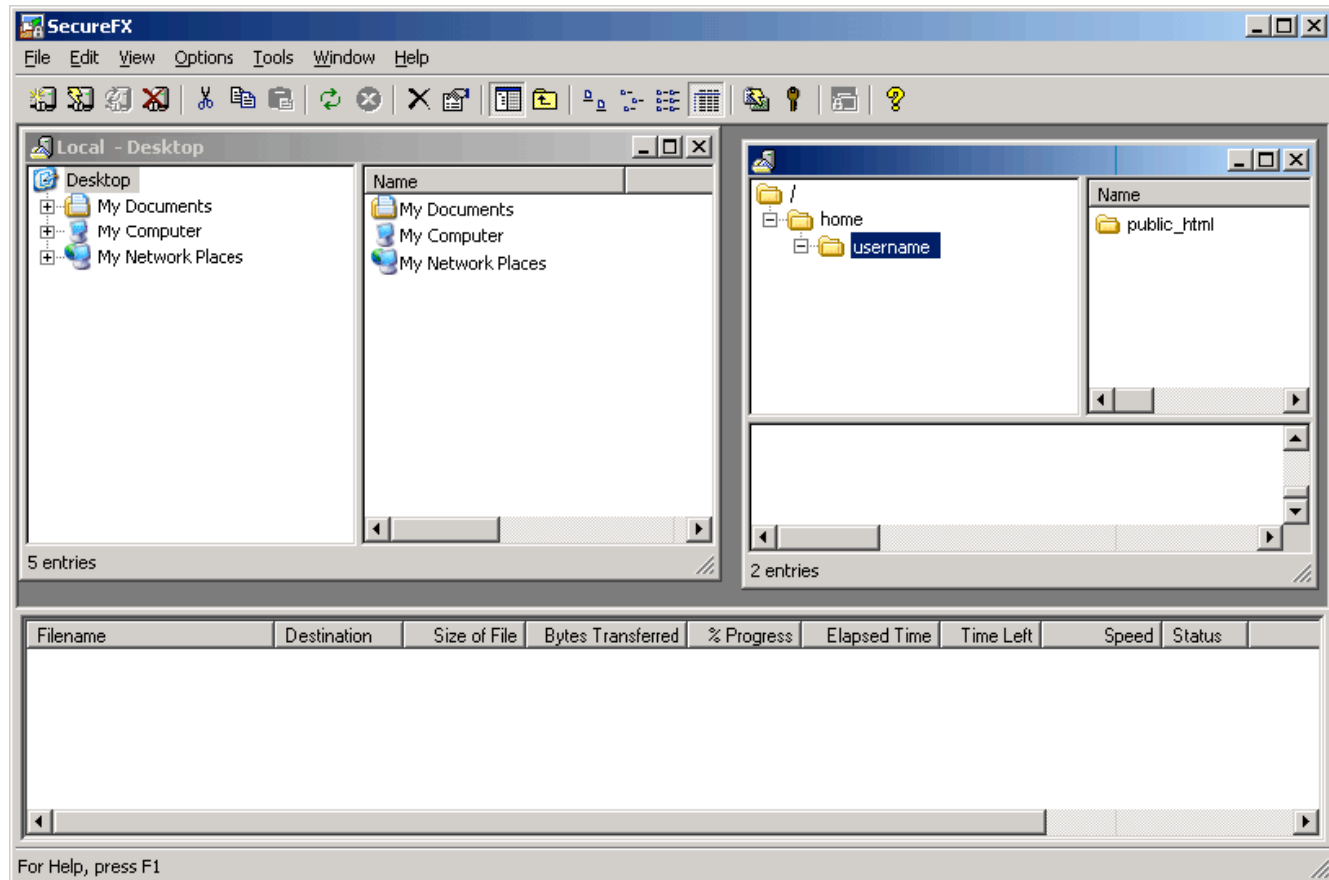
```
Terminal — tcsh — 80x24
Welcome to Darwin!
[mac:~] username% █
```

A screenshot of a terminal window titled "Terminal — tcsh — 80x24". The window has a standard macOS-style title bar with three colored buttons (red, yellow, green) on the left. The terminal content shows a successful SSH connection to Darwin, with the message "Welcome to Darwin!" followed by the prompt "[mac:~] username% █".

SSH

- cd
- chmod
- cp
- emacs
- ls
- mkdir
- mv
- nano
- pwd
- rm
- rmdir
- vim
- ...

SFTP





Prerequisites

- Prior programming experience in any language and familiarity with HTML are assumed

Expectations

- Attend or watch all lectures
- Implement five projects

Lectures

- Lecture 0: HTTP
- Lecture 1: PHP
- Lecture 2: PHP, Continued
- Lecture 3: XML
- Lecture 4: XML, Continued
- Lecture 5: SQL
- Lecture 6: SQL, Continued
- Lecture 7: JavaScript
- Lecture 8: JavaScript, Continued
- Lecture 9: Ajax
- Lecture 10: Ajax, Continued
- Lecture 11: Security
- Lecture 12: Scalability

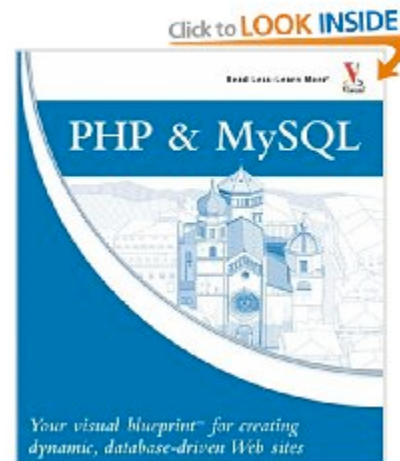
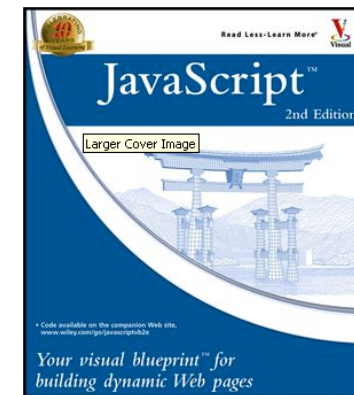
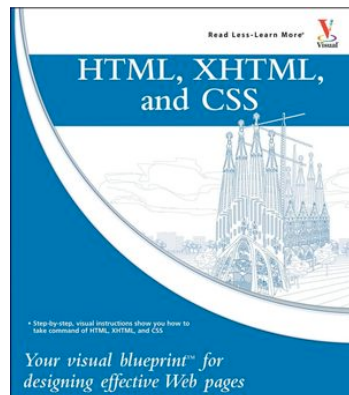
Sections

- On Campus
 - Mondays, 7:35pm - 8:35pm ET
- Online
 - TBA

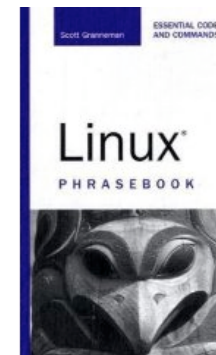
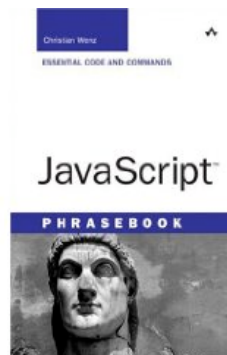
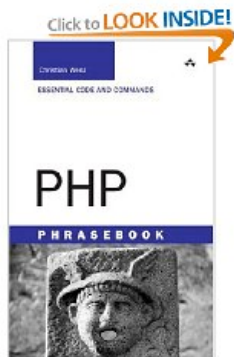
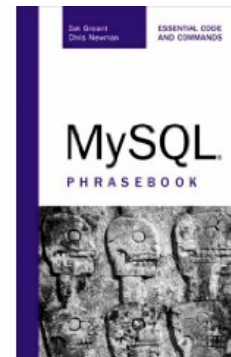
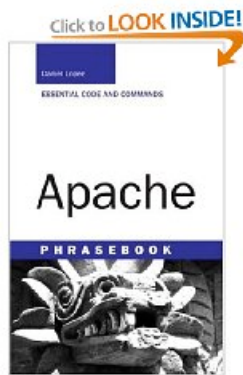
Projects

- Project 0: Setup
- Project 1: PizzaML
- Project 2: C\$75 Finance
- Project 3: Google Mashup
- Final Project

Books for Those Less Comfortable



Books for Those More Comfortable



www.cs75.net

The screenshot shows a Mozilla Firefox browser window displaying the website for CSCI E-75. The browser's address bar shows the URL <http://www.cs75.net/>. The website has a blue header with the text "csci e-75: building dynamic, scalable websites" and "@ harvard extension". A navigation menu on the left lists links for "Grades ::", "Lectures ::", "Office Hours ::", "Projects ::", "Resources ::", "Sections ::", "Software ::", "Staff ::", and "Syllabus ::". Below this menu is a "Search a Manual" section with buttons for "Apache", "MySQL", "PHP", and "YUI". The main content area features a "Welcome" message and a paragraph of text about the course. The text describes the course as "Computer Science E-75. Building Dynamic, Scalable Websites" and mentions that it is part of Harvard University's Distance Education Program. It also lists various technologies covered in the course, such as Ajax, Linux, Apache, MySQL, PHP, JavaScript, and CSS. The footer of the page includes a copyright notice for 2009 by David J. Malan.

CSCI E-75 - Mozilla Firefox
File Edit View History Bookmarks Tools Help
<http://www.cs75.net/> illuminate.com
You are not logged in. [Log in.](#)

csci e-75: building dynamic, scalable websites @ harvard extension

David J. Malan, Instructor
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cs75.tv

VIRTUAL TERMINAL ROOM

Grades ::
Lectures ::
Office Hours ::
Projects ::
Resources ::
Sections ::
Software ::
Staff ::
Syllabus ::

Search a Manual

Apache MySQL
PHP YUI

Welcome

Computer Science E-75. Building Dynamic, Scalable Websites is a course at [Harvard University's Extension School](#). It is part of the school's [Distance Education Program](#), which means that students can take this course via the Internet as well as on campus.

Today's websites are increasingly dynamic. Pages are no longer static HTML files but instead generated by scripts and database calls. User interfaces are more seamless, with technologies like Ajax replacing traditional page reloads. This course teaches students how to build dynamic websites with Ajax and with Linux, Apache, MySQL, and PHP (LAMP), one of today's most popular frameworks. Students learn how to set up domain names with DNS, how to structure pages with XHTML and CSS, how to program in JavaScript and PHP, how to configure Apache and MySQL, how to design and query databases with SQL, how to use Ajax with both XML and JSON, and how to build mashups. The course explores issues of security, scalability, and cross-browser support and also discusses enterprise-level deployments of websites, including third-party hosting, virtualization, colocation in data centers, firewalling, and load-balancing.

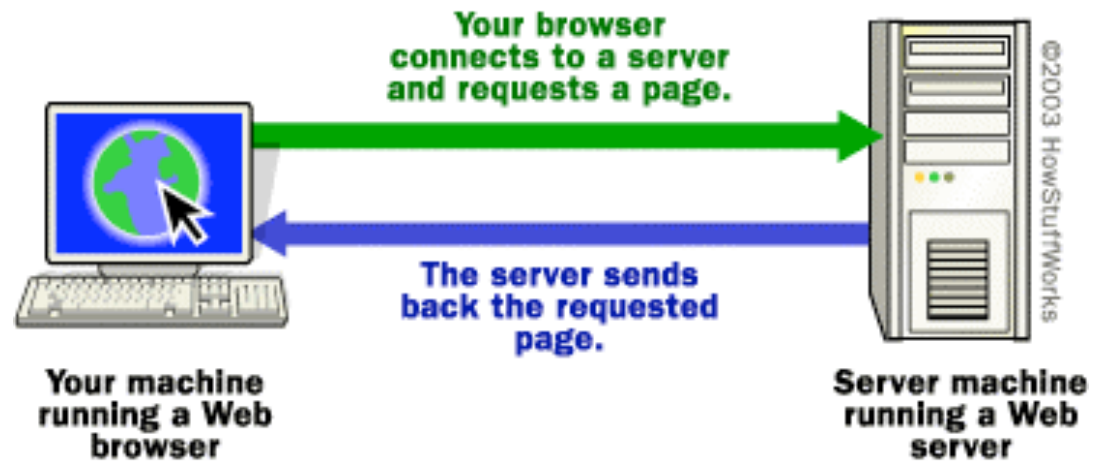
Available at left is the course's [syllabus](#) and much more.

Spring 2009

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Done

HTTP



XHTML

```
<!DOCTYPE html  
  PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"  
  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

```
<html xmlns="http://www.w3.org/1999/xhtml">  
  <head>  
    <title>hello, world</title>  
  </head>  
  <body>  
    hello, world  
  </body>  
</html>
```

CSS

```
<!DOCTYPE html
  PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">
  <head>
    <style type="text/css">
      <!--
        body { background: #fff; }
      -->
    </style>
    <title>hello, world</title>
  </head>
  <body>
    hello, world
  </body>
</html>
```

CSS

```
<!DOCTYPE html
  PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">
  <head>
    <link href="styles.css" rel="stylesheet" type="text/css" />
    <title>hello, world</title>
  </head>
  <body>
    hello, world
  </body>
</html>
```




Validity

<http://validator.w3.org/>

Cross-Browser Issues

- Chrome
- Firefox
- Internet Explorer
- Safari
- ...

<http://browsershots.org/>

Yahoo! UI Library (YUI)

- YUI Reset CSS

<http://developer.yahoo.com/yui/reset/>

- YUI Fonts CSS

<http://developer.yahoo.com/yui/fonts/>

YUI Reset CSS

```
<!DOCTYPE html
  PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">
  <head>
    <link rel="stylesheet" type="text/css"
      href="http://yui.yahooapis.com/2.5.2/build/reset/reset-min.css" />
    <title>hello, world</title>
  </head>
  <body>
    hello, world
  </body>
</html>
```

YUI Fonts CSS

```
<!DOCTYPE html
  PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">
  <head>
    <link rel="stylesheet" type="text/css"
      href="http://yui.yahooapis.com/2.5.2/build/fonts/fonts-min.css" />
    <title>hello, world</title>
  </head>
  <body>
    hello, world
  </body>
</html>
```

Forms

- Text Fields
`<input name="email" type="text" />`
- Password Fields
`<input name="password" type="password" />`
- Hidden Fields
`<input name="id" value="123" />`
- Checkboxes
`<input checked="checked" name="remember" type="checkbox" />`
- Radio Buttons
`<input name="gender" type="radio" value="F" />`
`<input name="gender" type="radio" value="M" />`
- Drop-Down Menus
`<select name="state">`
 `<option value=""></option>`
 `<option value="MA"></option>`
 `<option value="NY"></option>`
`</select>`



Computer Science E-75

Building Dynamic Websites

Harvard Extension School

<http://www.cs75.net/>

Lecture 0: HTTP

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<http://www.cs.harvard.edu/~malan/>