Introduction to Internet Technology and Web Programming

Computer Science 103
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These notes are based on the lecture notes provided by Professor Susan Worst and Professor Perry Donham.

Lecture 10-1

BU CS 103, Spring 2019

What will be Covered Today?

- Dreamhost & WordPress Websites
- Introduction to JavaScript

Assignments

- New Assignments
  - **HW 6 (Making a WP website)** was posted today
    - ✓Due on Tuesday 04/16 at 6:00 pm.
      - Midterm Exam 2 is next week
      - This HW is important for anybody wants to make a Wordpress website for the final project.
- Deadlines
  - **HW 5** due was today at 6:00 pm but it will be extended till coming **Wednesday** at 6:00 pm.
    - ✓**There is no late submission period**
  - **Lab 8 Assignment** due is Wednesday at 6:00 pm.

Shared hosting (Dreamhost)

- Since last week, you have started hosing a web which is provided by an external company (Dreamhost).
  - Now you have a username & password to connect to the control panel of your hosting account.
  - You can log in through: https://panel.dreamhost.com/
  - You also need for a username & password to connect to your webhost through FTP software (FileZilla). It is supposed to be sent to you. But, you can also set it up through the control panel of your Dreamhost account.

WordPress websites (WP websites)

- Because you signed up for a full web hosting through Dreamhost, you are permitted to install WordPress websites in your web host.
- You can install several WP websites in any directory of your webhost.
  - ✓ For HW5, you were asked to install one WP website in a directory (folder) named "blog". It means that, if I type **http://yourdomain.com/blog** I am supposed to see the home page of your WP website.
  - ✓ Some of you accidentally installed a WP website in the top-level folder. Because of that, when you type: **http://yourdomain.com** you see a WP website.
  - ✓ For any WP website, there is a separate username & password.
  - ✓ By using the username & password, you can connect to the control panel o your WP website (which is different from control panel of your Dreamhost account).
  - ✓ If you install the WP in the "blog" folder, you can sign in to the control pane of your WP website through **http://yourdomain.com/blog/wp-admin/**

WordPress key concepts

Key WordPress Concepts, 1

- **Post**
  - A piece of content (news story, recipe) with a date and an author.
  - Part of a blog.
- **Blog (Web log)**
  - A list of posts in reverse order.
  - Abbreviation for "weblog"
- **Page (Web page)**
  - Something you have created so far with HTML files in the assignments.
  - No date, no author.
  - Something that should always be visible
  - They are not supposed to change by the website users.

Key WordPress Concepts, 2

- **Theme**
  - WordPress visual design
  - Usually written by outside designers
- **Widget**
  - Drag and drop component of a web page
- **Plugin**
  - Third-party code
  - Usually adds interactivity
  - Never use plugins that haven't been updated in 6 months or more

Key WordPress Concepts, 3

- **Editor**
  - Screen used to write pages and posts
  - Use the Text view to write HTML
  - Use the Visual otherwise
- **Customization**
  - Changes to your theme, plugin, etc. that you can make without editing any code
- **Configuration**
  - Changes you make by editing code
  - Must be redone after updates to WordPress, themes, or plugins
  - Customization is better than configuration.

Why Are We Learning This?

- Most websites today are dynamic
- Your final project must include some dynamic elements/interactive features
- JavaScript and PHP are both good options
  - PHP is used for Backend Web Development
    - ✓One good example is building CMS for Wordpress websites
  - JavaScript is for Frontend Web Development

JavaScript (JS) Programming for the Web

What is JS for?

- JavaScript and HTML web pages are intertwined
- HTML is great for pages where things don't change
- JavaScript was designed to let coders add interactivity to their pages
- All the 'fancy' things you see on web pages are because of JavaScript programs.

JS vs Java

- You might have heard of the Java programming language
- You would expect that JavaScript would be, well, a 'script' version of Java
- In fact the two programming languages are unrelated
- JavaScript was based loosely on the C programming language

Facts about JS

- JavaScript is a programming language…where does the actual program run?
  - ✓ In the browser
- Browsers include a JavaScript 'engine' that reads and executes the JavaScript code in each web page
- You can turn the engine off in Settings or Preferences for each browser
- As JS programs are executed in the browsers, anyone can read or even copy your JavaScript program (in contrast with PHP)

Basics of JS Programming!

- Every line of code must end in a semicolon (;)
- The language lets you work on numbers, strings of characters, images, and all the other things you might see on a web page
- It also gives you complete access to the pieces of the web page itself
- Comments in JavaScript start with two slashes:
  - **// to comment out single line**
  - **/* … */ to comment out multi-lines**

```
//This is the world's best piece of JavaScript coding, bar none.
/* We aren't quite sure yet what it does but it is bound to be awesome.
Set up some variables first */

let a = 5;
let b = 6;
```

Variables

- A variable is just a named value
- You've probably used them in math problems for years:

```
a = 10  // the number of apples in a box
```

- JS variables are exactly the same idea (the same as PHP)
- We use the **let** or **var** keywords to create a variable

```
let a = 10;   // in PHP we used $a = 10
var b = 20;
```

Variables …

- Once you have a variable, you can put whatever you like into it

```
let a;
a = 12;  //a now has a 12 in it
```

- It's 'variable', so you can change it to something else if you like

```
a = 22;  //now a is something else
```

- Note that we only need to use **let** once, when we create the variable

Variables …

- Variables can hold any type of data

```
let v1;
let v2;

v1 = "This is a string";

v2 = [14,12,16,2];    //an array
```

- Here's an example of creating a variable and assigning a value in one line:

```
let  studentAge = 22;
```

Lets stop here & do some JS coding!

- JavaScript is incorporated into HTML pages using the **script tag**
- The script tag can either enclose JavaScript code or pull in an external file
- The script tag must have a closing tag
- The script tag can appear in the head or the body of an HTML page
- How a browser recognize a JavaScript file?
  - External JavaScript files are ordinary text files (like HTML and CSS) which end in .js
- How a browser recognize a JavaScript piece of code?
  - Internal JavaScript codes are places between **<script>…</script>** tags

How to show the result of JS coding

One way is using command:

document.write(….);

Operators

- We can do basic math functions such as addition, subtraction, and so on

```
let a = 12;
let b = 16;
let c = 12 * 16;
let d = 11 / b;
let e = a - b;
let f = a + b;
```

Other ways to show the result:

There are multiple ways to see the output of a JS code:

- console.log()
- alert()

```
alert("Hello World");
```

- prompt()

```
prompt("Print your name:");
```

- document.write()

```
document.write("Hello World");
```

- innerHTML

```
document.getElementById("main").innerHTML= "Hello World";
```

For next time

- See you on Wednesday