CS 2541W 30
Database Systems & Team Projects Laboratory

Lab 1 - Intro to Web Development

By Roxana Leontie
Contact Info

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• Office Hours:

• Tuesday: 10AM - 12:00PM
What do I expect from you?

- 3 credit hours class = 9 hours of study outside of class/week
- WID writing assignments - talk with the WID TAs if you have questions
- Programming assignments:
  - Due on Github/Blackboard
  - Don’t be late!!!
What do I expect from you?

- Grading policy:
  - All in-lab exercises are due at the end of the lab (no late submissions accepted)
  - Queries with syntactic errors will not be considered
  - Run your queries before sending them
  - If your query works, it is likely you will get all the points for it
  - You are expected to play with the tools on your own and learn at least enough to do the project
What do I expect from you?

- Projects:
  - Projects are due at the end of the semester, but start early!!!
  - Several deadlines phases to keep you on track!!
- Teamwork: you will be working on long tear team projects
  - Communicate with your teammates and let them know if you are having problems
  - Communicate with me an let me know if you are having problems
Today's Goals

- Learn About HTML
- Learn About CSS
- Learn about PHP
What exactly is HTML?

- HTML (Hypertext Markup Language) is not a programming language
- It’s a markup language used to tell your browser how to structure the web pages you visit
The `<!DOCTYPE html>` declaration defines this document to be HTML5.

- The `<html>` element is the root element of an HTML page.
- The `<head>` element contains meta information about the document.
- The `<title>` element specifies a title for the document.
- The `<body>` element contains the visible page content.
- The `<h1>` element defines a large heading.
- The `<p>` element defines a paragraph.
Tags in HTML are case-insensitive, i.e. they can be written in uppercase or lowercase. For example, a `<title>` tag could be written as `<title>`, `<TITLE>`, `<Title>`, `<TiTlE>`, etc., and it will work fine. Best practice, however, is to write all tags in lowercase for consistency, readability.
HTML FORMS

- HTML Forms are one of the main points of interaction between a user and a web site or application.
- They allow users to send data to the web site.
- Most of the time that data is sent to the web server, but the web page can also intercept it to use it on its own.
 FORM Example

<!DOCTYPE html>
<html>
<head>
<title>Form Example</title>
</head>
<body>
<form>
 First name:<br>
 <input type="text" name="firstname"><br>
 Last name:<br>
 <input type="text" name="lastname">
</form>
</body>
</html>
<!DOCTYPE html>
<html>
<head>
  <title>Form Example</title>
</head>
<body>
  <form>
    First name:<br>
    <input type="text" name="firstname"><br>
    Last name:<br>
    <input type="text" name="lastname">
  </form>
</body>
</html>
**HTML Resources**

- [https://www.w3schools.com/html/default.asp](https://www.w3schools.com/html/default.asp)
HTML - In Class Exercise

* Replicate this form
Steps:

* Accept the GitHub assignment here: https://classroom.github.com/a/E1esEM_7
* Open MobaXterm and start local terminal
SSH connection

- Use your GW netID to connect to the gwupyterhub.seas.gwu.edu server
  ```bash
  ssh -Y GWnetID@gwupyterhub.seas.gwu.edu
  ```
- Create a public_html directory
  ```bash
  mkdir public_html
  ```
- Change the permissions to 0755
  ```bash
  chmod 0755 public_html
  ```
- Change directory to public_html
  ```bash
  cd public_html
  ```
Clone the repository

- On the server clone your repository in the public_html folder
  
git clone https://github.com/GWU-CSCI-2541W/web_dev-UserName

- You can edit files directly on the server by using sublime_text file_name.html

- Check your website at
  
http://gwupyterhub.seas.gwu.edu/~GWUnetID/web_dev-UserName/report.html
CSS

- CSS (Cascading Style Sheets) allows you to create great looking web pages

- CSS is a language for specifying how documents are presented to users — how they are styled, laid out, etc.

- Web browsers apply CSS rules to a document to affect how they are displayed. A CSS rule is formed from:
  - A set of properties
  - A selector, which selects the element(s) you want to apply the updated property values to.
<html>
<head>
    <title>My CSS experiment</title>
    <link rel="stylesheet" href="style.css">
</head>
<body>
    <h1>Hello World!</h1>
    <p>This is my first CSS example</p>
</body>
</html>

style.css

h1 {
    color: blue;
    background-color: yellow;
    border: 1px solid black;
}

p {
    color: red;
}
Hello World!

This is my first CSS example

```css
h1 {
  color: blue;
  background-color: yellow;
  border: 1px solid black;
}

p {
  color: red;
}
```
CSS Resources

* [https://www.w3schools.com/css/default.asp](https://www.w3schools.com/css/default.asp)

CSS - In Class Exercise

* Edit the style.css file in your repository to apply some features to your form page
What is PHP

* Official website: www.php.net
* “PHP is a widely-used general purpose scripting language that is especially suited for Web development and can be embedded into HTML.” (php.net)
* PHP, originally derived from Personal Home Page Tools, now stands for PHP: Hypertext Preprocessor, which the PHP FAQ describes as a "recursive acronym."
HTML is static and boring

- HTML is great at creating webpages, for sharing pictures of your dog for e.g..

- But what if you want to interact??
The HTML code in these pages is determined when the web developer creates the pages.

Static HTML pages are only changed when a web developer edits a .html file and uploads it to their web server.

The web server is limited to serving up one static HTML page after another.

The web server’s a big part of the problem with lifeless HTML since it serves as nothing more than a boring delivery mechanism. A browser requests a page, the server responds with HTML, end of story. To turn web sites into interactive web applications, the web server has to take on a new, more dynamic role... a role made possible by PHP.

With pure HTML web pages, the server simply serves up static HTML that can only display content.
The browser still receives regular HTML web pages, but the code’s been dynamically generated by PHP on the server.

The HTML code in these pages is generated by PHP and can change dynamically depending on what the web application needs.

PHP scripts are stored on the web server, where they’re processed and then delivered to the browser as HTML pages.

Dynamic HTML pages change in response to programmatic logic in PHP scripts, making them incredibly flexible.

PHP scripts contain both HTML code and PHP script code that determines how the HTML code’s manipulated.

MySQL Database

PHP stores and retrieves data from a database and incorporates the data into the HTML code that it generates.
PHP basics

- PHP code is always enclosed by `<?php` and `?>`.

- Every PHP statement MUST end with a semicolon (;)

- IF there is any PHP code in a webpage, it is a good idea to name the file on the server with a .php not .html

- Use echo for printing
* Dot concatenates two strings

```html
<html>
<head>
  <title>PHP test</title>
</head>
<body>
  <p>
    <?php $a="Hello"; $b="World!"; echo $a."".$b; ?>
  </p>
</body>
</html>
```
PHP Resources

* https://www.w3schools.com/php/default.asp
PHP - In Class Exercise

* Edit the report.php to print “Thank you for submitting the form”

* To do that you need to add an action to your form

* `<form action="report.php">`
Questions?

Resources

* Head first PHP & MySQL book.