

Lab 1 for COP2500

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Lab Rubric

This lab is **30%** of the overall grade for COP2500.
Each lab:

- ▶ 8 points per lab
- ▶ 1 point **bonus** for attendance
- ▶ Partial credit awarded for submitting on time

Lab Submission

- ▶ Submit in class or by email to me
 - ▶ **Please add “COP2500 Lab #” to the subject**
 - ▶ **Give your first and last name**
 - ▶ **Do not submit labs to the course instructor**
- ▶ Due the day of the lab at 11:59pm.
- ▶ 1 pt deduction each day late

How to Do Well

- ▶ Learning programming is similar to learning a foreign language
Memorizing “vocabulary” is only part of it
- ▶ Practice forming statements (writing code) is *essential* for:
 - ▶ Building on previous concepts
 - ▶ Avoiding simple mistakes
 - ▶ Improving expressiveness
 - ▶ Using JavaScript to improve personal web design projects

Using the Computer

- ▶ Please **delete** all of your documents and **log off** before you leave
- ▶ Do not use Microsoft Word to edit files.
- ▶ You may use any text editor that can save to plain text, such as Notepad, Notepad++, Gedit, TextEdit, etc.

HTML

- ▶ HTML stands for Hypertext Markup Language
- ▶ Way of organizing and formatting text and media in web pages
- ▶ *Loosely* interpreted by browsers

HTML Code	Web Page
...Bold...	Bold
...<i>Italic</i>...	<i>Italic</i>
... Heading ...	Heading

HTML Tags

- ▶ **Tags denote sections or format** an HTML document
- ▶ Section tags come in start and end pairs
 - ▶ Example: Starting and ending an HTML document
`<html>`
...
`</html>`
 - ▶ Nest order matters
`<i><b></b></i>`
- ▶ Format tags:
 - ▶ Example: Adding a horizontal rule (line) with `<hr />`
 - ▶ Example: Adding a line break with `<br />`

Style

- ▶ Comments are ignored by the browser, but help humans understand what your code is doing
`<!-- This code does... -->`
- ▶ Indenting inside section tags is good style, but not necessary
- ▶ Capitalization doesn't matter in HTML (but will for JavaScript)

Important HTML tags

Listing 1: HTML Template

```
<html> <!-- Required -->
<head> <!-- Information section -->
    <title>Title</title> <!-- Window Title -->
</head>
<body> <!-- Displayed in web page -->
</body>
</html>
```

JavaScript

- ▶ Designed for web pages
- ▶ **Different language** than HTML with **different syntax** and work together to produce dynamic web pages
- ▶ HTML tag for inputting JavaScript:
`<script language = "javascript" > ...</script>`
- ▶ Used for computation run by the browser
- ▶ Dynamically modifies the HTML document

Listing 2: HTML code with embedded JavaScript

```
<html>
<head>
  <title>Title</title>
  <!-- Write Hello World to this HTML document -->
  <script language = "javascript">
    document.write("Hello World!");
  </script>
</head>
<body>
```

Learning Syntax

- ▶ Programming languages, like JavaScript, have strict grammar called **syntax** which structure the language
- ▶ The browser interprets your code literally and is sensitive to:
 - ▶ Punctuation
`document.write("hello");`
 - ▶ Capitalization:
`Document.write("hello");`
 - ▶ Matching (with):
`document.write("hello";`
- ▶ Your program will not run if you have these errors
- ▶ Be **patient**, you'll learn these ticks with practice

Variables

- ▶ Variables are named containers
- ▶ Variables must be **declared**
`var x;`
- ▶ Filling this container is called **assignment**
- ▶ In JavaScript, assignment is performed with `=`
- ▶ **Assign a variable** a number:
`x = 7;`
- ▶ Assign a variable a string (word):
`x = "Hat";`
- ▶ Variables can be declared and assigned at the same time:
`var x = "Hello";`

Arithmetic

- ▶ Variables can be manipulated with arithmetic (+,-,*,/)

```
var x = 5;  
var y = 10;  
var z = x + y;  
document.write(z);
```

- ▶ This will tell the browser to add what's in x (5) and y (10) and write the result, z, to the page.

A Complete Example

```
<html>
<head>
  <title>A JavaScript Example</title>
  <!-- A tiny JavaScript example -->
  <script language = "javascript">
    var x = 5;
    var y = 10;
    var z = x + y;
    document.write(z);
  </script>
</head>
<body>
</body>
</html>
```