Consider the protocols, languages, libraries, frameworks, and data formats we studied this semester and write the name next to the description below. For maximum credit write the full name. But, if you only know the abbreviation, write if for partial credit.

Then, consider whether your answer describes something that is part of front-end web development (processed by the web browser), back-end development (process by the web server), or neither (supports front-end and back-end communication).

1. Which **language** allows us to select, delete, insert and update information that is stored in a web application's database?  
     
   Structured Query Language (SQL) is never seen in the browser's source code **Circle one:** Front-end **Back-end** Communication

1. Which **programming language** can get information from forms and URLs, and directly pass information to database queries?  
     
   PHP Hypertext Preprocessor (PHP) is never seen in the browser's source code. **Circle one:** Front-end **Back-end** Communication

1. Which **language** is used to define the structural layer of a web page?  
     
   Hypertext Markup Language (HTML) is rendered by the browser and cannot do any processing on the server. **Circle one:** **Front-end** Back-end Communication

1. Which **language** is used to define the presentation layer of a web page?  
     
   Cascading Stylesheets (CSS) are rendered by the browser and cannot do any processing on the server **Circle one:** **Front-end** Back-end Communication

1. Which **programming language** is used to define the behavior layer of a web page?  
     
   JavaScript is process by the browser. While it can be used as a server-side language, we did not use it for this purpose. **Circle one:** **Front-end** Back-end Communication
2. Which **programming library** provides functions for selecting web page elements and appending new web page elements to a web page?  
     
   JavaScript is process by the browser. While it can be used as a server-side language, we did not use it for this purpose. **Circle one:** **Front-end** Back-end Communication

1. Which **framework** is used to pass information between a web server and web browser without needing to refresh the entire web page?   
     
   Asynchronous JavaScript and XML (AJAX) **Circle one:** Front-end Back-end **Communication**

1. Which **data format** is currently the preferred way to pass information asynchronously between a web server and web browser because of its minimal syntax for defining objects, arrays, and values?  
     
   JavaScript Object Notation (JSON) **Circle one:** Front-end Back-end **Communication**

1. Which **data format** is the original way to pass information asynchronously between a web server and web browser but is no longer widely used because the markup is wordy and requires the overhead of creating a document type definition?  
     
   Extensible Markup Language (XML) was first used with AJAX  
   **Circle one:** Front-end Back-end **Communication**
2. Which **protocol** is used to request web pages from web servers?  
     
   Hypertext Transfer Protocol (HTTP) **Circle one:** Front-end Back-end **Communication**

1. Which **protocol** is used to connect to a remote server to upload and download files and scripts?  
     
   File Transfer Protocol (FTP) **Circle one:** Front-end Back-end **Communication**
2. Which of the following is the **BEST** example of semantic or meaningful markup?
3. <div class=“left\_column”>Navigation menu</div>
4. **<section class=“bibliography”>This is where the bibliography will go</section>**
5. <b>Page Title</b>
6. <font type=“Arial” size=“16pt”>Page Title</font>  
     
   *The class name and tag name tell you exactly what the content is, i.e., bibliography section. Left\_column is about presentation not content. bold and font are completely presentational*
7. Which of the following is the **WORST** example of semantic or meaningful markup?
8. <div class=“left\_column”>Navigation menu</div>
9. <section class=“bibliography”>This is where the bibliography will go</section>
10. <h1>Page Title</h1>
11. **<font type=“Arial” size=“16pt”>Page Title</font>**

*The font tag is 100% presentational, so much so that it was removed from the HTML standard. Never use it. Use CSS instead.*

1. Which HTML element defines the visible part of a web page where text and images are placed?  
     
    body
2. Which HTML element is used to define the character set as well as information such as the description, key words and author of a page?  
     
    meta
3. Write the html tag and attributes to link a style sheet named **bootstrap.css**  
   <link rel="stylesheet" href=" bootstrap.css">
4. Write the code to specify that the title of a web page is *Play Trivia*  
     
   <title>Play Trivia</title>
5. HTML code defines a tree-like structure that can be manipulated by JavaScript. What is the name of tree-like structure?  
     
   Document Object Model (DOM). In JavaScript this is the global variable called **document**.
6. Write the HTML code to define an HTML form with a **text field** named **userid**, a **password field** named **passwd** and **submit button** that will appropriately pass values to a script called "login.php" using the POST method.

<form method="post" action="login.php">  
<input type="text" name="userid">  
<input type="password" name="passwd">  
</form>  
  
I didn't ask for labels, but would not take off credit if you added them.

1. Describe the purpose of the following HTML attributes

a. id  
  
Used by JavaScript to uniquely identify elements. Also used to link to places within a webpage and to "connect" labels and form elements.

b. name  
  
Used by forms and server-side processing languages like PHP to identify submitted form elements

c. href  
  
URL of hyperlinks and stylesheets

d. src  
  
URL of images and JavaScript files

e. value  
  
Used to store an internal value for form elements

1. Consider this code:  
   <ul><li>Item 1</li><li>Item 2</li></ul>  
     
   Describe the parent-child relationship between the elements.

The ul tag has two children. The ul tag is the parent of the two li tags

1. Why are extra spaces, tabs and line breaks ignored by the web browser when rendering HTML code?

So developers can format the source code without impacting how the content is rendered. CSS should be used to add extra space, i.e., padding, margin, text-indent, etc.

1. Write embedded CSS to make all the div elements of a web page have blue text

<style>  
div {  
 color: blue;

}

</style>

1. What is a <div> tag exactly and why is it used so often?

It is a generic block tag for creating logical divisions, so it is often used for creating placeholders for dynamic content. Spans are generic inline tags.

1. What is MySQL is an example of what?

MySQL is an example of a relational database system that uses SQL to manipulate the data.

1. What are sessions and why do we use them?

Sessions are blocks of memory allocated by web servers to store values temporarily so they are not lost when scripts are loaded and reloaded. Sessions work with cookies and the HTTP protocol so that applications can remember values for specific users.

1. What is SQL injection and how can we prevent it in general?

Hackers can submit SQL through web forms such as login forms to compromise or break applications. Scanning submitted strings to remove SQL statements and to escape quotes can prevent it.

1. Fix the HTML5 validation errors in the code below

<p>First paragraph</p><p>Second paragraph</p>**<p>**Third paragraph<\p>

<h1**>** My Favorite Students **<**/h1>

<ol>  
<li>McKenna McKenna**</li>**  
<li>Don Thomelly**</li>**  
<li>Lorenzo DeEmily**</li>**

</ol>

<div id="fact">  
A Matthew will not fail this class  
<**/**div>

<form>

<input type="text" name="name">  
<input type="**password**" name="passwd">  
<**/**form>

<footer>  
Copyright 2014

</foot**er**>

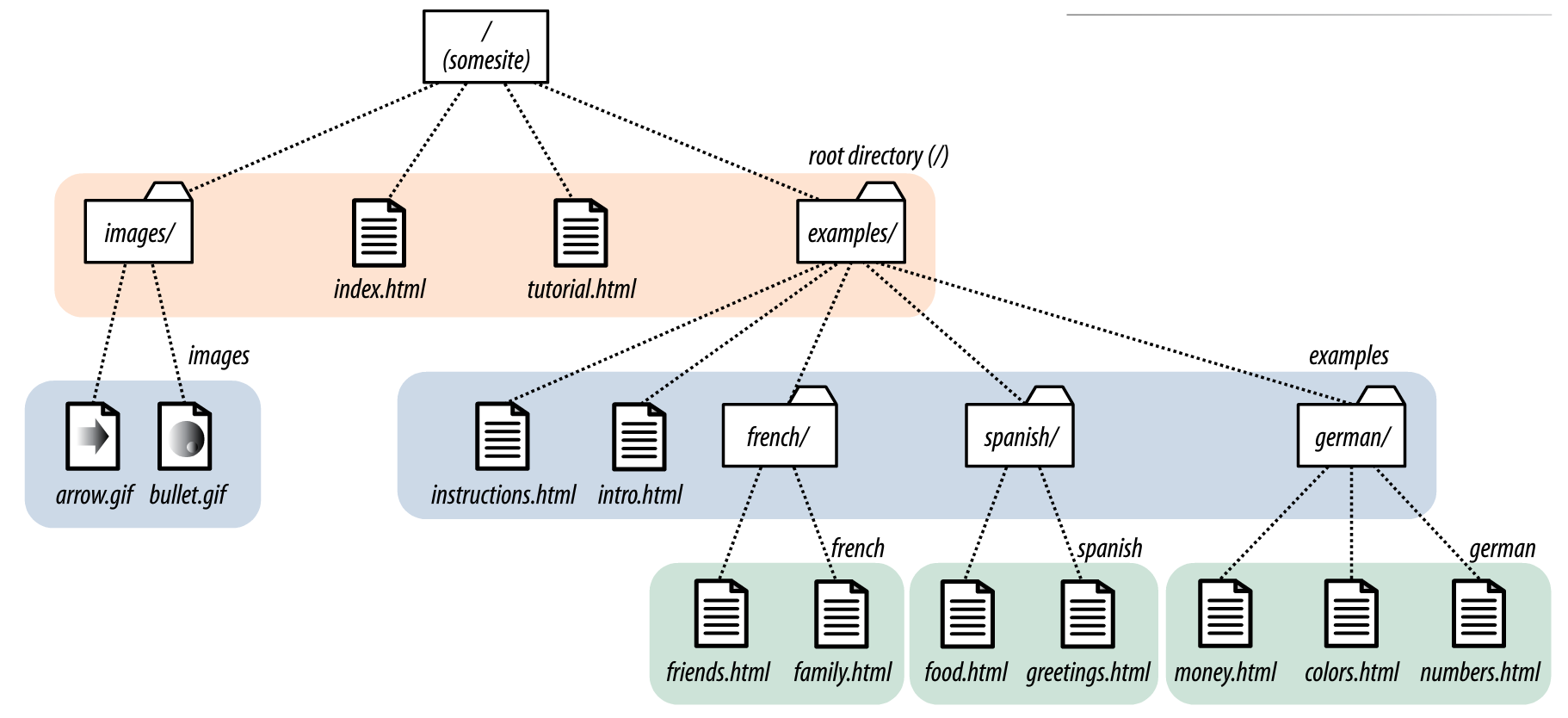
<img src="pic.jpg" **alt="description"**>

<table>

<caption>Worst Student All Time</caption>  
<**tr**><td>First</td><td>Last</td></**tr**>

<**tr**><td>Hamza</td><td>\*</td></**tr**>

</table>  
<div id="footnote">\* Not you Hamza, another Hamza that I had in class like five years ago</div>



1. For the **index.html** page shown above, write the HTML code to create an unordered list of hyperlinks to **instruction.html**, **numbers.html**, and **tutorial.html**. Then, write the HTML code to place the **arrow.gif** image below the list of hyperlinks.

<ul>

<li><a href="examples/instructions.html>Instructions</a></li>

<li><a href="examples/german/numbers.html>Numbers</a></li>

<li><a href="tutorial.html>Tutorial</a></li>

</ul>

<img src="images/arrow.gif" alt="arrow picture">

1. What has higher priority in the CSS cascade?
2. **id selectors**
3. class selectors
4. tag name selectors
5. Where can CSS code go (circle all that apply)?
   1. <style src="here">
   2. **<style>here</style>**
   3. **<p style="here">Content</p>**
   4. **In a .css file**
   5. <link css="here">

Fill in the blank with the correctly spelled CSS property name.

1. Makes text bold b or strong
2. Change the background color   
    background or background-color
3. Defines the space between an element's content and an element's box, i.e., the space inside the border.  
     
    padding
4. Makes rounded borders  
     
    border-radius
5. Fix the CSS syntax errors below. You can cross out code and add your correction below.

p {  
 padding 3px**,** 4px //remove comma  
}  
  
strong {  
 text**-**indent: 3px  
}  
  
h1 {  
 font-weight: bold**;**  
 font-family: Arial**;**  
}  
  
.box {  
 border: 1px solid red; //remove s  
}

1. How much **bottom** padding is defined below?  
     
   padding: 10px 7px; 10px
2. How much **right** margin is defined below?  
     
   margin: 10px 7px 5px 1px; 7px
3. How much total **width** would this box take up:  
     
   div.box {  
    width: 600px;  
    padding: 20px;  
    margin: 10px;  
   } 600 + 20\*2 + 10\*2 =660px
4. How much total **width** would this box take up:  
     
   div.box {  
    width: 800px;  
    padding: 30px 20px;  
    margin: 10px 8px 6px 4px;  
    border: 3px solid red;  
   }

800 + 20\*2 + 8 + 4 + 3\*2 =   
800 +40 + 12 + 6 = 858px

1. Describe an example of when it is appropriate to use of inline CSS?

If one element is unique and is an exception to the web page or website styles

1. What are two **different** reasons to store CSS in a separate file and link it to many web pages?  
   (1)  
   To make the pages consistent and reduce redundant coding

(2)  
So the appearance of an entire website can be changed in one place, i.e., faster development and improvement

Write the CSS code to do each of the following.

1. Center **div** elements horizontally and set the width of each to 600px (do not center the text, but rather center the 600px wide section).

div {

width: 600px;

margin: auto;

}

1. Give all elements with the **class** name “important” an bold font.

.important { font-weight: bold }

1. Make all hyperlinks **red** but only if they are nested in an element with the **id** name "main\_menu"

#main\_menu a { color: red }

1. Consider the following style definitions and indicate the color of the text below

p {color: red;}

b {color: green;}  
p i {color: blue;}

b i {color: purple; }

b.hilite {color: pink; }

p#intro {color: orange; }

a. What color is text? purple   
  
<p><b><i>text</i></b></p>

b. What color is text? green  
  
<p><i><b> text</b></i></p>

c. What color is text? pink  
  
<p><i><b class="hilite">text</b></i></p>

d. What color is text? purple  
  
<p id="intro"><b><i>text</i></b></p>

1. Consider this embedded CSS and HTML Code:  
     
   <style>  
   p {color: red}  
   b {color: orange}  
   i {color: yellow}  
   p b {color: green}  
   p i {color: blue}  
   p b i {color: purple}  
   </style>

<p>  
 <b><i>One</i> Two</b>

<u><i>Three</i><u>  
 <b>  
 <i style="color: pink;">Four</i>  
 </b>  
 Five  
</p>

a. What color is the word “One”? purple

b. What color is the word “Two”? green

c. What color is the word “Three”? blue

d. What color is the word “Four”? pink

e. What color is the word “Five”? red

Consider the following HTML and draw only the elements as a tree-like diagram. You do not need to draw the text nodes.

<body>

<h1>Heading</h1>

<div id="intro">

<h3>Section Heading</h3>

<p>Paragraph with a   
 <a href="page.html">link</a></p>

</div>

<table>  
 <tr><th>First</th><th>Last</th></tr>

<tr><td>Bill</td><td>Gates</td></tr>

<tr><td>Steve</td><td>Jobs</td></tr>  
 </table>

<form id="myform"></form>

</body>

body

1. Draw the tree here

div

h1

form

table

tr

tr

tr

p

h3

td

td

td

td

th

th

a

1. Write the JavaScript code to append a submit button with the value OK to myform

var myform = document.querySelector("#myform");

var mybtn = document.createElement("input");

mybtn.setAttribute("type","submit");

mybtn.setAttribute("value","OK");

myform.appendChild(bybtn);

All these questions pertain to the PHP programming language

1. All code must be inside special delimiters.  
   What is the start delimiter? <? Or <?php
2. All variables must start   
   with a special symbol.  
   What is the symbol? $
3. What function terminates execution and  
   guarantees a message will be printed?

die("message")

1. What is an associative array?

An array where the indices are strings.

Hash tables are used to look up string indices in constant time. Other languages call these hash maps.

1. What statement is used to "import" PHP code from a separate file?  
     
   include, require or require\_once
2. What keyword is used to definite functions?  
     
     
   function
3. Functions must have a specified return type? T / **F**
4. Write a function makeHeaders that takes two parameters (title and author) and returns a string with title inside of an h1 tag and author inside of an h2 tag.

function makeHeaders($title, $author) {

$s = '<h1>'.$title.'</h1>  
 </h2>'.$author.'</h2>';

return $s;

}

1. Consider this function:

function db\_connect () {  
 return new mysqli("localhost", "admin", "abc123", "trivia");  
}

a. What does this function return exactly?

A new mysqli object

b. What is it connecting to?

the trivia database on the local MySQL database

c. What is "abc123"?

password of the admin user

d. What is "trivia"?

the databasename

1. Consider this code?

$mysqli = db\_connect();

$sql = "SELECT \* FROM Questions";

$result = $mysqli->query($sql);

$row = $result->fetch\_row();

a. What is $mysqli exactly, i.e., what kind of variable is it and what does it represent?

it a pointer to an object and represents a connection to a database

b. What is $sql exactly, i.e., what kind of variable is it and what does it represent?

it is a string that represents an SQL query

c. What is ->, i.e., what is it equivalent to in Java?

It is like the dot operator in Java, it "dereferences" and object to access its fields or to call its methods,

d. query and fetch\_row are examples of?

Methods, i.e., functions called on objects

1. Given the following database connection write all the code to select the password field and usertype field from the Users database WHERE username comes from a posted form element with the name usrname and then assign fetched password to a local variable and the fetched usertype to a session variable. Chose appropriate variable names and be sure to close all connections.

$mysqli = new mysqli("localhost", "sienasel\_sbxusr", "abc123", "sienasel\_sandbox");

// <input type="text" name="usrname">

$u = $\_POST['usrname'];

$sql = "SELECT password, usertype FROM Users WHERE username='$u'";

$result = $mysqli->query($sql);

$row = $result->fetch\_row();

$pwd = $row[0];

$\_SESSION['usertype'] = $row[1];

1. Write a while loop and foreach loop to print the following query result as an HTML table:

$mysqli = db\_connect();

$sql = "SELECT \* FROM Questions";

$result = $mysqli->query($sql);

echo '<table>';

while ($row = $result->fetch\_row()) {

echo '<tr>';

foreach ($row as $value) {

echo '<td>'.$value.'</td>';

}

echo '</tr>';

echo '</table>';

Note that a separate query is necessary to fetch the field or column names.

**JavaScript vs. PHP**

1. Write a JavaScript function to create a drop down menu from an array called colors. The name of the drop down menu should be color.

function makeMenu(colors) {

var myselect = document.createElement("select");

myselect.setAttribute("name","color");

for (var i = 0; i < colors.length; i++) {

var myoption = document.createElement("option");

myoption.innerHTML = colors[i];

myoption.setAttribute("value", colors[i]);

myselect.appendChild(myoption);

// You could also create a textNode and append it to the myoption

}

return myselect;

}

var bd = document.querySelector("body");

bd.appendChild( makeMenu({"red","blue"}) );

1. Write a PHP function to do exactly the same thing but assume the array called colors is an associative array where the index is the name of the color and the value is the color code. Your dropdown menu should display the color name but use the color code as the option value.

// I did not say whether to print the code or return the code

// Print code

function makeMenu($colors) {

echo '<select name="color">';

foreach ($colors as $key => $value) {

echo '<option value="'.$value.'">'.$key.'</option>';

}

echo '</select>';

}

// Return code

function makeMenu($colors) {

$str = '<select name="color">';

foreach ($colors as $key => $value

$str .= '<option value="'.$value.'">'.$key.'</option>';

}

$str .= '</select>';

return $str;

}