Web Science

Quiz 1: March 10, 2016

100 points max

Place your name on the top of the document in the header

Enter your answers directly into this document (with the exception of #2 and #3)

All answers should be in be in Your Own Words, and use proper grammar

Make sure your answers use an alternative font and/or color

Save the document as

ITWS4500-S16-Quiz1-*yourname*-quiz1.docx

Place all documents/files including this one in a folder named

ITWS4500-S16-Quiz1-*yourname*-*yourRCSID*

When finished with the quiz, zip your folder and all related files into a file named

ITWS4500-S16-Quiz1-*yourname*-*yourRCSID*.zip

And submit it to LMS

1. **Frameworks** (25 points): (Answer in complete sentences, explain your answers)
   1. (5) What is a Media Query? How is it used? Why do we use them?

A media query is a command that will run depending on what type of device the client is using. It is used to properly adjust the styling of the website so all of the content can be viewed nicely on the screen. We can use them in CSS by calling “@media screen.” For example, if we want to change styling if the user is on a big screen, then we would use “@media screen and (min-width: 1200px)” and then put the CSS within curly braces after that.

* 1. (5) What is Bootstrap? How is it used? Why is it used?

Bootstrap is an HTML, CSS, and JavaScript framework. It is used to make web applications responsive and helps to develop applications with a mobile-first approach. It is used by downloading the package you need, such as the minimal one, and then calling its stylesheet in your HTML file. An example is: <link href="css/bootstrap.min.css" rel="stylesheet">. JQuery must also be imported to use it. After that is done, you can start using Bootstrap’s predefined classes to style elements the way you want. Everything should be in a div with the ‘container’ class. Examples of predefined classes are ‘row,’ ‘col-md-6,’ and ‘panel-heading.’

* 1. (5) What is AngularJS? How does it work? Why is it used?

AngularJS is a web application framework that works on the client-side. It uses a JavaScript file to allow for directives, expressions, modules, models, and controllers (and more) that basically extend the possibilities of HTML. It is used to write an application in a Model View Controller way since it has data-binding. To use it, just include the appropriate directives in your code, such as ‘ng-app’ or ‘ng-model.’

* 1. (10) Describe the difference between JavaScript and CSS frameworks. Provide at least 2 examples for each in your answer.

A JavaScript framework allows for shortcuts in coding for functionality. It makes things like DOM manipulation, AJAX calls, animation, and an MVC structure easier to code. Two examples are jQuery and AngularJS.

A CSS framework deals with the styling of a page. They sometimes have a grid system that makes the layout of a page easier to program. They can also have a preprocessor that allow you to write code instead of CSS, and it will convert it to CSS for you. This allows for the use of variables that are easier to understand for the programmer, mixins that let you make groups of declarations for reuse, and other things that make coding easier. Two examples of CSS frameworks are YAML and Bootstrap.**Node.js** : (40 points) Create a webserver in node.js, using express – (NOT express-generator), which will output a simple HTML page with a button labeled ‘Run’ when GET request is received on <http://localhost:3000>. Upon clicking the button, the server should get the current temperature in Spokane, WA and output a sentence that says whether it is Freezing (<10F), Cold (btw 10 and 40), Warm (btw 40 and 70) or Hot (>70) – display the corresponding message in a unique color for each category.

1. (15) Build a package.json file for Q2. If we run it, there should be no errors or warning when we try to install & run your code from #2 above. (You may assume yout application name is *Quiz1Server*)
2. (20) Explain *in detail* what the following code does; (also add comments to the code explaining what each line does)

// variable net holds the net module that is required to create the local server

var net = require('net')

// create an empty array variable named sockets

var sockets=[];

// use the net module’s Server class to handle each user connection, or socket

// the variable s holds the server being initialized here

var s = net.Server(function(socket) {

// add the socket to the sockets array

sockets.push(socket);

// if data is received, send the data to all the sockets in the array except the current one

socket.on('data', function(d) {

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

if (sockets[i]==socket) continue;

sockets[i].write(d);

}

});

// if the socket ends the connection, then remove the socket from the sockets array

socket.on('end', function() {

var i=sockets.indexOf(socket);

sockets.splice(i,1); // or delete sockets[i]

});

});

// tells the server to listen on port 8000

s.listen(8000);

This code creates a simple chat server using the net module. It listens on port 8000, so it can be accessed through http://localhost:8000/ in a browser. When a user (a socket) connects, he/she will be added to the server’s user-list (the sockets array). If a user sends a message (data), it will be sent to all the **other** users on the list (the sockets in the sockets array, excluding the socket that sent the data). Upon quitting, the user (socket) will be removed from the user-list (sockets array).