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 way to structure CSS in order to respond to the different changes in “media” or screen dimension. The CSS is structured into different parameters, say screen size, and within that query are definitions of various parts of the html file. Say if we have a screen that is 300px or less, we may want to reduce font size, change button layouts and change the background color. It is nice and responsive and saves us time. We use them because they are efficient and help us to make our code more responsive without having to create completely separate layouts for different devices such as mobile or tablet or laptop. We can keep all of the content the same and change the layout with these queries**.

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

**Bootstrap is a front end framework that has both html and css atributes. It has its own classes and methods that can be coded directly into html and can adjust itself to the dimension of the screens. It is embedded right into the html code and we can use things like navbar, columns, and transitions in our html and CSS. It is used because it makes things very simple when you want to structure the way that data/images are presented. You can specify within the class a dimension size and relative column size that you want this particular tag to be (example: col-xs-3 is column where screen size is extra small span 3). You can also layer columns and hide/show them accordingly. This gives us a lot of ease of use and we do not need to define or change CSS depending on the level or screen size.**

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

**AngularJS is framework that extends html and makes it very dynamic. It is quite powerful and eliminates a lot of word previously needed when using traditional JavaScript. Angular uses data binding to achieve this and is also on the client side which helps adaptability. It is used for exactly these reasons, it is declarative code which reduces the amount of typing and, in my opinion, helps to organize logic. I can much easily follow the logic of the program with angular over JavaScript. It is also used for DOM manipulation which helps the code be more versatile and as previously mentioned, is client-side facing.**

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

**Let’s look at the difference between Bootstrap and AngularJS. Bootstrap contains CSS styles, html attributes like the grid or column classes and some JavaScript components. I believe that the purpose of Bootstrap is really to help us code faster and more efficiently, it does not have any MVC architecture in it. AngularJS on the other hand has MVC capabilities and contains different components that help us structure and organize the underlying logic of our application. This is more of an architecture and contains so CSS styles or column/grid classes.**

1. **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)

**//used to create an asynchronous network wrapper this is an echo server**

var net = require('net')

**//create an array of servers**

var sockets=[];

//**create a TCP socket listener**

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

sockets.push(socket); //**add the new client socket connection to that array**

//**data is an event that means some sort of message was sent**

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

//**loop through the sockets and send data to all of htem**

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

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

sockets[i].write(d); //**write said message sent by client**

}

});

//**splice to get rid of the socket that is ending/discontinued**

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

var i=sockets.indexOf(socket);

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

});

});

//**display this on localhost:8000**

s.listen(8000);

**This code creates a messaging service from one client to another client. It sends messages between two desktops using a network wrapper. The code will first create the wrapper, create an array to store the sockets, have a listener on the server to add any new sockets that connect to the server and store them in a local array. Then when a message is sent on one of the desktops it will spark an even with will then create a loop so that we can collect all of the messages that have been sent. It will output it and then close the sockets that have been disconnected.**