Web Science

Quiz 1: February 26, 2018

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-S18-Quiz1-*yourname*-quiz1.docx

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

ITWS4500-S18-Quiz1-*yourname*-*yourRCSID*

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

ITWS4500-S18-Quiz1-*yourname*-*yourRCSID*.zip

And submit it to LMS

1. **Frameworks** (25 points): (Answer in complete sentences, explain your answers)
   1. (5) How can I determine the type of device that my page is being displayed on? Give two examples of why I might care.

In order to determine the type of device that the page is being displayed on, you can parse the browser’s user agent string. The user agent string contains information about the browser, operating system, and device being used so this information can be extracted if correctly parsed. One reason why this is useful is being able to determine if the page is being viewed on a mobile or desktop layout so that the CSS can be rendered differently depending on the device type. Another reason why this is useful is because if you know that you are using a mobile device, you can tap into things like GPS, touch sensing, and phone orientation to improve the user experience.

* 1. (5) What is a package.json file? How is it used? What it used for? Is it required?

A package.json file is a json file that contains information about the node.js application that is being created. This file is used to properly install the node application on another device or in another location by running the command “npm install” in the directory where the package.json is located. It is used to keep track of the dependencies (other node packages) that your application depends on and what version of the application is being run. The package.json file is not technically required but is highly recommended as a way to package the dependencies required for easy extension and distribution of the application.

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

nvm stands for node version manager and it is a tool used to keep track of different versions of node. nvm is required if you want to keep multiple versions of node installed on a machine.

* 1. (10) Describe the difference between Front-end and Back-end frameworks. Provide at least 2 examples for each in your answer. (Be clear in your descriptions, ie ‘why is it back/front-end?’)

Front-end frameworks focus on extending the functionality of the client-side or user-interface. These are things like Angular.js and React.js that provide easy access to the View of the MVC design pattern. These frameworks help extend HTML to provide a better user experience for a web application. Back-end frameworks work on the server-side of an application and handle the actual functionality of an application. Examples of back-end frameworks are Ruby on Rails and Express, which allow an application to connect to a server and process data between the model and the view.

1. **Node.js** : (40 points) Create a webserver in node.js, name your server *yourRCSid-Quiz1Server.js)* you may use express, but you *may not use a generator* – (ie NOT express-generator), which will serve a simple HTML page with an input field for zipcode and a button labeled ‘Run’ when a GET request is received on http://localhost:3000. Upon entering a zipcode and clicking the button, the server should get the current temperature for that zipcode and output a sentence that says the name of the location and whether it is Freezing (<=0C), Cold (btw 0 and 10), Warm (btw 11 and 25) or Hot (>25) – display the corresponding message in a unique color for each category. Allow the user to enter additional zipcodes for weather in other locations. Display the new sentence above the previous. Include a button that allows the user to refresh the page and start over.

Answer located in neemay-Quiz1Server.js and associated files.

1. (15) Build a package.json file for Q2. If we run it, there should be no errors or warnings when we try to install & run your code from #2 above. (You should make your application name : *yourRCSid-Quiz1Server.js*)

Answer located in package.json file, application can be run using the command “npm start”

1. (20) Explain *in detail* what the following code does; (also add *stylized* comments to the code explaining what each line does, and highlight and correct any errors)

var net = require('net'); //requires a node package called net which provides an asynchronous network API for creating stream-based TCP servers -- https://nodejs.org/api/net.html

var sockets==[]; //defines an empty array called sockets

var s = net.Server(function(sock) { //creates a server

sockets.push(socket); //adds this socket number to the array of sockets

socket.on('data', function(d) { //when the socket receives data

for(var i=0; i<sockets.length;i++) { //iterates through the sockets in the array

if (sockets[i]==socket) continue; //if we are at the same socket, continue in the for loop (skip the next line

sockets[i].write(d); //write data ‘d’ to socket[i]

}

});

socket.on('end', function() { //when the socket closes

var i=sockets.indexOf(socket); //find this socket in the array

sockets.splice(i,1); //remove this socket from the sockets array

});

});

s.listen(8080); //indicates that the server is listening on port 8080