**Web Science**

**Quiz 1: February 28, 2023**

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

All answers should be In Your Own Words, using complete sentences with proper spelling and grammar.

Save this document as either a Word docx or a PDF. For all questions other than #2 and #3, you will not receive any credit for answers not placed in this document.

When finished with the quiz, put everything you wrote (this document, all code, etc.) in your personal GitHub repo in a folder named **quiz1**. You must test your code on your VM, served with Node. No Apache!

1. **Short answers** (25 points): (Answer in complete sentences, explain your answers)

1. (5) What are the potential advantages of using TypeScript’s type system as opposed to typeless JavaScript?

TypeScript's type annotations make it easier to write generic, reusable functions and libraries that work with a variety of different data types.

TypeScript allows you to catch errors in your code before it is even executed, reducing the risk of runtime errors that can cause unexpected behavior or crashes.

1. (7) What is a package.json file? What is it used for? How is it created?

Package.json file is a JSON file that holds important information about the project. It contains the human readable metadata about the project like project name and description. As well as the functional metadata like the package version number and the list of dependencies required by the app. It's the package.json file that enables npm to start your project, run scripts, install dependencies, publish to the NPM registry, and many other useful tasks. It can be created by simple command line ‘npm init’

1. (3) Of the following permutations, identify which are valid and which are invalid for shipping/installing a Node application: 1. (package.json && package-lock.json); 2. package.json only; 3. package-lock.json only
   1. Is valid. 2 is also valid. 3. Is not valid because The package-lock.json is solely used to lock dependencies to a specific version number. The package-lock.json is solely used to lock dependencies to a specific version number.
2. (10) Describe **in detail** the sequence(s) of transaction(s) for a frontend to request data from some external entity via Node.

The frontend sends a request to Node.js server which will act between the frontend the api. Then the node will fetch the data get the data to another url using request or axios modules. Then the front end will fetch the data from the url to display it on the the frontend.

1. **Coding question**: (60 points)  Here is a free API that does not require any API keys: <http://universities.hipolabs.com/> – the documentation for which can be found here: <https://github.com/Hipo/university-domains-list>Create a new input box (or extend an already created input box) that can accept the name of a university and returns the API’s information about that university. If the user fails to input a valid university, return the information for RPI. You might want to extend a recently due lab…  
     
   Creativity matters; you need to really integrate this new information into your app. Make it feel like it is a meaningful, conscious, intentioned feature of your app. How you do that is up to you. Don’t make it look like some random afterthought. Go beyond the minimum (but remember that creativity doesn’t have to be visual). If you need to, write a short README.md file that tells me what I should consider for creativity. (creativity: 30 points of the 60 available for this question)  
     
   ***You may use any and all open source libraries you want for this coding question, so long as you cite them in a README.md file.***

1. (15) Ensure the package.json file for Q2 has no errors when I run npm install.
2. **Extra credit (+5)**: Why do your URLs need /node/ in order for Node to serve web pages on your VM?

URL needs node because previously we were running our server through the apache. So we need a separate place or a proxy server where we can start the node server and have our code running there.