1.1 Describe in your own words how the web works! In as much detail as you can, describe **all** the sequences of events that take place from the time a user presses Enter on the keyboard after typing in www.rpi.edu into the address bar to when the webpage is finished rendering in the browser. Specifically, tell me in great detail the protocols in action. (10 points)

Once you press enter on your keyboard after entering an address into the URL, the computer looks for its associated IP address in its cache. If the IP address is already in the cache for www.rpi.edu, the site will continue to the next steps of loading the site. If the IP address is not there, the computer will perform a DNS query to receive the IP address. The computer requests the IP address from DNS servers that are associated with rpi.edu. The computer will goto recursive DNS servers in which they check if their own cache has the IP address for the domain name. If the domain name resolution hasn't finished, the next step will be to check the root server. Once a server has the information it will return the record back to the computer and store it in the local cache.

Once the cache has the correct information, the connection has been properly made to the server via TCP connection to rpi.edu (address). At this stage the client requests information from the server. The server then decides to provide the information to the computer or refuse it. At this stage, the server would be able to provide the information to the computer and we will be able to view RPI's website.

1.2 What is the difference between a property and a method in JavaScript? (3 points)

The main difference between a property and a method in javascript is that a property is a value while a method is a function or action. Methods can change properties, but properties are states/values that cannot change themselves

1.3 Explain how your browser chooses which CSS rule to apply to a tag in the case where there are multiple rules that could apply. (3 points)

There is a specificity hierarchy that determines how our browser chooses which CSS rule to apply to a tag.
Inline styles have the highest priority, followed by IDs, then classes, attributes and pseudo-classes like :hover, and finally elements (like h1 and before) have the lowest priority.
If two different rules are of equal specificity, then the browser will take the rule that shows up last.

1.4 State **four** total advantages of “separation of concerns,” for any permutations of that term we discussed in class. (4 points)

No overlapping or duplicate functionality between two parts

Makes maintainability easier on different systems

Reduces confusion and complexity of software

Increases extensibility meaning the software can be further developed easily.