Lourdes Frempong

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](http://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)

When a user requests a site on the web through a browser, DNS resolution happens first. The requested site is passed through a DNS recursive resolver(a DNS resolver handles the necessary queries needed to obtain a requested domain’s IP address). The resolver then queries a DNS root nameserver. The root server then returns the address of the requested site’s top-level domain(eg. [www.rpi.edu](http://www.rpi.edu) top-level domain: .edu). The resolver sends the requested site’s name to the top-level domain. The top-level domain server then returns the IP address of the requested site’s(domain) nameserver. The resolver queries the domain’s nameserver. A successful query will let the nameserver return the domain’s IP to the DNS resolver. The web browser then returns that IP address to the user’s web browser. After this, an HTTP request is formed. Depending on the HTTP request, a server will perform the HTTP request method specified in the Request-Line. For example, if [www.rpi.edu](http://www.rpi.edu) HTTP request uses the GET method, the server will return the file at the requested link. If the file is an html file, a web browser will load that html file as well as the CSS, JS, and anything else specified in the html file’s <head>.

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

Properties are characteristics of Javascript objects. Methods are actions that can be applied to Javascript objects. Unlike methods, properties can also be Javascript objects.

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)

If the CSS rule selectors are exactly the same (g { font-family: comic sans;}, g { font-family: trebuchet;}), the last rule specified will be applied to the selector specified; however, if a selector uses combinators and the other does not, the CSS rule with selector and combinator will be applied since it has more specificity. In CSS, rules with more specificity will always have precedence over those with less specificity.

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

Separation of concerns allows programmers to utilize things such as HTML, JS, and CSS for their respective purposes. Using HTML strictly for structure, CSS strictly for design, and vanilla JS for animations and other native JS functions. The first advantage would be more semantic code. If you pass your code on to another developer, code with proper separation of concerns will allow that developer to easily the purpose of each part of your code. The second advantage is no overlap in functionality. For example, replacing presentational classes in HTML with CSS or using SASS mixins will make debugging much easier.