CSS Selectors:

CSS selectors are the tags, classes, and id’s that are used to select elements to have css applied to them. body is an example, as well as button, header, or if you had a class of card then .card would be the css selector, in the same idea if you had an id of hero-image you would use #hero-image to select it. If you want to use multiple selectors in one rule you would put a comma between them like header, main{} would select both the header and main element for one rule. Combinators are used to determine the relationship between selectors, so if you wanted to grab all the p descendants of the main you could use main p{} or if you wanted only the p elements directly inside of the main you would use main>p{} if you wanted sibling elements you could use + so if you wanted the p element that was sibling to an img you would use img+p, and if you wanted to select all the p elements that are after an img you could use img~p{}. Lastly, a pseudo class is used to affect a state of an element, like if you wanted to select an element as it was being hovered over you could use p:hover, but it would more likely be on an a or a button/input.

JavaScript:

In JavaScript you can declare variables with either let, const, or outdated var. You put it in front of the name of the variable you want to use. Let is mutable, and so is var, while const is immutable, but the values stored in a const can still be mutable at times. Variables technically don’t need to be declared in JavaScript, but it is good practice so that the code knows you are using a variable you intended to and not just mistyping. Literals are values that don’t have methods or properties. They are also immutable. A literal is a value that is not stored in a variable but instead is typed directly into the code. This is similar to the idea of hard coding, but you can also use const variables to hard code. When people say JavaScript is a weakly typed language it means that it is flexible in variable types, like a string containing a numerical value can be treated as an int of a float without manually parsing for them. You can store a list in JavaScript in an array, which works very similar to lists in python.

Manipulating DOM with JavaScript:

The Document Object Model is an interface that allows developers to alter the document using JavaScript. You can manipulate html using the DOM with things like querySelectors and other methods in the DOM. You can add elements to the DOM with createElement or by selecting the innerHTML of an element and adding to it. You can remove them using the remove method, or again directly editing the innerHTML. You can remove attributes by using the removeAttribute method after selecting the element. The difference between innerHTML and insertAdjacentHTML is that insertAdjacentHTML doesn’t replace the HTML of the element but inserts it at a specified point in it.

JSON:

JSON stands for JavaScript Object Notation, and it is the format for storing Object data in JavaScript. Parsing JSON means to convert JSON into a programming language’s structure to make it useable in code. Stringify is doing the opposite of parsing, and it converts the JSON into a string that is more readable for people. To stringify JSON in JavaScript you can use the stringify method. The differences between JSON and XML is that while JSON uses key value pairs, XML uses tags similar to HTML. JSON also can store different variable types while XML stores text. JSON is more widely used in modern APIs while XML is used in older systems and SOAP APIs.

ES Modules:

They are JavaScript modules that are able to be imported and exported for use in different files. Typically you would have to use an .mjs file but with Node.JS you can also include a type of module in your package.json which will allow you to use ES Modules in standard js files. They can be used easily so that you can import and export code from different files where ever you may need them.