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JavaScript Features, Project part 2-f

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So now that we've covered specific aspects of JavaScript, what are its uses and strengths?

JavaScript is lexically scoped, object-oriented, interpreted, and supports functional and imperative programming. For the last 6 years in a row, JavaScript has been rated the <u>#1 most popular programming language</u>, and is used primarily for web programming. 95% of websites use JavaScript! It cuts down server round-trip requests because it is client-side, since it is executed on users' computers. It allows you to create beautiful interfaces, add in dynamic functionality, and load various parts without reloading the entire page (using Ajax). It can be used to control the features of HTML and CSS when cross-compiled. It typically will use DOM scripting: the Document Object Model, which allows us to access specific HTML objects and modify them, or create and insert new ones altogether.

It is used for sign-up forms, search boxes that use autocomplete, constantly changing information (like stock market info, or sports results). It can be used to solve layout issues, enhance the HTML interface, and animate elements. It is used both in browsers and can help automate tasks in programs like Illustrator. It can be used as a server-side language with a parser. However, it should *not* be used for security! You can turn the language off in your browser so if you wrote security features you would not want them to be disabled by a user.

I like to think of JavaScript like an orchestra conductor. The HTML is the format of all the players and their types of instruments. The CSS is the styling of each of them-what each player is wearing, how big their instruments are, how far apart their chairs are, etc. The JavaScript acts as the orchestrator, bringing it all together and defining the behavior of the elements. It tells the objects how to interact with each other, when to play, what to do in the case of various events, and if it doesn't like the outfit of a player it can tell them to change. Real examples of this include: changing the color, size, or format of items, making animations, telling the web page how to respond if a user hovers their mouse over an item or clicks on an object, it can load content dynamically, display or hide menu bars or advertisements, allow you to scroll, or trigger a change in the case of an event.

There are many frameworks for JavaScript, like React, Angular, and Node.js. It can be used for game development, and building server applications. Servers built with Node JS are very fast, and its event looping is done in a non-blocking way. It is the only programming

language native to the web browser, and has great debugging tools already built into Chrome. It can run in any browser, and is open-sourced. It can even be used for flying robots! Most likely I will choose to build a website with it in conjunction with HTML and CSS.