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Programming Languages

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## JavaScript

The JavaScript programming language is a highly versatile programming language used by over 98 percent of developers across the globe. Primarily used for web design and web development as a whole, JavaScript is considered one of the core technologies of the World Wide Web, which was introduced to the public in 1993. JavaScript itself on the other hand was first created in 1995, two years after the internet became public. JavaScript is cross-platform and object oriented, primarily used to allow for further interactivity in web pages than standard HTML can provide at times. JavaScript also includes Node.js, which allows for more advanced functionality for websites, and allows one to activate a website on their browser, to observe what they may need to change before getting it distributed fully. JavaScript is one of the more flexible programming languages out there, allowing itself to be used with other languages, such as HTML and CSS, to fully form a website. In the case of HTML, JavaScript programs using HTML use a different file type. This file type is written as “.ejs” to signify it is a JavaScript file written in HTML.

While JavaScript has without a doubt become an absolute behemoth in the programming world since its inception. It was never intended to be this way initially. As a matter of fact, the development of JavaScript is quite short, taking only ten days to fully create in 1995. Created by Brendan Eich, JavaScript was meant to be a small and lightweight scripting language for the

company NetScape, an independent computer services company. It even had a different name, being referred to as Mocha. However, after NetScape was acquired by AOL, they turned their code over to the Mozilla Foundation, and Eich renamed the language JavaScript. As a result, JavaScript grew as one of the primary programming languages used by programmers worldwide over the span of over 25 years. Javascript is now seen as an essential language that is supported by all major browsers. JavaScript is now used by roughly 98.7% of the population as of 2023. JavaScript is now a must-learn in the web developer world, and will continue to grow.

JavaScript has multiple capabilities, and as discussed before, it can do virtually anything you need it to. JavaScript can be used at any section of web development, be it front-end or back-end. You can even use Javascript for full stack development to simplify the process of writing your code and building your platform. JavaScript is also standardized, and frequently tweaked and updated with newer versions. This allows JavaScript to contain further uses in terms of functionality and be more versatile than previous versions to the programmer. JavaScript primarily works with the document object model (DOM) to respond to any and all user interactions with software. The model itself provides the structure in the browser that the user uses to access the web pages that the program you built is meant to display. In terms of web design, Java Script can provide a large array of interactions. These include scroll transitions and movement of objects. JavaScript can also, unlike HTML on its own, be used on mobile platforms. Using a hybrid app using Javascript, it is much easier and more convenient to package an app and allow it to be installed on a device. This tends to be the much more favored approach with developers nowadays, as it doesn't need to be inherently complex, and can save programmers a lot of time and stress. In addition to all of the versatility JavaScript already has, JavaScript also has tons of frameworks and libraries that can allow developers to make more

complex applications and platforms with less written code and, as a result, in less time than it would have taken the programmer otherwise. Programmers can easily import libraries and frameworks in a manner similar to how they would in Java and C-based programming languages.

Much of Javascript's versatility comes from the vast array of features JavaScript has to offer. JavaScript is platform independent, allowing developers to not have to be concerned about compatibility with certain browsers. Due to browsers being made by different companies and having differing specifications, even back in the late 90s, the specifications of web browsers could make developing a website quite time consuming and stressful. However, with JavaScript, a problem such as this is nearly nonexistent in the world of the modern web developer. It is also effortlessly easy to embed a program in HTML into any JavaScript program to further enable the capabilities of any web platform. JavaScript can allow anything HTML can do in an HTML file to be utilized in a JavaScript file. Such instances include the ability to include links, images, tables, linking with a CSS stylization sheet, etc. JavaScript can also allow for template literals, which allow the programmer to save certain variables directly into strings, for example, which can prove useful as it can allow the programmer to focus on more relevant aspects of the code and of the software in general. Arrow functions are also a prevalent feature in JavaScript programming, as they allow for further simplicity in computer code. This is simply due to the fact that they are an, at times, desirable alternative to a traditional function expression. They allow for the shortening of the code, and thus better readability of said code. JavaScript programmers can frequently use arrow functions to simplify their web application programs and allow for further simplification in the syntax of their web code.

It is for these reasons that I had selected JavaScript as the language I would not only do my research on, but also form a small program using. I had decided the best way to display the

capabilities of JavaScript was with a small website. This website will include 3 small pages, CSS being optional, as it is not the main focus of my project, the focus itself is on JavaScript. My program itself is not too complex, as this was not the goal. The program first leads the user to an account creation page, where they will have to fill out the required information in the text boxes. This required information includes your full name, date of birth in the “MM/DD/YYYY” format, as well as the user’s hometown. In addition to this general information, they are also asked 2 questions based on personal preference. One of these questions requires the user to write down 3 of the user’s favorite movies, as well as 3 of the user’s favorite hobbies. Using the Javascript scripting I created, the program will put their profile in a list upon clicking submit. After submitting their information, their profile is added to a list of Profile classes where they can later find it among all of the other profiles on a separate web page. The user is then redirected to their profile, which will list all of their information that they had put in. Because a password feature was not implemented, the account cannot be truly stolen, and the information is thankfully, not relevant to one’s identity. In addition to viewing the user’s own profile, the user can click on a button connected to a link, which will open to a different web page, which will allow the user to be able to access a page listing other profiles. The profiles will list out all of the information the user had written down for the website. Due to my desire for simplicity over all else, and the primary focus being the storage of data on lists in Javascript, you will be able to access other profiles using a small link. Once selected, the profile that link belongs to will emerge, and display information in the same template as the user’s own profile. They are also allowed to go back to the list of profiles and look if they so choose. All profiles in the site will be using the same general template, as this will allow for simplified coding, and allow for better implementation of Java’s list structure. The only time the profile registry will be available is

when you load up the website initially, as it is the initial home page. You will need to load up the registry page again to make a new one.

Learning about JavaScript has given me an entirely new perspective on what it means to be a programmer in the modern world. With all of its versatility, features, and capabilities which unfortunately I cannot entirely explore with just one project in this timespan, JavaScript is a programming language which I am growing to admire. I had only primarily worked with Python and Java for the majority of my time as a programmer. Naturally, I had to start somewhere, but I always wanted to explore more programming languages commonly used in modern day programming. This is why I decided on JavaScript as the language I would use in my project for Programming Languages. This came with a learning curve, as while it was similar to some languages I have used in the past, simultaneously it was unlike any other language I've coded in in certain aspects. However, I predict that as I learn more and more about Javascript and code in it more often, I will be more skilled in the language than I am currently, as this is simply a look at a couple of core aspects, and I wish to explore the language fully. As a result of learning more and more about Javascript, with my eyes opened to the potential of JavaScript. JavaScript is one of the most versatile and useful languages a software developer can use in this day and age, and it shows with its exponential growth in popularity since its introduction to the public in the 1990s. JavaScript is a wonderful language to learn as a programmer and an essential one at that. In web development, it is one of the most commonly used programming languages due to its versatility and compatibility with commonly used browsers. It is also handy for increased interactivity where HTML and CSS could previously not satisfy the requirements or demands of the programmer or the client. JavaScripts many features, libraries, and frameworks allow for efficient, quick, reliable use. It also has various shortcuts that can greatly enhance readability and

maintain a sense of writability when used properly and in moments where it is most required.

Overall, JavaScript is not just an interesting programming language, it is one of the most advanced languages we currently have as programmers. It also continues to grow even after its inception. I have learned quite a lot with JavaScript and I hope to learn much more about it in the future.