The differences between JavaScript and TypeScript

1. JavaScript

1.1 The Origin

JavaScript is recognised as a type of scripting language extensively employed for dynamic web content, forming one of the three standard layers of web technologies alongside HTML and CSS. It was first invented by Brendan Eich at Netscape in 1995. JavaScript enables the implementation of numerous complex features, such as displaying timely content, interactive maps, animated 2D/3D graphics, and much more (MDN Contributors, 2024).

1.2 Pros

Javascript is considered as a primary scripting language for apps and web pages, it is widely supported by web browsers without the need for additional tools. It also complements other languages effectively, further enhancing its presence in the realm of application development. JavaScript interacts seamlessly with the web server, the feature of asynchronous HTTP requests is crucial to uphold the user experience during network operations (GeekforGeeks, 2024). Another vast advantage is that Javascript is employed everywhere, benefiting from strong community support and attracting investment from many global businesses for its development.

1.3 Cons

Despite the many aforementioned advantages of JavaScript, there are also some downsides. One significant drawback is the possibility that a single Javascripts error can lead to the entire website stop functioning properly. Furthermore, the rendering speed of JavaScript will be slowed down when reading JavaScript DOM (Document Object Model) or the continuous conversion of data types within a script (GeekforGeeks, 2024).

2. TypeScript

2.1 The Origin

In comparison to Javascript, TypeScript has a relatively short history. It was introduced by Microsoft in 2012, described as the superset of JavaScript. The application shares similarities to JavaScript, it is a statically compiled programming language that inherits the traits of JavaScript for general client-side and server-side applications (Nihar Raval, 2023).

2.2 Pros

TypeScript incorporates the feature of static typing, meaning the code cannot run without the clear specification of variable types. This approach enables the earlier detection of bugs and improves the overall stability of applications. TypeScript is compatible with all versions of JavaScript, with the growing adoption of TypeScript by JavaScript frameworks in recent years, making it more portable in the coding community (Nihar Raval, 2023).

2.3 Cons

As TypeScript builds upon JavaScript, it adds an additional layer of complexity for developers. During the construction process, an extra step is required when TypeScript has to be compiled into JavaScript at the final stage.

3. The Differences

“In simple terms, TypeScript is safer, higher performance, but harder” (Jack Rogers, 2024). To explain this statement, TypeScript is a strongly typed language, performing type checking at compile time, while JavaScript is a weakly typed language, with type checking occurring only at runtime. Therefore,TypeScript holds an advantage here because errors can be detected before program execution. Moreover, TypeScript is the Superset of JavaScript. It is designed to manage large-scale projects with collaborative development, thereby enhancing overall performance.

References

MDN Contributors. (2024). What is JavaScript?
https://developer.mozilla.org/en-US/docs/Learn/JavaScript/First_steps/What_is_JavaScript

GeekforGeeks. (2024). Advantages and Disadvantages of JavaScript.
https://www.geeksforgeeks.org/advantages-and-disadvantages-of-javascript/

Nihal Raval. (2023). TypeScript vs JavaScript: Know The Difference.
https://radixweb.com/blog/typescript-vs-javascript#what

Jack Rogers. (2024). Bitcoin Theory Session 1.
https://ele.exeter.ac.uk/pluginfile.php/4029779/mod_resource/content/1/beem062_Programming_Session_1_2024_.pdf