**Difference between TypeScript and JavaScript**

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JavaScript (JS) and TypeScript (TS) are two widely used programming languages that are popular for their feature-rich benefits. JavaScript was first introduced as a client-side language for developers. Later on, it was found that JavaScript could also be used for server-side programming purposes. Over time, JavaScript codes became heavy and complex and failed to fulfill the purpose of general object-oriented programming languages. There were gaps that emerged in term of JavaScript being used as a server-side technology for enterprise level development. Thereafter, TypeScript was developed to help developers take care of these shortfalls.

In this article, we will begin with a comparison chart depicting the difference between TypeScript and JavaScript. We will discuss why developers use JavaScript and TypeScript, the features of JavaScript and TypeScript, etc.

**Typescript vs. JavaScript**

**Comparison Chart:**Primary Differences Between JavaScript and TypeScript

| **Basis of Difference** | **JavaScript** | **TypeScript** |
| --- | --- | --- |
| **Type of language** | It is a scripting language | It is an OOP (object- oriented programming) language |
| **Static typing** | Static typing feature is not available | Static typing feature is present; it is a light-weight |
| **Support for modules** | No support for modules is present in JavaScript | TypeScript supports modules in the development process |
| **Interface** | Interface is not present | TypeScript contains an interface that makes development more convenient and user-friendly |
| **Optional parameter function** | The optional parameter function is not supported by JavaScript | TypeScript provides support for optional parameter functions |
| **Application** | Specifically used for client- side operations | Used for both client and server-side operations |
| **File extension** | .js | .ts, .tsx |
| **Syntax** | In JavaScript, all the codes are written within the <> script tags. This tells the browser to start interpreting the text that’s written as code within the tags during run time. | The codes written in TypeScript comprise of modules, functions, variables, comments, statements and expressions. |
| **Advantages** | * It boasts of a huge active community comprising of developers. * JavaScript supports native browsers and cuts out on one extra step of compiling as is required in TypeScript. * More flexibility. | * Static Typing * More preferable for complex, large-sized projects * A better option for collaboration especially when there are many   developers working on large projects. * Type safety presents sound features for detecting errors right at the coding time. This leads to efficient coding, higher productivity and easy debugging. |

**What is JavaScript?**

JavaScript or JS is a development language that is used for updating and changing **HTML and CSS codes.** This popular dynamic programming language is mainly utilized for web development and for enhancing HTML pages. JavaScript can calculate, assess, manipulate, validate and test data. JavaScript is generally used as client-side scripting and coding language. When anyone requests a HTML page that has JavaScript code in its, the script goes to the browser; the browser is responsible for taking the requisite actions. JS is the brainchild of **Brendan Eich**. It first made its appearance in the year **1995** when it was used by the Netscape Navigator browser attributed to Netscape.

**Features of Javascript**

1. JavaScript is an object-based programming language that gives users a lot of control on the browser.
2. It is light-weighted.
3. JavaScript is case sensitive.

**What is Typescript?**

Typescript is a popular **open-source development language**. It can be defined as the next- level of JavaScript for application-scale development purposes. This programming language is an object oriented, strongly typed, compiled language. TypeScript serves the dual purpose of a set of tools and a language. Invented by **Anders Hejlsberg**, TypeScript is licensed by **Apache 2**. Also referred to as a superset of JavaScript, TypeScript is designed and developed for taking care of complicated projects. It comes packaged with extra loaded features in addition to those present in Java Script. All TypeScript codes are changed into JavaScript equivalents for their execution.

**Features of TypeScript**

1. TypeScript provides support for JavaScript libraries and can access JavaScript frameworks and tools as well as other libraries easily.
2. JavaScript with valid .js extension can be converted to TypeScript by changing the extension from .js to .ts; they can be compiled with other TypeScript files.
3. TypeScript is portable and can run on all devices, browsers, devices and operating systems.

**Advantages of using TypeScript over JavaScript**

**Why typescript? There are certain advantages of using TypeScript in comparison to JavaScript:**

**1. The compilation errors** are pointed out by TypeScript in the course of development only. This is not possible in case of JavaScript. Because of this important feature of typescript, there are few chances of errors occurring during run time. JavaScript, being an interpreter-based language, fails to provide this feature.

**2. TypeScript supports** static typing; its features are supportive of strongly-typed codes that allow for the checking of type correctness during the time of compilation. Here, TypeScript scores over JavaScript as this feature is not found in the latter.

**3. TypeScript** has some additional features, for example, ES6 features, of JavaScript. The TypeScript compiler is capable of compiling the .ts files in line with the ES6 features as well as those belonging to ES3, ES4 and ES5 features. However, it is important for developers to check if these features are supported by their target browsers or not.

**4. The main advantage** that Typescript has over JavaScript is that it is designed for developing complex and large programs. It is a superset of JavaScript. TypeScript codes can be trans compiled to JavaScript.

**5. Typescript is supportive** of definition file that can store file type information comprising of existing JavaScript libraries, such as the C++ header files. In turn, this feature helps other programs utilize the values that are defined in those specific files. This is not possible with JavaScript.

**Conclusion**

The choice of TypeScript or JavaScript would depend on the complexity and size of the project for which they are used. Knowledge of the primary differences between typescript and JavaScript helps in understanding the application of these two languages. In case you have any further queries with regards to what is typescript, what is JavaScript, benefits in relation of JavaScript to typescript, or the differences between typescript vs JavaScript, then write to us. We will be happy to provide the most suitable answers to your queries at the earliest.