

JAVASCRIPT FUNDAMENTALS



What is Javascript?

Explain Javascript

JavaScript is a programming language that is widely used for creating interactive websites and web applications. It allows developers to add dynamic behavior to web pages, such as responding to user input, manipulating content, and updating the display in real-time. JavaScript is often used in conjunction with HTML and CSS to create a complete web application. It is a versatile language that can be used on both the client-side (in the browser) and server-side (on the server). Some popular JavaScript frameworks and libraries include React, Angular, and jQuery. With the continued growth of the web, JavaScript is an important skill for any developer to have.

History of Javascript

JavaScript, a high-level, interpreted programming language, has a rich history and plays various roles in web development. It was initially developed by Brendan Eich at Netscape in 1995 and went through several name changes before settling on JavaScript. Let's summarize the key points about the history of JavaScript:

- JavaScript was created in 1995 by Brendan Eich at Netscape. It was originally named Mocha, then LiveScript, before being renamed JavaScript for marketing purposes, even though it has no technical relation to Java.
- The language was designed to bring interactivity to websites and became the primary scripting language for web development.
- In 1997, JavaScript was standardized by ECMA International, resulting in the ECMAScript standard. This standardization ensured consistent implementation across different browsers and platforms.

- Major updates to JavaScript have been introduced through ECMAScript versions. Notable versions include ES3 in 1999, ES5 in 2009 (which introduced "strict mode" and other improvements), and ES6 in 2015 (which introduced features like let/const, arrow functions, and classes).
- JavaScript is not limited to the browser. It is also used server-side through platforms like Node.js, enabling developers to write JavaScript for backend development as well.
- JavaScript has evolved to become one of the core technologies of the web, alongside HTML and CSS, and is widely used in web development.

Roles of JavaScript in web development:

1. Client-side scripting: JavaScript is primarily used as a client-side scripting language. It runs directly in the user's web browser and allows developers to create interactive and dynamic content, enhancing the user experience of websites.
2. DOM manipulation: JavaScript provides the ability to access and manipulate the Document Object Model (DOM), which represents the structure of a web page. Developers can use JavaScript to add, modify, or delete elements on a web page in real-time without requiring a page refresh.
3. Event handling: JavaScript enables developers to detect and respond to user actions such as clicks, keyboard input, or mouse movements. This capability allows the creation of event-driven applications and provides seamless user interactions.
4. Asynchronous processing: JavaScript supports asynchronous programming, which allows developers to perform tasks in the background without blocking the main execution flow. This feature is essential for creating responsive web applications that can load and update content without interrupting the user experience.
5. Server-side scripting: With the advent of Node.js, JavaScript can also be used for server-side scripting. This allows developers to use JavaScript for both client-side and server-side logic, making it easier to build full-stack applications using a single language.

Benefits of Learning JavaScript:



3. Comparison Operators: These operators are used to compare two values. Examples are `==`, `===`, `!=`, `!==`, `>`, `<`, `>=`, `<=`.

4. Logical Operators: These operators are used to determine the logic between variables or values. Examples are `&&`, `||`, `!`.

```
let f = true;
let g = false;

console.log(f && g); // false
console.log(f || g); // true
console.log(!f);    // false
console.log(!g);    // true
```

```
console.log(!g); // true
```

5. String Operators: The + operator is used to add (concatenate) strings together, and the += operator is used to add (concatenate) strings to the end of an existing string.

```
let h = "Hello";  
let i = "World";  
console.log(h + i); // HelloWorld  
console.log(h += i); // HelloWorld
```

Please note that these operators may behave differently depending on the data types of the values or variables they are used with, due to JavaScript's type coercion rules. For instance, using the + operator with a string and a number will result in string concatenation, not numeric addition.