JavaScript Programming Language

Programming Language:

In a computer system, we use the programming language to perform a certain kind of operation or we create a process that is executed by the computer system. It is a way of communicating between a human/user/programmer and a computer system.

Network programming is the act of using computer code to write programs or processes that can communicate with other programs or processes across a network.

program is a robot without hardware perform task without human help. computer program is a list of instruction also called as statement. statement = sentence in English. every statement is executed one by one. in programming the statement finished with semicolon(;).

Web Development:

Web refers to websites, web pages or anything that works over the internet. Development refers to building the application from scratch. Web development refers to the creating, building, and maintaining of websites. It includes aspects such as web design, web publishing, web programming, and database management. It is the creation of an application that works over the internet i.e. websites. Web Development is two types

Front End Development The part of a website where the user interacts directly is termed as front end. It is also referred to as the 'client side' of the application. Example: HTML, CSS, JS, etc.

Back End Development Backend is the server side of a website. It is part of the website that users cannot see and interact with. It is the portion of software that does not come in direct contact with the users. It is used to store and arrange data. Example: Node.js, Express.js, PHP, Java(Spring Boot), etc.

Scripting Type Programming Language:

A script or scripting language is a computer language that does not need the compilation step and is rather interpreted one by one at runtime. It is where the script is written and where instructions for a run-time environment are written.

In contrast to programming languages that are compiled first before running, scripting languages do not compile the file and execute the file without being compiled. Example: JavaScript, bash, Ruby, Node.js, Perl, etc.

JavaScript Programming:

JavaScript is a light-weight object oriented programming language which is used by several websites for scripting the webpages. it is an interpreted, full-fledged programming language that enables dynamic interactivity on websites when applied to an HTML document.

It was introduced in the year 1995 for adding programs to the webpages in the Netscape Navigator browser. Since then, it has been adopted by all other graphical web browsers. With JavaScript, users can build modern web applications to interact directly without reloading the page every time. The traditional website uses js to provide several forms of interactivity and simplicity.

JavaScript is used to create client-side dynamic pages. JavaScript is an Object based scripting language which is light-weight and cross-platform. JavaScript is not a compiled language, but it is a translated language. The JavaScript translator is responsible for translating the JavaScript code for the web browser.

JavaScript is a light-weight object-oriented programming language which is used by several websites for scripting the webpages it is an interpreted full-fledged programming language that enables dynamic interactivity on websites when applied to an HTML document. JavaScript has no connectivity with java programming language. The name was suggested and provided in the times when java was gaining popularity in the market. In addition to web browsers databases such as couch DB and mongo DB uses JavaScript as their scripting and query language. "JavaScript is Single threaded and Event drive."

History Of JavaScript:

In 1993 Mosaic the first popular web browser came into existence. In the year 1994. Netscape was founded by Marc Andreessen. He realized that the web needed to become more dynamic. Thus a glue language web believed to be provided to HTML to make web designing easy for designers and part-time programmers. Consequently in 1995, the company recruited Brendan Eich intending to implement and embed with sun microsystems for adding java into its navigator so that it could complete with Microsoft over the web technologies and platforms Now two languages were there java and the scripting language further Netscape decided to give a similar name to the Scripting decided to give a similar name to the scripting language as JAVA it led to JavaScript.

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But, before Brendan could start, the company merged with Sun Microsystems for adding Java into its Navigator so that it could compete with Microsoft over the web technologies and platforms. Now, two languages were there: Java and the scripting language. Further, Netscape decided to give a similar name to the scripting language as Java's. It led to 'JavaScript'. Finally, in May 1995, Marc Andreessen coined the first code of JavaScript named 'Mocha'.

Features Of JavaScript:

All popular web browsers support JavaScript as they provide built-in execution environments. JavaScript follows the syntax and structure of the C programming language. Thus it is a structured programming language.

JavaScript is a weakly typed language, where certain types are implicitly cast. JavaScript is an Object-Oriented Programming language wherever it is also use as prototypes rather than using classes for inheritance.

It is a light-weighted and interpreted language. It is a case sensitive language. JavaScript is supportable in several operating systems including Windows MacOS, etc. it provides good control to the users over the web browsers.

Why & Where JavaScript:

The JavaScript is using for to create interactive websites, client side validation, popup operation, and even action like on click, button press, scroll event, etc. currently the JavaScript is used in website client side(JS, Jquery, React JS), website server side(Node JS, Express JS), Mobile Development(React Native, Phone Gap, Ionic), Software Development(ElectronicJS Example: VS Code).

Application Of JavaScript:

JavaScript is used to create interactive websites. It is mainly used for.

1. Client-Side Validation.

2. Dynamic drop down menus.

3. Displaying Date and Time.

4. Displaying pop-up windows and dialog boxes.

5. Displaying clocks etc.

Advantages Of External JavaScript:

It helps in the reusability of code in more than one HTML file. It allows easy code readability. It is time-efficient as web browsers cache the external JS files which further reduces the page loading time.

It enables both web designers and coders to work with HTML and js files parallelly and separately without facing any code conflictions. The length of the code reduces as only we need to specify the location of the JS file.

Disadvantages Of External JavaScript:

The stealer may download the coder's code using the URL of the JS file. if two JS files are dependent on one another then a failure in one file may affect the execution of the other dependent file. The web browser needs to make an additional HTTP request to get the JS code. A tiny to a large change in the JS code may cause unexpected results in all its dependent files. We need to check each file that depends on the commonly created external JavaScript file. it is a few lines of code then better to implement the internal JavaScript code.

Comments & Statement:

Comments:

In every programming comment lines are used to describe about the source code. During the execution of the programming the translator ignores the comment lines and only translate the source code statements from the programming file. Comments are two types "Single Line Comment" & "Multi Line Comment". Single line comments are used for small description and used for single statement of code. For writing the single line comment you need to add "//" before the line starts. Example: //this is a single line comment.

Multi line comments are used for large description. Generally we used the multi- line comment for description of entire source code file, describe about any programming concept in that source code file. the writing style of the multi-line comment is before you start writing the comment line use "/*" this symbol and after end of the comment use the "*/" symbol to complete the entire multi-line comment line. Example: /*this is a multi-line comment*/

Statements:

In programming we wrote multiple lines of code to execute that program so during writing the program generally we wrote program in a block or we use single line source code. During block we use "{" at starting of the block and use "}" at end of the block. But in case of single line source code each lines are called as statement. During coding it is mandatory to use ";" at the end of the single line source code.

```javascript
1   const prompt = require("prompt-sync")();
2   //This Is A Single Line Comment
3   /*
4   This Is A Multi Line Comment
5   ABCCDEFGHIJKLMNOPQRSTUVWXYZ
6   0123456789
7   abcdefghijklmnopqrstuvwxyz
8   */
9   a = 10;
10  B = 20;
11  sum = a + B;
```