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Chapter 1: What is JavaScript?

What is JavaScript?

JavaScript is a very powerful client-side scripting language. JavaScript is used mainly for enhancing the interaction of a user with the webpage. In other words, you can make your webpage more lively and interactive, with the help of JavaScript. JavaScript is also being used widely in game development and Mobile application development.

Javascript History

JavaScript was developed by Brendan Eich in 1995, which appeared in Netscape, a popular browser of that time.
The language was initially called LiveScript and was later renamed JavaScript. There are many programmers who think that JavaScript and Java are the same. In fact, JavaScript and Java are very much unrelated. Java is a very complex programming language whereas JavaScript is only a scripting language. The syntax of JavaScript is mostly influenced by the programming language C.

How to Run JavaScript?

Being a scripting language, JavaScript cannot run on its own. In fact, the browser is responsible for running JavaScript code. When a user requests an HTML page with JavaScript in it, the script is sent to the browser and it is up to the browser to execute it. The main advantage of JavaScript is that all modern web browsers support JavaScript. So, you do not have to worry about whether your site visitor uses Internet Explorer, Google Chrome, Firefox or any other browser. JavaScript will be supported. Also, JavaScript runs on any operating system including Windows, Linux or Mac. Thus, JavaScript overcomes the main disadvantages of VBScript (Now deprecated) which is limited to just IE and Windows.

Tools You Need

To start with, you need a text editor to write your code and a browser to display the web pages you develop. You can use a text editor of your choice including Notepad++, Visual Studio Code, Sublime Text, Atom or any other text editor you are comfortable with. You can use any web browser including Google Chrome, Firefox, Microsoft Edge, Internet Explorer etc.
A Simple JavaScript Program

You should place all your JavaScript code within `<script>` tags (`<script>` and `</script>`) if you are keeping your JavaScript code within the HTML document itself. This helps your browser distinguish your JavaScript code from the rest of the code. As there are other client-side scripting languages (Example: VBScript), it is highly recommended that you specify the scripting language you use. You have to use the type attribute within the `<script>` tag and set its value to `text/javascript` like this:

```
<script type="text/javascript">

Hello World Example:

```html
<html>
<head>
    <title>My First JavaScript code!!!</title>
    <script type="text/javascript">
        alert("Hello World!");
    </script>
</head>
<body>
</body>
</html>
```

**Note:** `type="text/javascript"` is not necessary in HTML5. Following code will work.

```html
<html>
<head>
    <title>My First JavaScript code!!!</title>
    <script>
        alert("Hello World!");
    </script>
</head>
```
Summary

- JavaScript is a **client-side scripting language** developed by Brendan Eich.
- JavaScript can be **run on any operating systems** and almost all web browsers.
- You need a text editor to write JavaScript code and a browser to display your web page.

Chapter 2: Javascript Variables

Variables are used to **store values** (name = "John") or **expressions** (sum = x + y).

Declare Variables in JavaScript

Before using a variable, you first need to declare it. You have to use the keyword `var` to declare a variable like this:

```javascript
var name;
```

Assign a Value to the Variable

You can assign a value to the variable either while declaring the variable or after declaring the variable.

```javascript
var name = "John";
```

OR

```javascript
var name;
name = "John";
```

Naming Variables

Though you can name the variables as you like, it is a good programming practice to give descriptive and meaningful names to the variables. Moreover, variable names should start with a letter and they are case sensitive. Hence the variables `student name` and `studentName` are different because the letter n in a name is different (n and N).
Try this yourself:

```html
<html>
<head>
<title>Variables!!!</title>
<script type="text/javascript">
var one = 22;
var two = 3;
var add = one + two;
var minus = one - two;
var multiply = one * two;
var divide = one/two;

    document.write("First No: = " + one + "<br/>Second No: = " + two + " <br />");
    document.write(one + " + " + two + " = " + add + "<br/>");
    document.write(one + " - " + two + " = " + minus + "<br/>");
    document.write(one + " * " + two + " = " + multiply + "<br/>");
    document.write(one + " / " + two + " = " + divide + "<br/>");

</script>
</head>
<body>
</body>
</html>
```