Languages that web developers must learn are:

- o   HTML : To define content of the web pages
- o   CSS: To defined the layout of web pages and How the content should be displayed
- o   JavaScript: To program the behaviour of web pages

JavaScript is open source meaning it's free to use for everyone

ECMA – [**E**uropean **C**omputer **M**anufacturers **A**ssociation] is a non-profit organization that develop standards in computer hardware, communications and programming language

JavaScript was invented by Brendan Eich in 1995 and became a ECMA standard in 1997

ECMAScript is the official name of the language

Official Name	Version	
ES1	ECMAScript 1 (1997)	First Edition
ES2	ECMAScript 2 (1998)	
…		
…		
ES6	ECMAScript 6 (2015)	This is major release

Prerequisite Softwares:

- o   Nodejs: https://nodejs.org/en/download/
- o   Code Editor: Visual Studio Code (VS code)
- o   Browser Chrome

Once nodejs installed. In order to check the installation status. Hit the below commands on command prompt. Note: Output would be nodejs Installed version.
node –v
npm –v

JavaScript Engine
Google chrome: V8
Firefox: SpiderMonkey

What is JavaScript?

JavaScript is a dynamic computer programming language. It is lightweight and most commonly used as a part of web pages, whose implementations allow client-side script to interact with the user and make dynamic pages. It is an interpreted programming language with object-oriented capabilities.

Light weight Means:

- Syntax and features uses the least hardware and software resources possible.
- Use very less memory to execute.
- Easily portable/Less size.

The ECMA-262 Specification defined a standard version of the core JavaScript language.

- JavaScript is a lightweight, interpreted programming language.
- Designed for creating network-centric applications.
- Complementary to and integrated with Java.
- Complementary to and integrated with HTML.
- Open and cross-platform.

Advantages of JavaScript, The merits of using JavaScript are:

- **Less server interaction:** You can validate user input before sending the page off to the server. This saves server traffic, which means less load on your server.
- **Immediate feedback to the visitors:** They don't have to wait for a page reload to see if they have forgotten to enter something.
- **Increased interactivity:** You can create interfaces that react when the user hovers over them with a mouse or activates them via the keyboard.
- **Richer interfaces:** You can use JavaScript to include such items as dragand-drop components and sliders to give a Rich Interface to your site visitors.

Limitation of JavaScript

We cannot treat JavaScript as a full-fledged programming language. It lacks the following important features:

- Client-side JavaScript does not allow the reading or writing of files. This has been kept for security reason.
- JavaScript cannot be used for networking applications because there is no such support available.
- JavaScript doesn't have any multithreading or multiprocessor capabilities.

Syntax:

JavaScript can be implemented using JavaScript statements that are placed within the <script> …</script> HTML tags in a web page.

We can place the **<script>** tag anywhere within our page but it is normally recommended that you should keep it with the **<head>** tag

<script ...>
   JavaScript code
</script>

The script tag takes two important attributes:

❖ **Language**: This attribute specifies what scripting language you are using.
   Typically, its value will be javascript. Although recent versions of HTML
   (and XHTML, its successor) have phased out the use of this attribute.

❖ **Type**: This attribute is what is now recommended to indicate the scripting
   language in use and its value should be set to "text/javascript".
   So your JavaScript syntax will look as follows.
   <script language="javascript" type="text/javascript">
         JavaScript code
   </script>

Placement or JS insertion in HTML:

There is a flexibility given to include JavaScript code anywhere in an HTML document.

o   However the most preferred ways to include JavaScript in an HTML file are as follows:
    Script in <head>...</head> section.

o   JavaScript in External File:
    <html>
          <head>
          <script type="text/javascript" src="**filename.js**" ></script>
          </head>
          <body>
          ....
          </body>
    </html>

    Note: To use JavaScript from an external file source, you need to write all your
    JavaScript source code in a simple text file with the extension ".js" and then
    Include that file as shown above.