Introduce to Programming

What is Programming?

Computer programming is the process of performing a particular computation, usually by designing/building an executable computer program

1. Procedural programming (C++, JavaScript)

2. Object Oriented programming (Java)

JAVA

Java is a high-level, class-based, object-oriented programming language that is designed to have as few implementation dependencies as possible.

JAVA

Amazon, Google, Facebook

C++

C++ is a general-purpose programming language created by Bjarne Stroustrup as an extension of the C programming language, or "C with Classes".

C++

Windows, Google, Facebook, E-bay

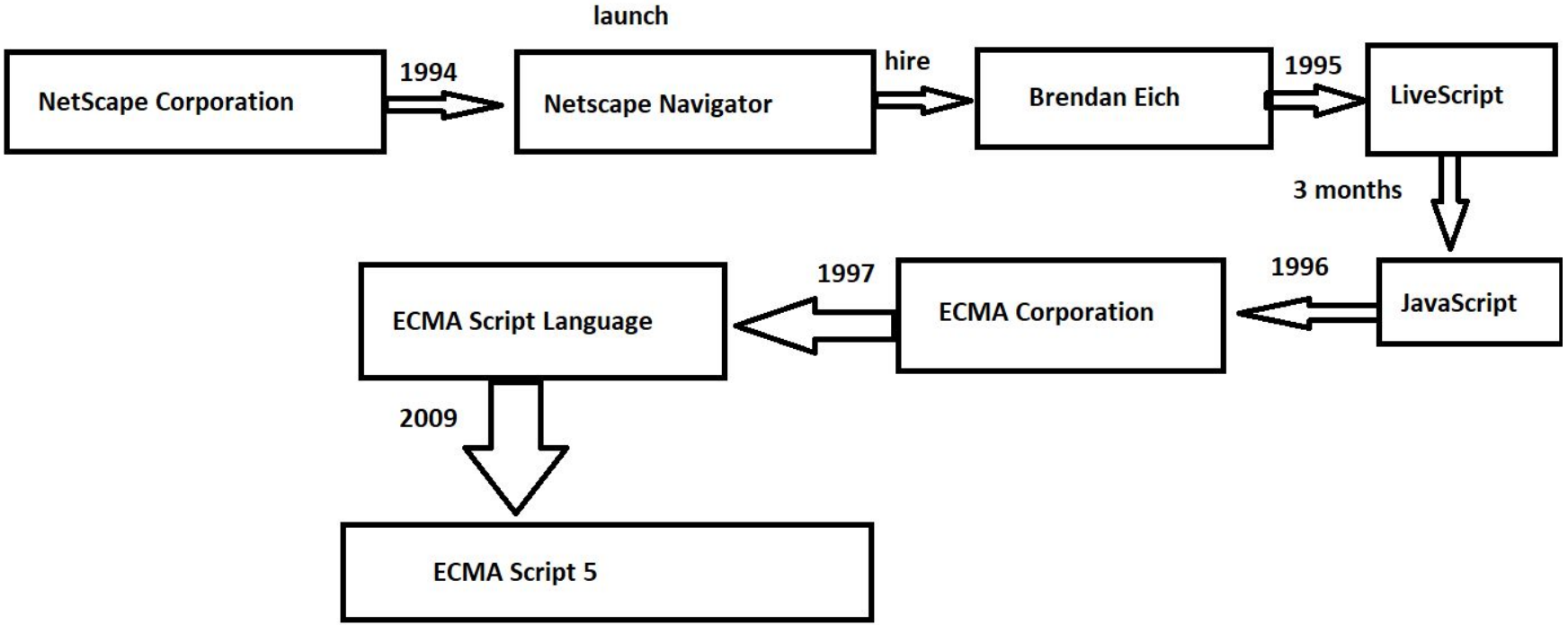
Introduce to JavaScript

What is JavaScript ?

JavaScript is one of the core technologies of the World Wide Web. It is a high-level, interpreted programming language, meaning that most of its instructions execute directly without having to be compiled. It was inventend in 1995 by

Brendan Eich

History of JavaScript



Why JavaScript?

Javascript is known as a mother language of Web technology. So If you want to be web developer JavaScript is mandatory for you. I will discuss main 5 reasons why you need to choose javaScript in 2021.

- ❏ JavaScript is friendly, dynamic and high level programming language.
- ❏ JavaScript is ideal for Newbies
- ❏ JavaScript is the most popular language
- ❏ JavaScript has a strong and wide community
- ❏ JavaScript has a lot of modern Frameworks such as ReactJs, VueJs etc

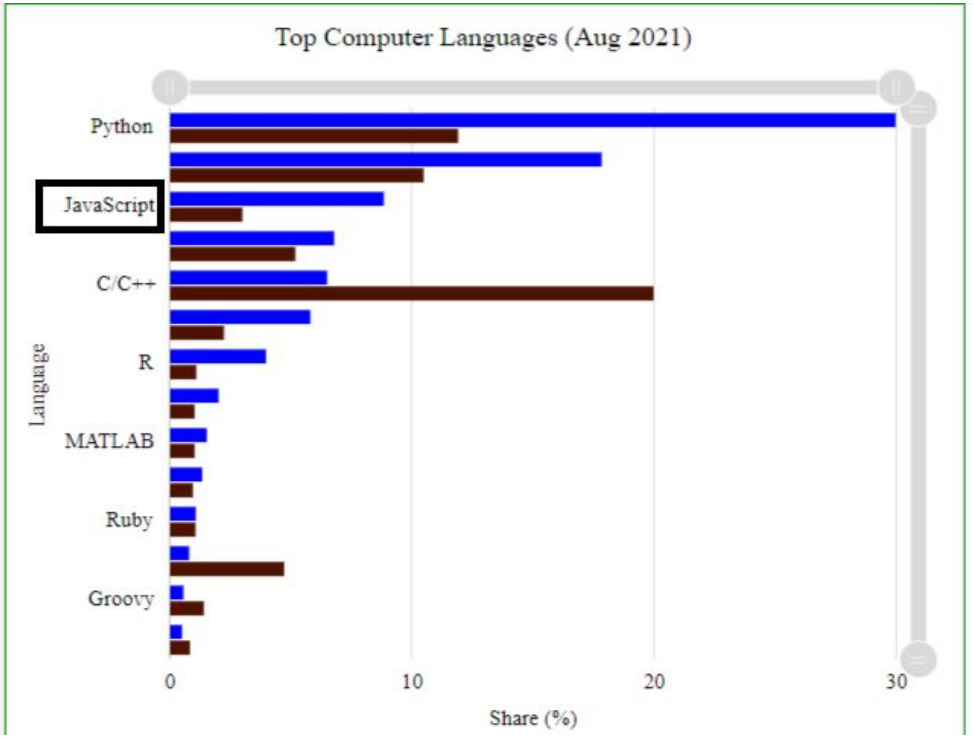
JavaScript is Friendly, dynamic and high level programming language

- JavaScript is high-level, often just-in-time compiled, and multi-paradigm. It has curly-bracket syntax, dynamic typing, prototype-based object-orientation, and first-class functions.

JavaScript is ideal for NewBies

- JavaScript is so much flexible for a newbies. Even those who's don't have any idea about any programming language can start their programming carrier with javaScript and can be a JavaScript ninja. Its syntax is so straightforward and easily digestible that it can be picked up by beginners in no time.

JavaScript is the most popular language



JavaScript has a strong and wide community

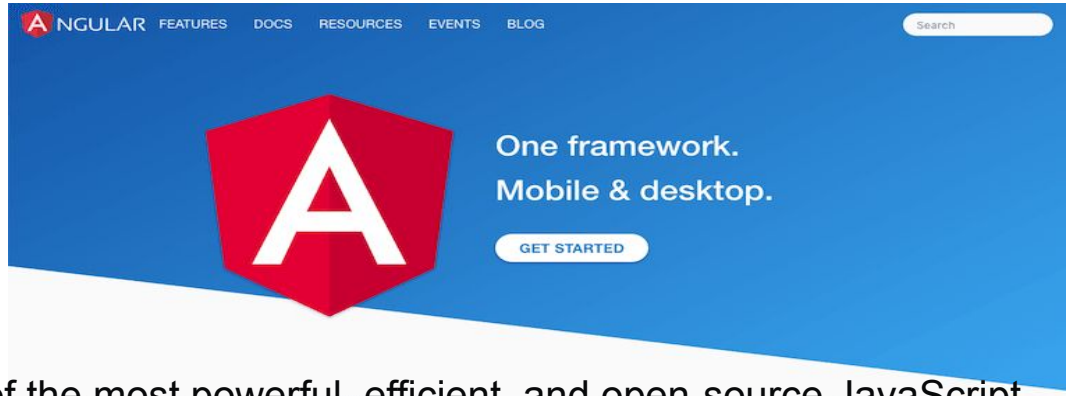
- JavaScript is all around the web world, and with Node.js, its utilization on the backend is escalating. To learn JavaScript, there are countless resources to refer to. GitHub and StackOverflow show an escalating amount of projects using JavaScript, and the popularity is only expected to grow more.

JavaScript has lot of Opportunity

- Web Development (React js, Angular js, Vue JS)
- Mobile App Development (React Native (cross platform))
- Desktop App (Electron Js)
- ServerSide (Node js runtime)

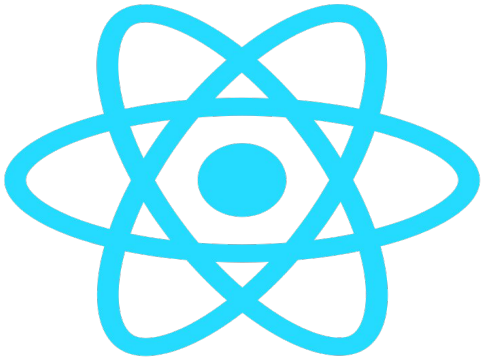
JavaScript has lot of modern framework

- **Angular :**



One of the most powerful, efficient, and open-source JavaScript frameworks is Angular. Google operates this framework and is implemented to use for developing a Single Page Application (SPA). It extends the HTML into the application and interprets the attributes to perform data binding.

- **React**



Created by Facebook, the React framework has earned popularity within a short period. It is used to develop and operate the dynamic User Interface of the web pages with high incoming traffic. It makes the use of a virtual DOM, and hence, the integration of the same with any application is more straightforward.

- **Node.Js:**

Node.js is a server-side JavaScript run-time environment, which works on cross platforms and is open-source. The framework is capable of driving asynchronous I/O with its event-driven architecture. It works in the JavaScript Runtime environment and shows JAVA's similar properties like threading, packaging, o forming loops.

❖ **Vue Js:**

Though developed in the year 2016, this JavaScript framework has already made its way into the market and has proven its worth by offering various features. Its dual integration mode is one of the most attractive features for creating high-end SPA or Single Page Application. It is a much reliable platform for developing cross-platform

❖ **Ember Js:**

The introduction of Ember.js to the software market was 2015, and since then, it has gained popularity with its wide application area. The features of Ember.js support two-way data binding and hence, establish a reliable platform for handling the complicated User Interfaces. Popular websites like LinkedIn, Netflix, Nordstrom, and many more use the Ember.JS platform for their websites.

What is Interpreted Language?

Interpreted language are those, who’s are execute the code line by line.The execution time of an interpreted language is more faster than compiled language. Example: JavaScript is an interpreted language.. JavaScript is a JIT(just in time compiled) compiled language.

What is Compiled Language?

Compiled language are those, who’s are compiled the full code before execute it. The execution time of a compiled language is slower than Interpreted language. Example: C++, C is a compiled language.

Is JavaScript an Interpreted or Compiled Language?

The main thing is JavaScript is an interpreted language.If we look at the execution context of javaScript, we can see that it will read the code line by line and parse the code what we provide to execute. Then it parse the code through **AST** (Abstract Syntax Tree) and check is there have any error on the code or not. If error found then it will show syntax error to user. Otherwise it will compiled the code to machine language. The behavior of this code is look like a compiled language like C++, C. But There have a difference here. In compiled language full code will compiled first then execute it . But here in Javascript, code will complied in the following line and convert it in machine language and show the output to us.

How JavaScript Executed?

JavaScript was invented only for do some interactive operation in web. But after invention of Node js now JavaScript is using in server side also. But the question is how this language execute the code. What will happen in background. To execute a javaScript code there have some compiled engine available. Like V8, Spider Monkey etc.

Actually those engines are convert the code to machine language and compiled it. After compiled, it gives user the output. Different browser has used different type of engine to execute a javaScript code. Here some example is given.

- **V8:** Open source, developed by Google, written in C++, Used in NodeJs, Google Crome browser
- **SpiderMonkey:** Managed by the Mozilla Foundation, open source, developed entirely in Java. Used in Mozila Firefox browser
- **Chakra:** Used in Microsoft Edge and Internet Explorer
- **JavaScriptCore:** open source, marketed as Nitro and developed by Apple for Safari. Used in Safari web browser.

How JavaScript Executed?

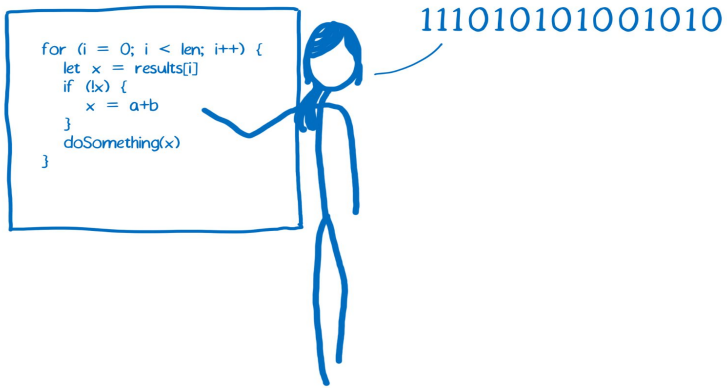


Figure: 1.1

We know that javaScript is an interpreted language. That's means it will execute the code line by line. In Fig(1.1) we are seeing that, It is a for loop but when javaScript engine saw these code it will trace line by line and convert the code to machine code and give a output to the user.

How JavaScript Executed?

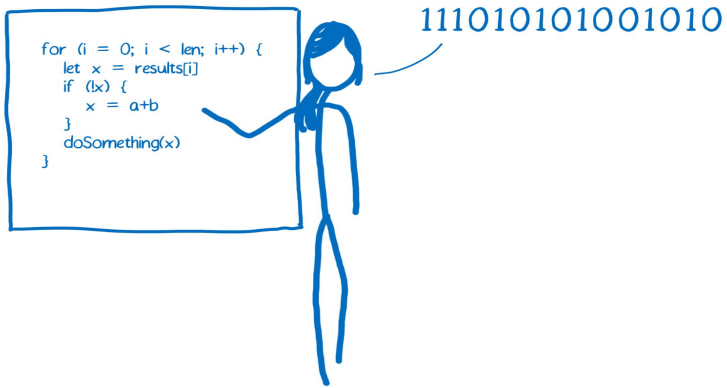


Figure: 1.1

We know that javaScript is an interpreted language. That's means it will execute the code line by line. In Fig(1.1) we are seeing that, It is a for loop but when javaScript engine saw these code it will trace line by line and convert the code to machine code and give a output to the user.

Thank You

www.techserve4u.com @Techserve4u info@techserve4u.com

Please subscribe and contact us for more details! (586) 834-8526