* A JavaScript engine is a program that converts JavaScript code that developers write into machine code that allows a computer to perform specific tasks.
* A JavaScript engine is a program that executes JavaScript code.
* In 2008, Google created its own JavaScript engine called V8.
* V8 is written in C++ and can be used independently or can be embedded into other C++ programs.
* JavaScript engines are typically developed by web browser vendors

1.**V8** - Open-source JavaScript Engine developed by Google for Chrome.

2.**SpiderMonkey** - The JavaScript Engine powering Mozilla Firefox.

3.**JavaScriptCore** - Open-source JavaScript Engine Developed by Apple for Safari.

4.**Chakra** - A JavaScript Engine for the original Microsoft Edge

* JavaScript runtime is an environment which provides all the necessary components in order to use and run a JavaScript program.
* Every browser has a JavaScript Engine.
* JavaScript Engine is one component in the JavaScript Runtime.
* What else does the JavaScript Runtime consist of?
  + Example Chrome Browser JavaScript Runtime
  + The JavaScript Code we write is executed in Chrome's JavaScript
  + Runtime that consists of the following components.

\* V8 JavaScript Engine

- Memory (Heap)

- Call Stack

\* Web/ Browser API's

- DOM

- Timers (SetTimeout, SetInterval, Promises)

- Browser Storage

\* Queue - Asynchronous tasks wait before they are executed.

- Microtask Queue

- Callback / Task Queue

\* Event Loop

- Ensure Async Tasks are executed in the Right Order.

* Node.js is an open-source, cross-platform JavaScript runtime environment.
* **Open-Source**: Source code is publicly available for sharing and modification
* **Cross Platform**: Available on MAC, Windows and Linux
* **JavaScript Runtime Environment**: Provides all the necessary components in order to use and run a JavaScript program outside the Browser.
* Node.js is not a language, it is not a framework.
* It can execute not only the standard ECMAScript language but also new features that are made available through C++ bindings using the V8 engine.
* It consists of C++ files which form the core features and JavaScript files which expose common utilities and some of the C++ features for easier consumption

**What can you build with Node.js**

1. Traditional Websites
2. Backend services like API's
3. Real-time applications
4. Streaming services
5. CLI (Command Line Interface) Tools
6. Multiplayer Games

**Node.js Dependencies**: V8, libuv, zlib, crypto, etc