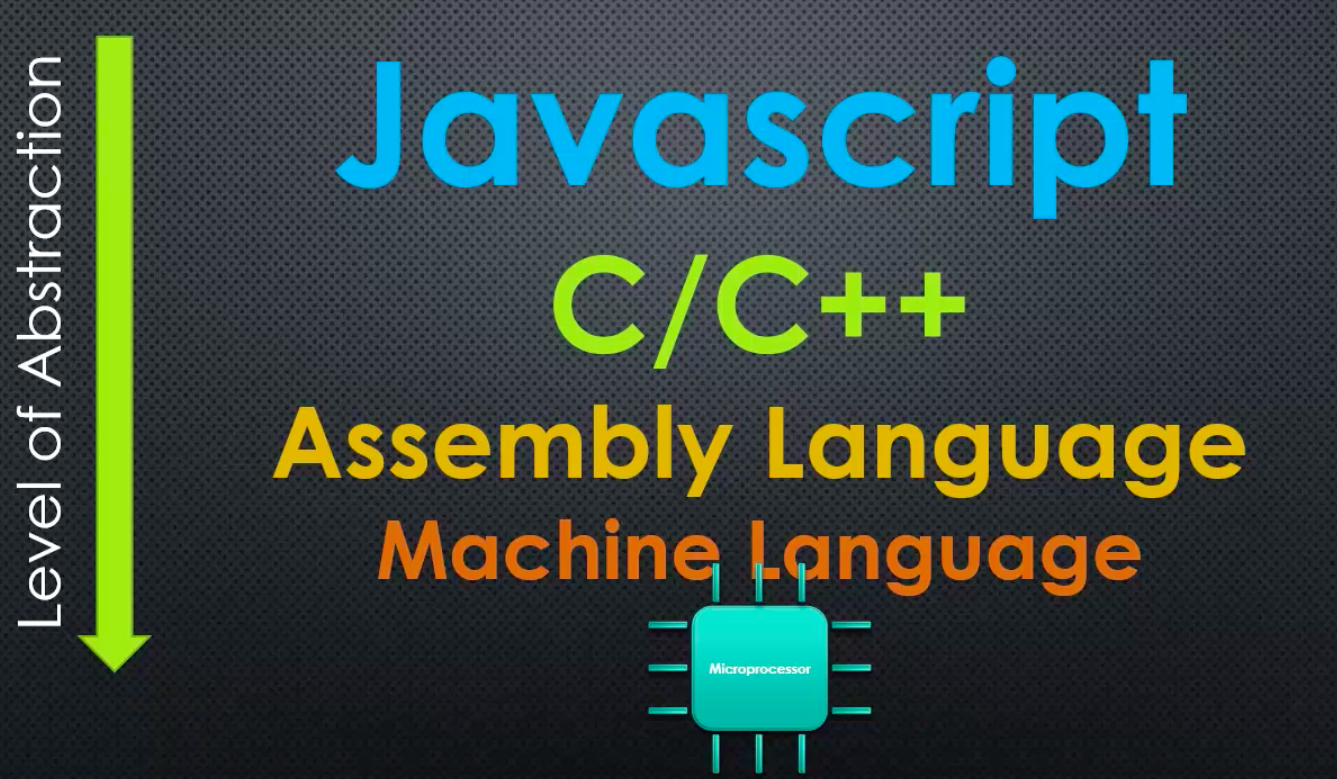
Node lets us write server code in javascript

**SECTION 2: V8 THE JAVASCRIPT ENGINE**

V8 JS engine (the heart of node.js)

You have a processor which is given instructions in machine code (programming language spoken by a computer processor)



everything written is JS is compiled through an engine that takes care of memory access and stuff, so the processor understands it

Node is written in C++!

* Because V8 (the JS engine that converts JS into machine code) is written in C++
* Node JS is built on top of V8

JAVASCRIPT ENGINES AND ECMASCRIPT SPECIFICATION

ECMASCRIPT

* The standard javascript is based on (many browsers appeared with their own engines, so a standard for JS was needed) (tells how the language should work)
* V8 makes sure the machine code that JS is compiled to works as the specification in ECMASCRIPT says

JS engine

* A program that converts JS code into machine code; in the case of V8, it should follow the ECMAscript standard

V8 is a JS engine, and it sits at the core of Node JS (node is built on top of it)

ADDING FEATURES TO JAVASCRIPT

You can embed the V8 engine into your c++ programs (since V8 is written in c++)

* In this way, you can make V8 do more things than V8 can actually do

I can write things in c++, that JS does not have, and make everything that I can do with c++ available to JS code

* JS was built for the browser, c++ was built for more lower level

You can add features to JS using c++ and extending the functionality of V8

* You send JS code to your c++ program, which then sends it to V8, then V8 calls the c++ code appropiatly for the JS code
* What you do is you tell V8 that when it encounters a certain word in JS code, V8 needs to call a specified function in c++ (which JS does not support for alone)
* This adds functionality to JS code

So V8 is built to be embedded to c++ programs so that c++ functionality is available to JS code (c++ functionality gets called through JS)

Google chrome is built in c++, it embeds V8. So when you make any kind of DOM manipulation using JS in your websites; this feature is actually not specified in the ECMAscript, it has been added by the google chrome browser. So it is adding functionality to JS.

Node JS is a c++ program, with V8 embedded that has added a bunch of c++ features in order to be a server technology

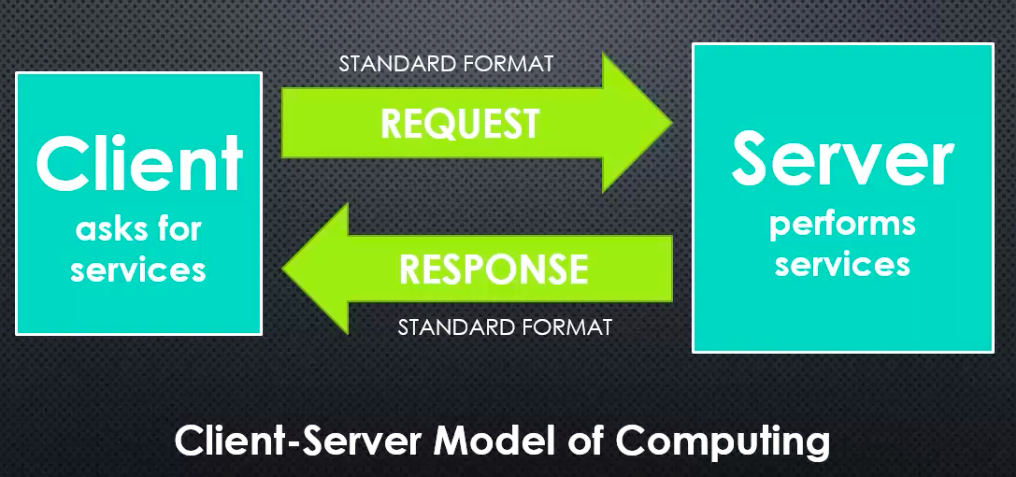
**SECTION 3: THE NODE CORE**

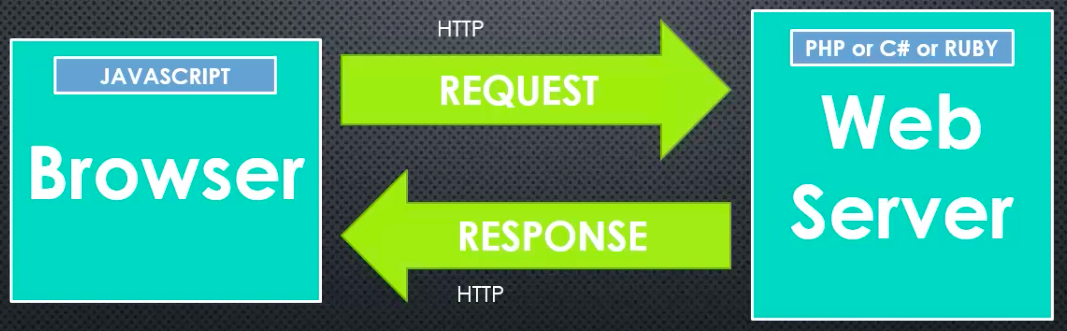
SERVERS AND CLIENTS

Node JS was designed to use JS to write server code

Front-end web development

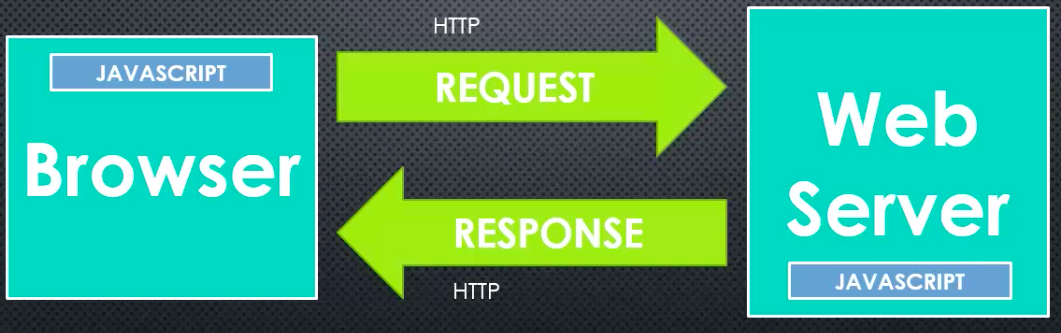
* Coding in the browser





when doing some coding in the client side, you would use JS, but when doing some coding in the server side, you had to switch to another programming language such as PHP, etc.

Therefore, NodeJS goal is to write JS on the webserver, so you don’t need to switch between programming languages; you just need to use JS.



Un callback es una función que se llama de manera asynchrona y se utiliza como parámetro en otra función

Un event handler es un callback asociado a un evento, tiene un event handler (que es el callback)

When you execute something synchronously, you wait for it to finish before moving on to another task. When you execute something asynchronously, you can move on to another task before it finishes.