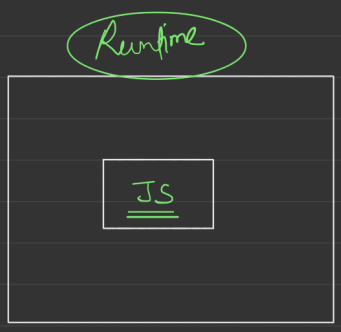
Node JS

JS → one of the famous programming language that exist out there.

↳ we have introjected with JS in browsers, In browsers they are a lot of functions available, for eg- document.getElementById().... , there kind of functions we have executed sometimes now or then in order to manipulate the dom. Or maybe we have used fetch request in order to download some data.

All of these features we might be aware about. But the funny part is if we check the official docs of JS we won't find any, because JS in itself is not that powerful that it can manipulate things on browser and download some data and all.

↳ It's just like any other programming language it can do looping stuff, it has functions, conditionals all the basic stuff but what happens behind the scene is that there is a concept of runtime, so if we are aware of how asynchronously JS works, we must have been already aware about the concept of runtime. So, what happens is JS actually runs inside a runtime



What this runtime does is ?

↳ It provides a lot of resources in terms of memory, in terms of architecture and in terms of lot of external functions using which the capability of JS is enhanced

↳ JS gets access of lot of runtime features for eg: what browsers do?

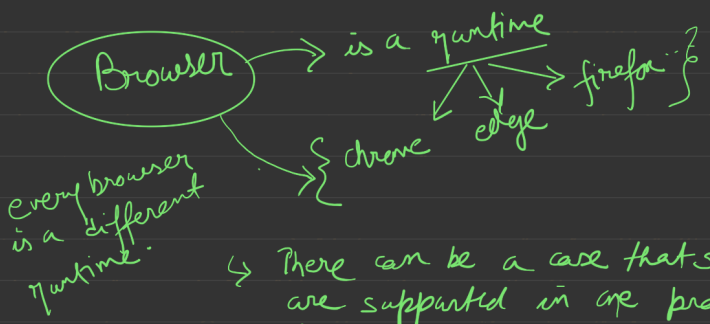
→ Browsers can actually renders HTML for you. So JS gets the functionality using which it can manipulate HTML for you

→ It gets capabilities of downloading some data, executing timers & there's no

functionality of executing things in the browsers directly }

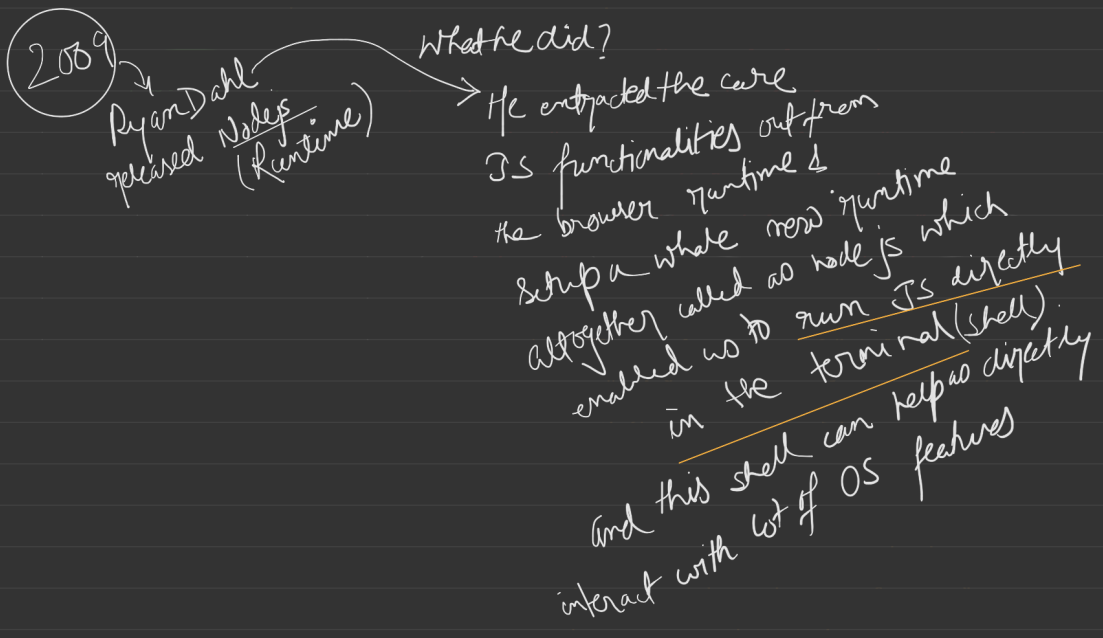
↳ It is dependent on runtime what kind of architecture, what kind of function is actually providing.

↳ The reason JS is so versatile and is getting used in so many application is because of the runtime



↳ There can be a case that some features are supported in one browser and some features might not be supported in some browsers. Because each browsers is a separate entity all together. These are separate from JS There's no standard regulation that exist so that's why something that may works in chrome in a certain way, may or may not work in firefox

↳ Most of these browsers provide similar set of API's although there's no compulsion but most of them have similar set of functionalities



i) The browser based JS can't read your file system, but JS running inside node.js runtime, because node.js actually allows JS to run inside terminal

ii) Now since node.js is different than browsers, browser based functionality won't exist, because as we mentioned before node.js helps to run JS inside terminal, inside terminal we don't have any HTML so there's no point of having a document.getElementById, thats what it does it removes all the irrelevant API that are not required for you to interact to the system and provides some new set of API's that will be more relevant.

So, that's the concept of node.js that it's a runtime it provides a set of memory based feature, architectural feature, provides a lot of function we can use directly with JS, we won't find that in the documentation of JS but because we are running JS inside node environment we will get access to all of these

Features of Node.js

i) Open Source
ii) Brings raw JS features into our terminal so that can interact with OS based feature.

Difference between runtime and framework?

↳ Runtime : An environment that provides resources for a particular program or process to run
for ex - Here the program/process is JS so browsers or Node.js provides lots of resources to JS to run and actually access them

↳ framework : framework or library depending on what scale we are working on, if there's a small library then it's called library only or if a big library then it's a framework.

frameworks provide a bunch of resources and features using which we can actually build a lot of product and can solve a problem

for ex - Inside a lot of web apps we see signout and signin

and since it's so common that there are lot of libraries / framework for us to do plug-in play and implement an authentication system in our own project

So runtime actually empowers JS to run, and JS framework help us to use them as a tool in order to create other features