

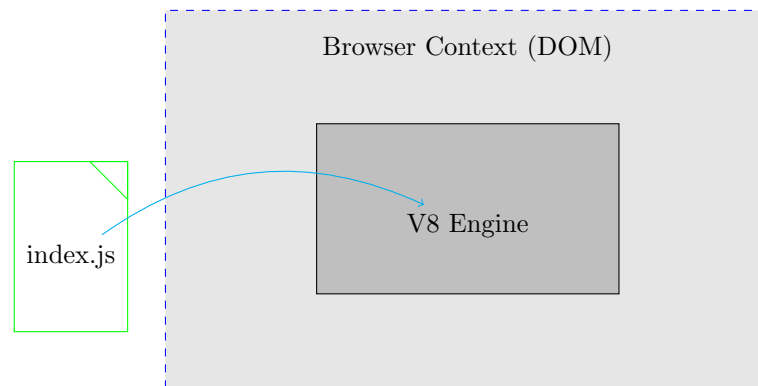
Node JS Basic Concepts

Rahul Jha

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1 What is Node js

- Node.js is the javascript runtime being wrapped over a larger context than just the DOM in browser.
- Earlier, the javascript engine was limited only inside the browser's context (DOM). Note that the engine has to have some context so that it can properly render the page. Later, some smart people used the same engine and gave it a "wing" so that it has access to the contexts outside the browser like OS, file system, memory, networks, I/O, e.t.c.



- The javascript file can access the window and document object which the browser provides.
- It is built on chrome's V8 javascript engine.
- So, in short, node js is a javascript runtime which leverages the v8 engine and provides richer context to the engine.

2 What is NVM

- Node version Manager (NVM) is a version management tool for node js which helps in maintaining different node version for different projects on local environment.
- Important commands :

```
wget -qO- https://raw.githubusercontent.com/nvm-sh/nvm/v0.37.2/install.sh | bash
```

```
echo 'export NVM_DIR=~/.nvm' >> ~/.zshrc
echo '[ -s "$NVM_DIR/nvm.sh" ] && . "$NVM_DIR/nvm.sh"' >> ~/.zshrc
```

```
source ~/.zshrc
```

```
command -v nvm
```

```
nvm install 16.19.0
```

```
nvm use 16.19.0
```

3 What are node modules

- Node modules are a packaged javascript code which can be re-used while working on a node js project by exporting the contents of that node module and using it in other modules/files.
- These can be built-in modules (http, url, path, fs, os), locally developed modules, or third party modules.
- Modules are loaded into a file by using **require** keyword

```
const someVariable = require('nameOfModule')
```

4 What is NPM

- NPM, although stands for Node Package Manager, actually does more than just packaging the compiled js.
- It has a centralised online registry of all the third-party published library. It is managed by organisation named **npm, Inc.**
- When a project is created with npm (command line utility), package.json file is generated which lists all the project dependencies and their versions.

5 What are callbacks

- Callbacks are nothing but functions which are invoked just after the completion of a task(most of the time, the task is asynchronous). Callbacks are passed as a parameter to the function that handles such tasks.
- Callbacks are used to do tasks immediately once an asynchronous function is done executing. If the async function produces a result, the result will be available on the callback as a parameter.

- ```
fs.readFile('input.txt', (err, data) => {
 if (err) return console.error(err)
 console.log(data.toString())
});
```

- In above code, readFile is an async function. It accepts a callback as the second parameter. And, in the callback method, two parameters are provided, err, and data. Once the async function is done executing, the flow returns to the callback and it can then handle the response or error or do some processing on the data received.