Javascript Technologies

1. Javascript
2. Require JS
3. Knockout JS
4. OJET (Oracle Javascript Extension Toolkit)
5. Node.js

Software requirement

1. VS Code
2. Node.js

Javascript Fundamentals: let, const, arrow functions, callback functions, event handling, template strings, promises, async/await, fetch, validations

Things to cover

* Template Strings
* Callbacks / Arrow functions
* Event Handling
* Promises
* Async/Await
* Validations
* Fetch

Javascript is mainly used to add effects to the front end applications, it can be used at the backend also to access file-systems, DB, or OS resources.

Front end JS technologies

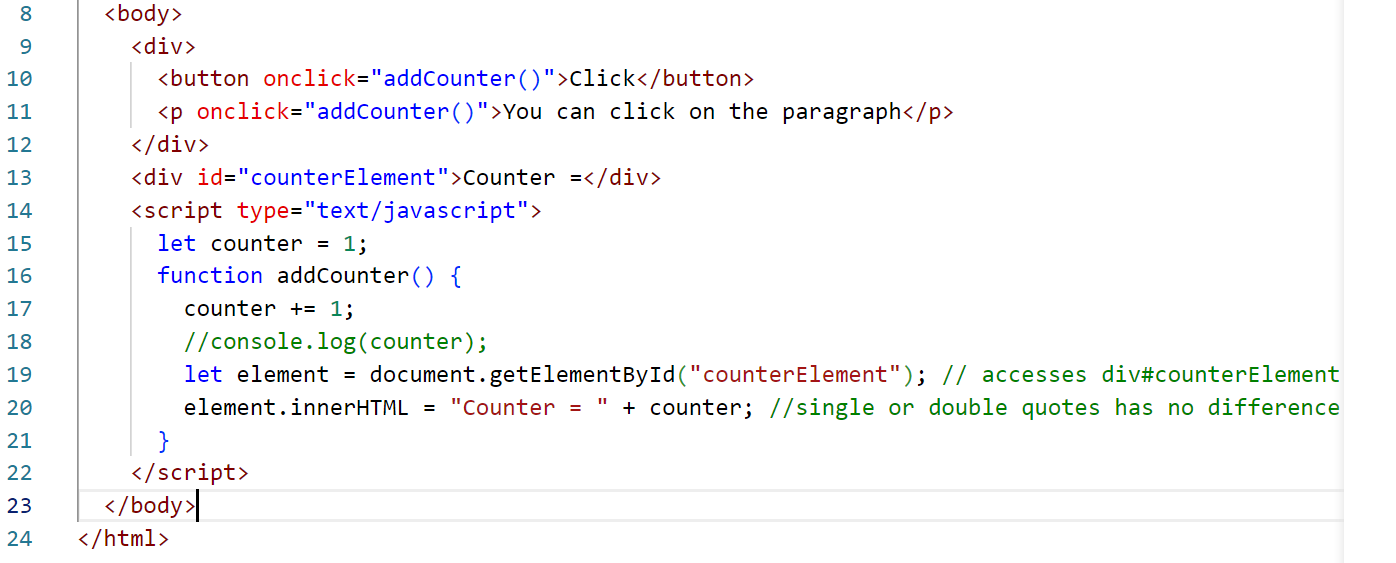
* Typescript
* React.js
* Vue.js
* Angular Framework
* Knockout.js
* OJET

Backend Javascript Technologies

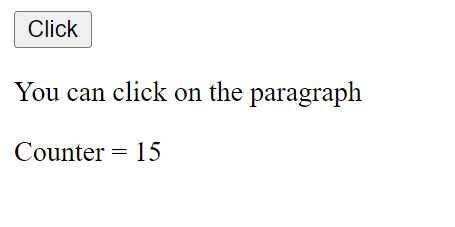
* Node.js: It is a runtime environment for Javascript to executed at the backend without browser

Lab1: Understand event handling

index.html



Output

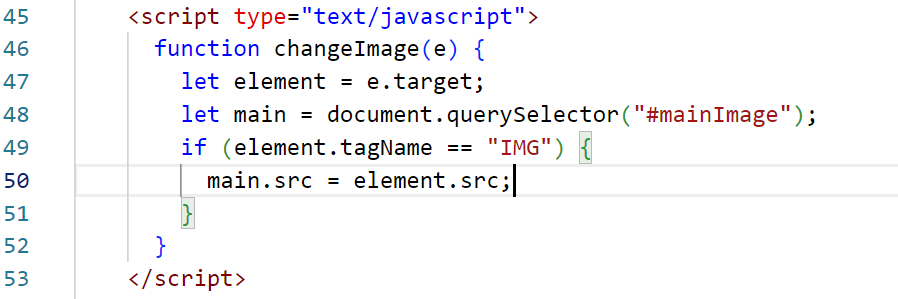


List of ways to access an element

1. document.getElementById(“id”)
2. document.getElementsByTagName(“tag”)
3. document.getElementsByClassName(“class”)
4. document.querySelector(“selector”); #id, .class, tag
5. event.target: To identify which element generated the event

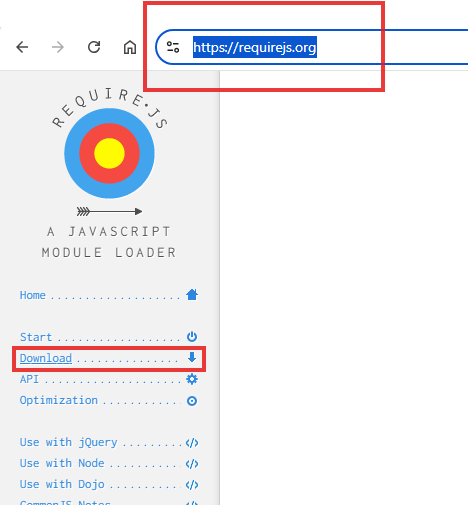
event.target helps you to identify on which element the event is generated





Require JS

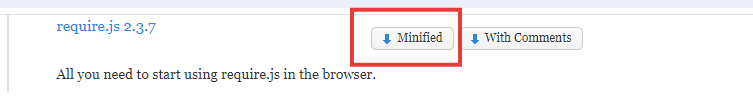
It is a Javascript & module loader, used to increase the speed of your application



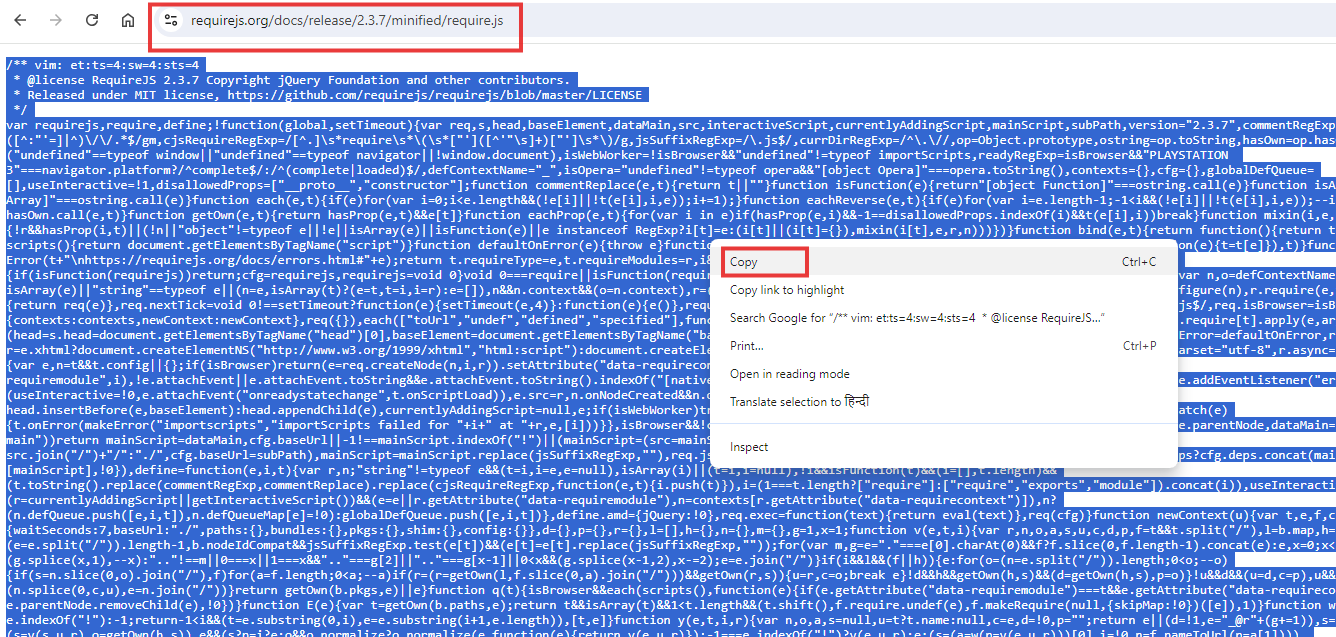
After you click on download select require.js



You need to click on minified button



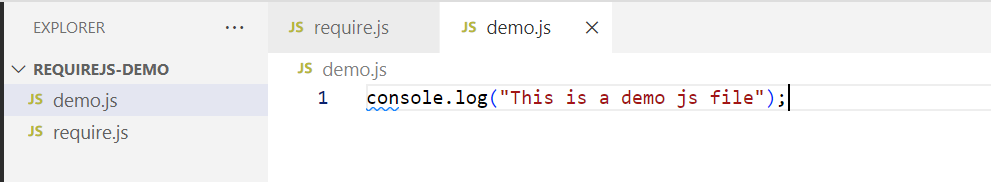
You get a javascript code that you need to copy to one js file



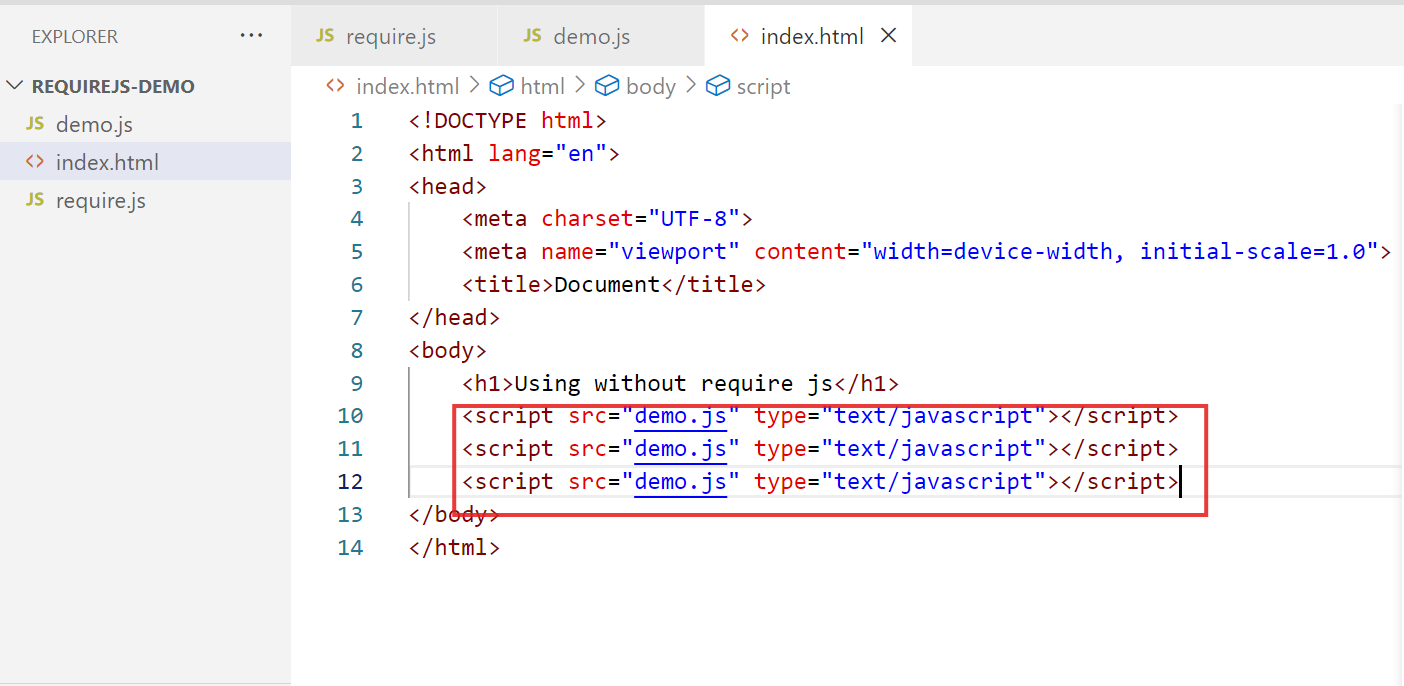
In VS Code you create require.js



Create a demo.js



Create an index.html



Output:



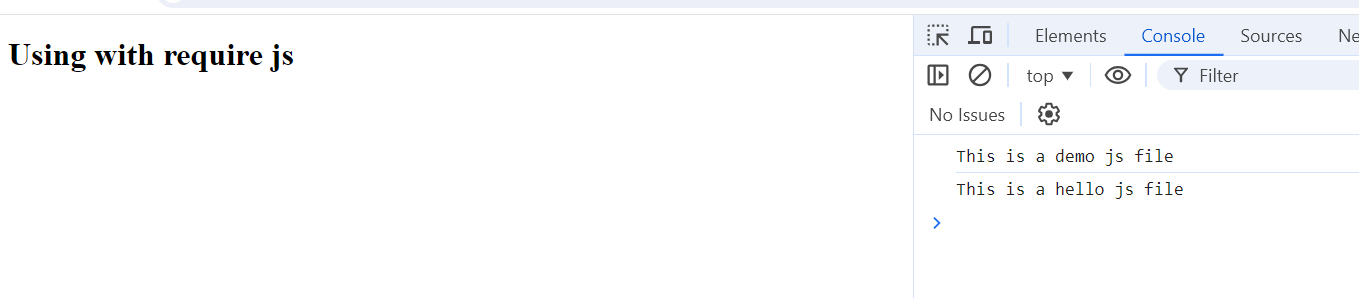
Note: Here the same script is loading more than once, if we use require.js this can be avoided, so that in an application when there are lot of Javascript files you are loading, it should be loaded only once in the browser to increase the speed of the execution.

How to use require js

1. Add the script of require.js
2. All the scripts you load in a require function instead of using script tag



Output:



Notice the require loading the javascript file however not more-than once, even if you repeat

List of technologies that use require

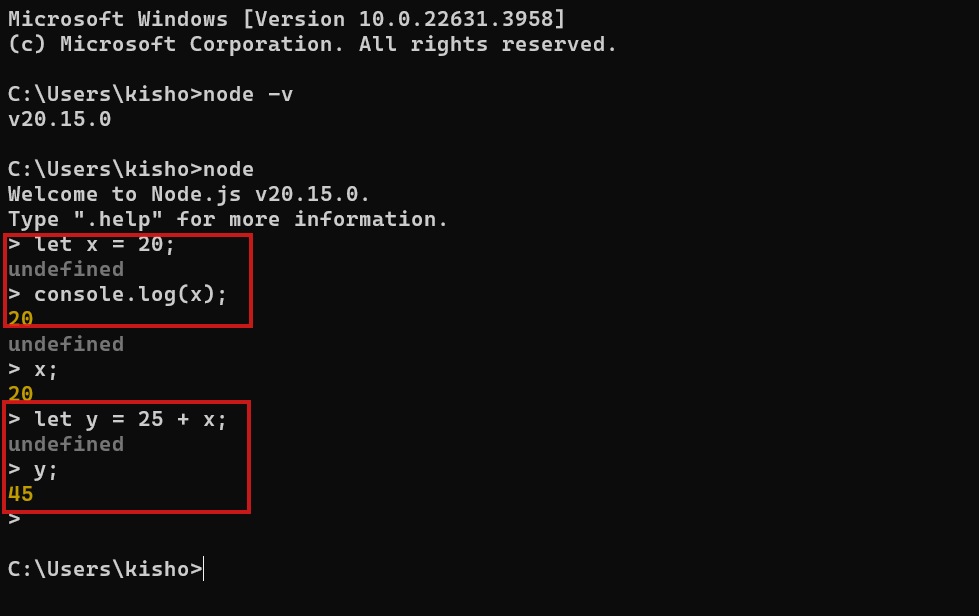
1. Node.js
2. Knockout.js
3. OJET
4. React
5. Angular Framework

Node.js

It is a Javascript runtime environment used to run the javascript code at the backend, so that you can do various operations like

1. creating servers
2. interacting with the OS
3. interacting with the File Systems
4. Networking
5. Interacting with the DB

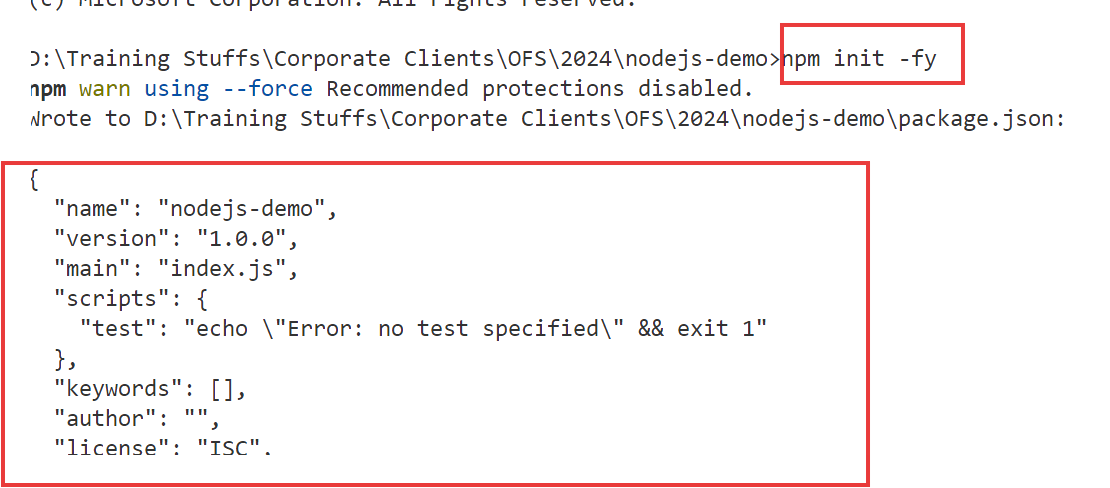
Node provides REPL (Read Eval Print Loop) to quickly write & run JS code



package.json: It is heart of node.js, it will have all the dependencies of the project, project meta-data, scripts to run the project

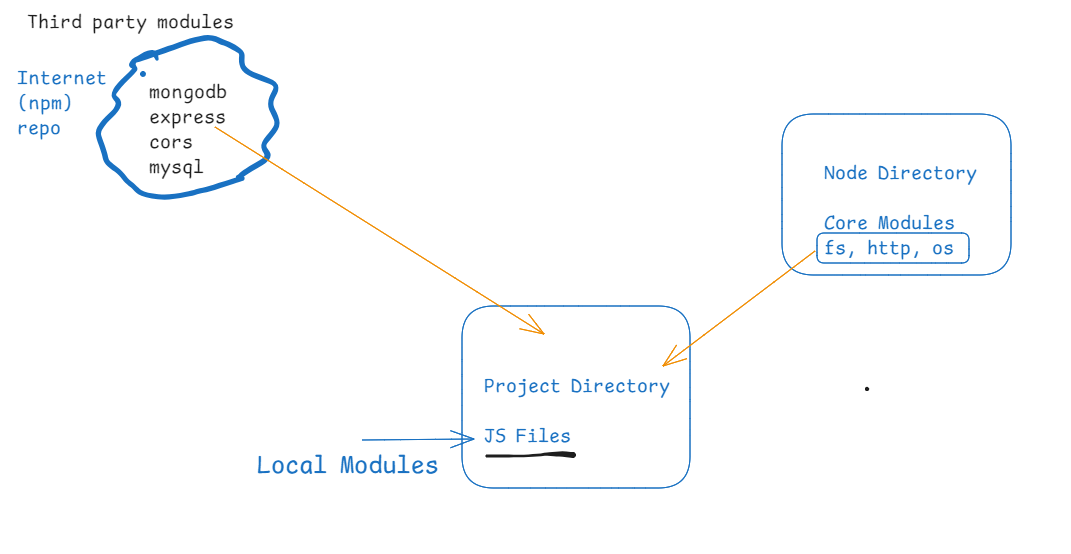
We must use a command to create package.json

npm init -fy



Node.js provides 3 types of libraries / modules

1. Core Module
2. Local Module
3. Third Party Module

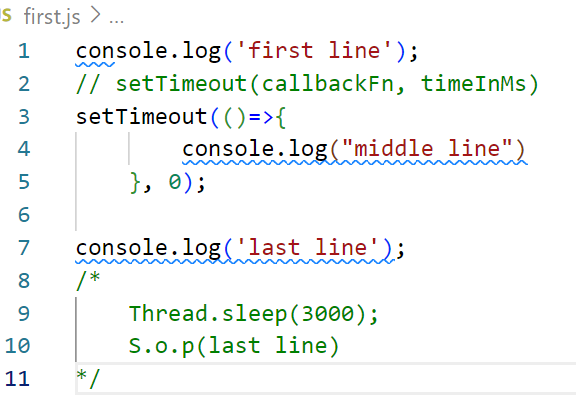


How to download the third party modules

npm install express cors // downloads express & cors libraries

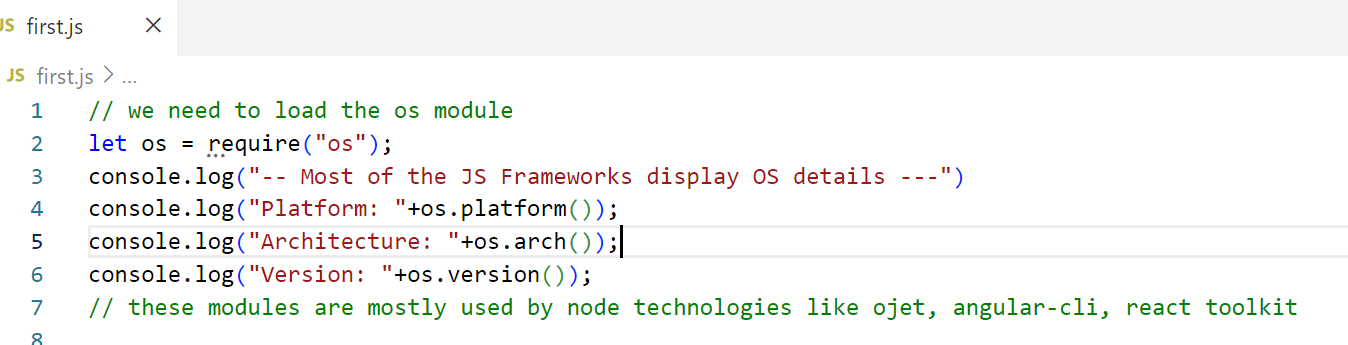
Is require inbuilt in Node.js ? : Yes

let fs = require(‘fs’);  
let os = require(‘os’);



Note: Thread.sleep() is not present in JS, it is present in Java, in Javascript you must use setTimeout for delays.

OS Modules



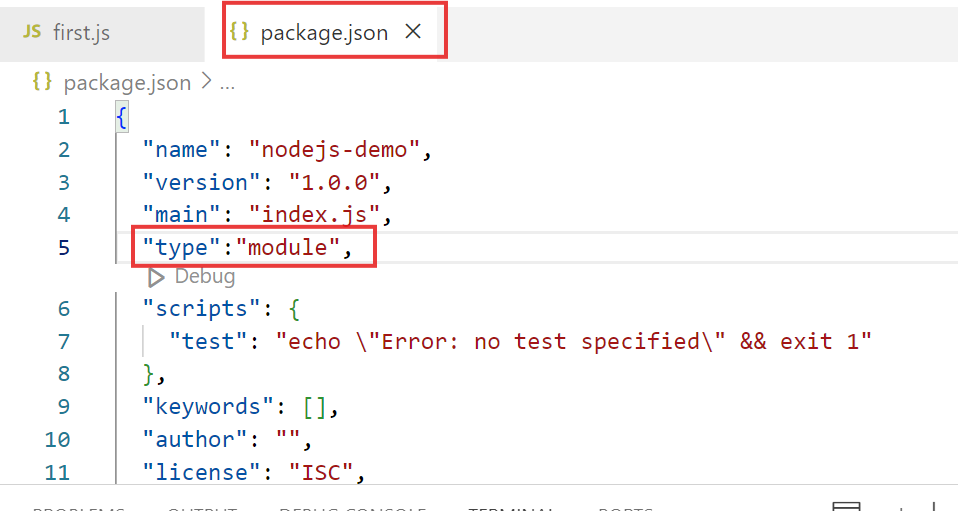
Using modern style import instead of require

ES 5 style:   
let os = require(“os”);

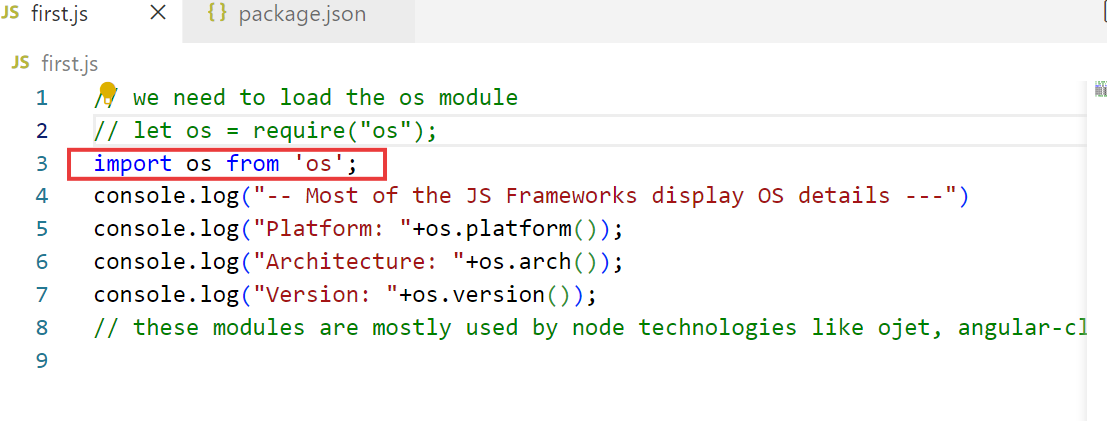
ES 6 style:

import os from ‘os’;

update package.json



Now on you can use import instead of require

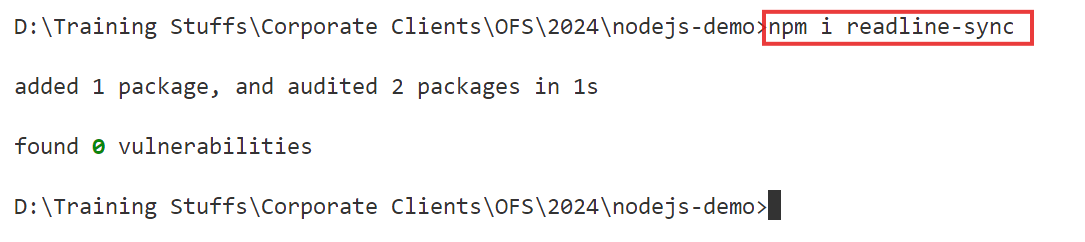


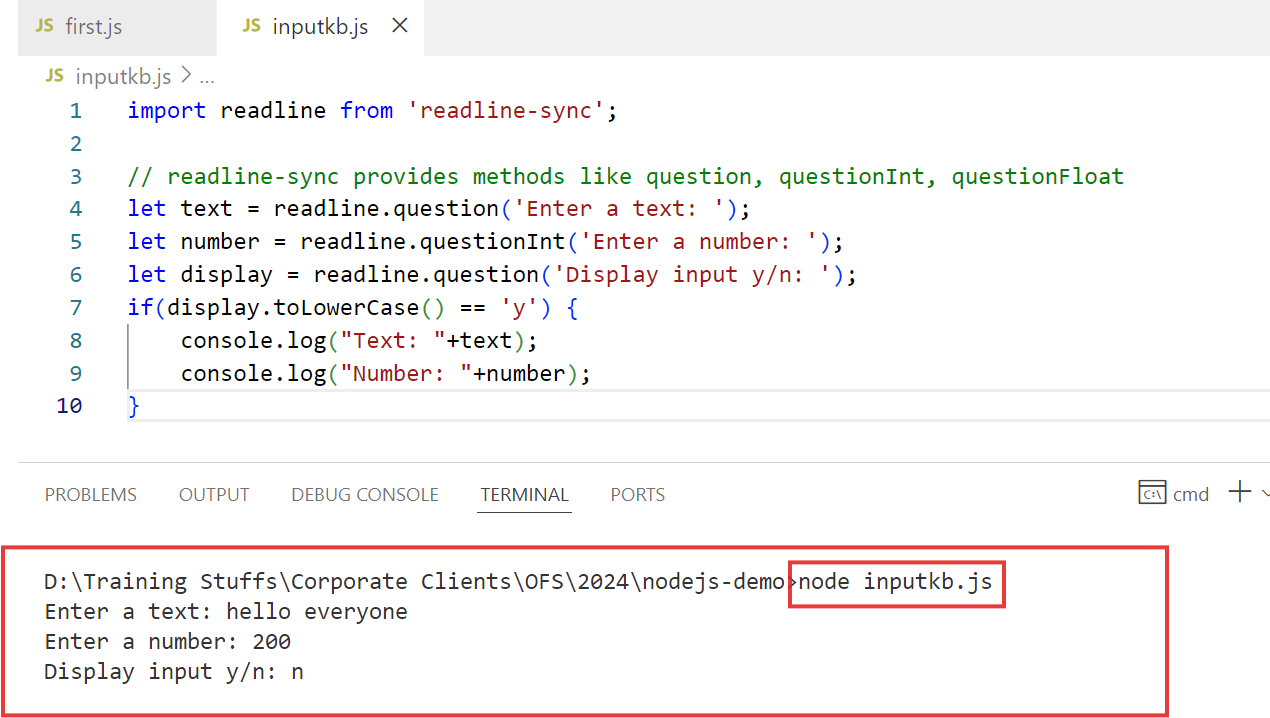
Let us use a third part module

readline-sync: It is used to take input from the keyboard in the terminal

Installing:

npm install readline-sync // we must download this inside the project folder that has package.json

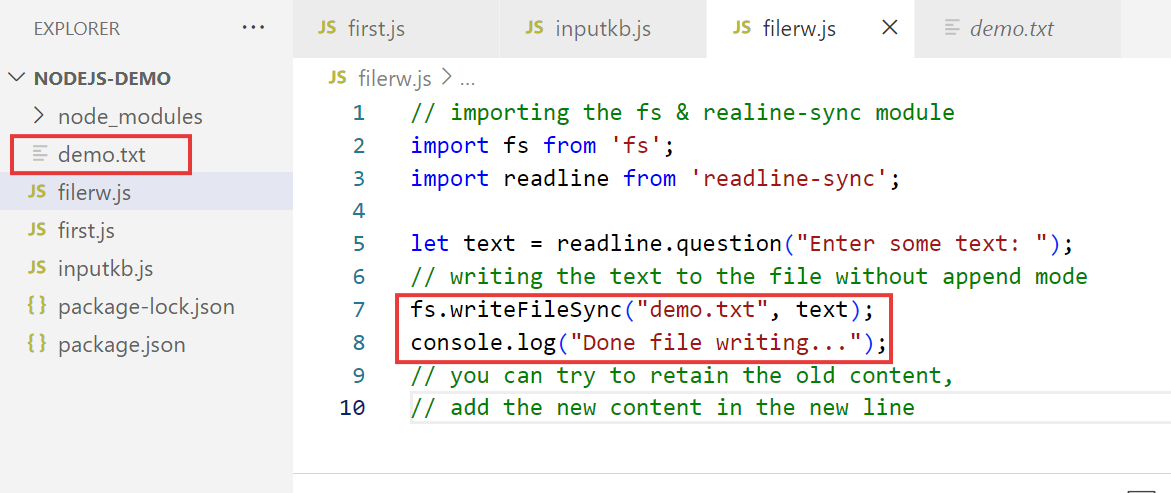




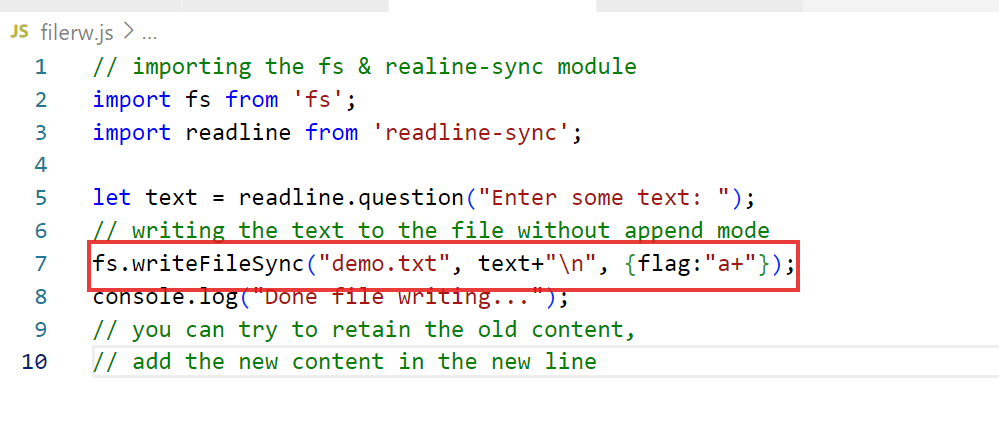
Try different functions like: questionNewPassword(..), questionEmail(…)

fs module: It provides methods to read & write files

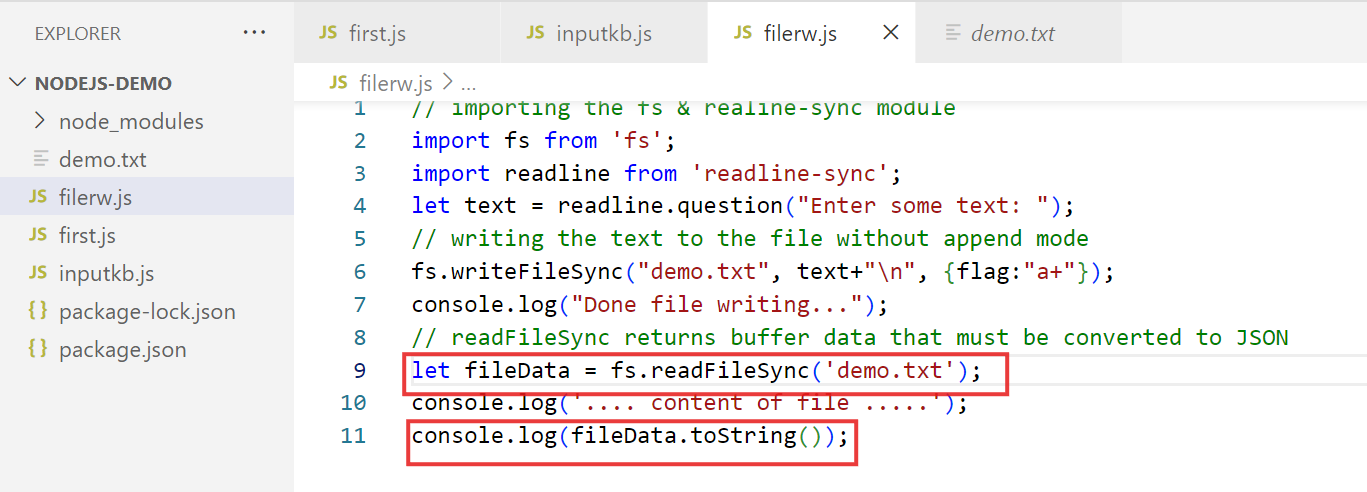
* readFileSync(“filename”)
* writeFileSync(“filename”, content) or writeFileSync(“filename”, content, {flag:”a+”})



appending to the old content



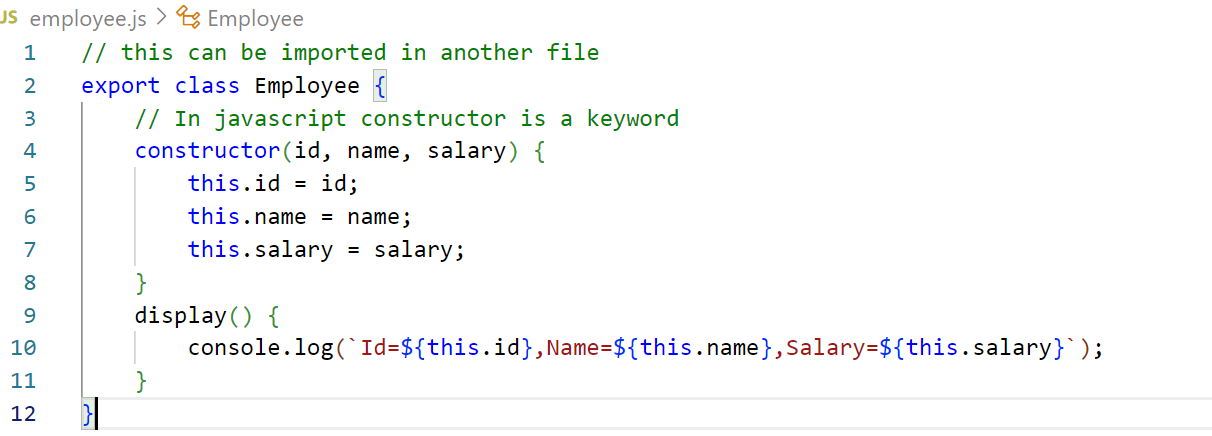
Reading the file content & converting the buffer to string



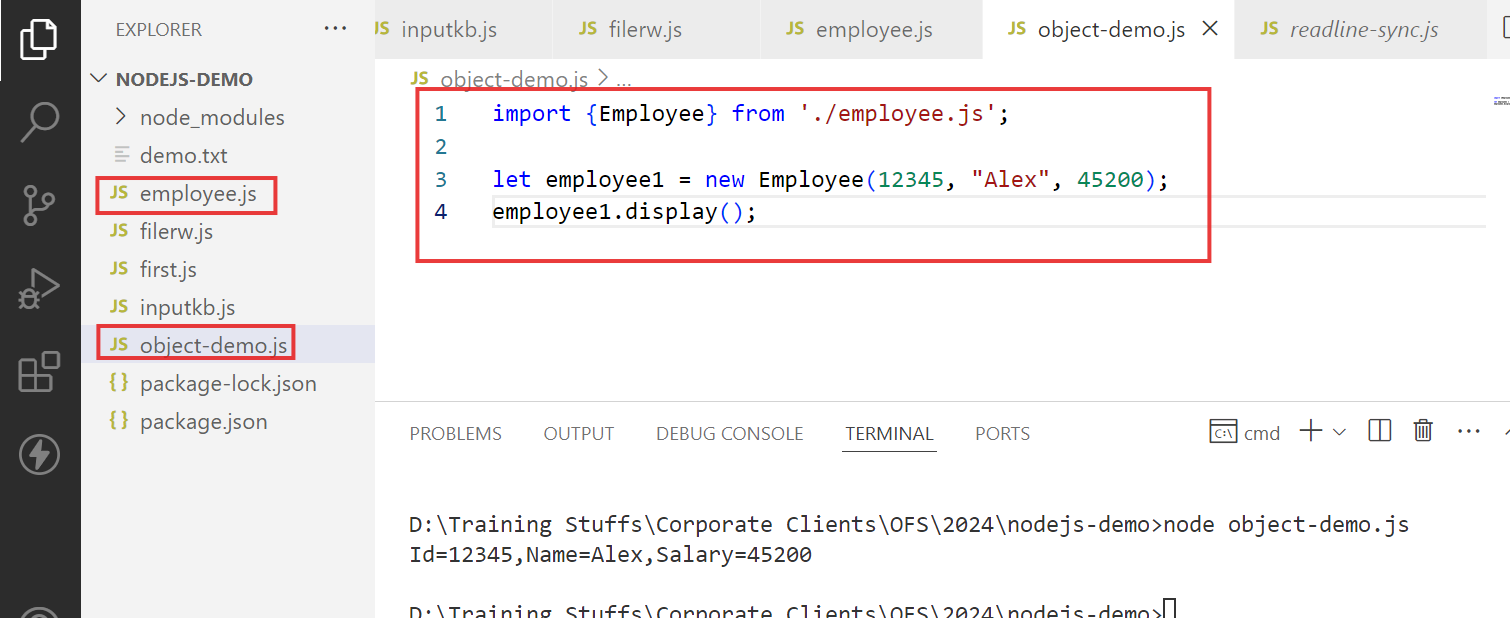
How to import Local module & write an object to a file in the form JSON

We can’t write javascript object to the file, we must convert the object to text i.e., JSON string

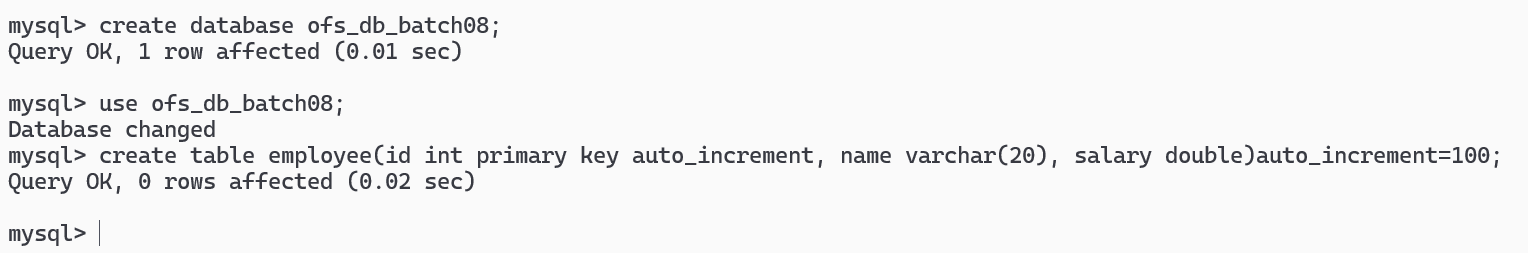
employee.js



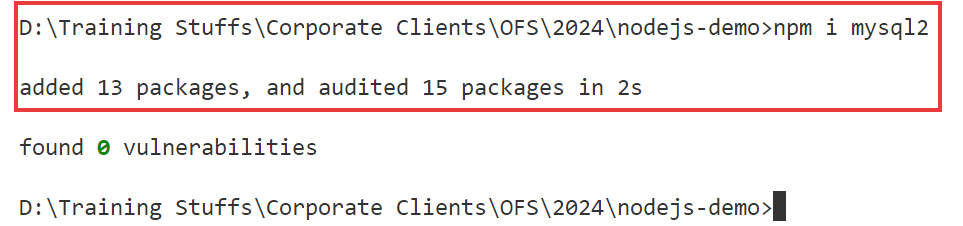
Note: The export can be written in 2 ways, the one which is written is a named export that can be imported with the same name i.e. import { Employee } from ‘employee.js’; there’s another type of export called default export, that can be imported in any name, its syntax doesn’t include { } i.e, import E from ‘employee.js’;

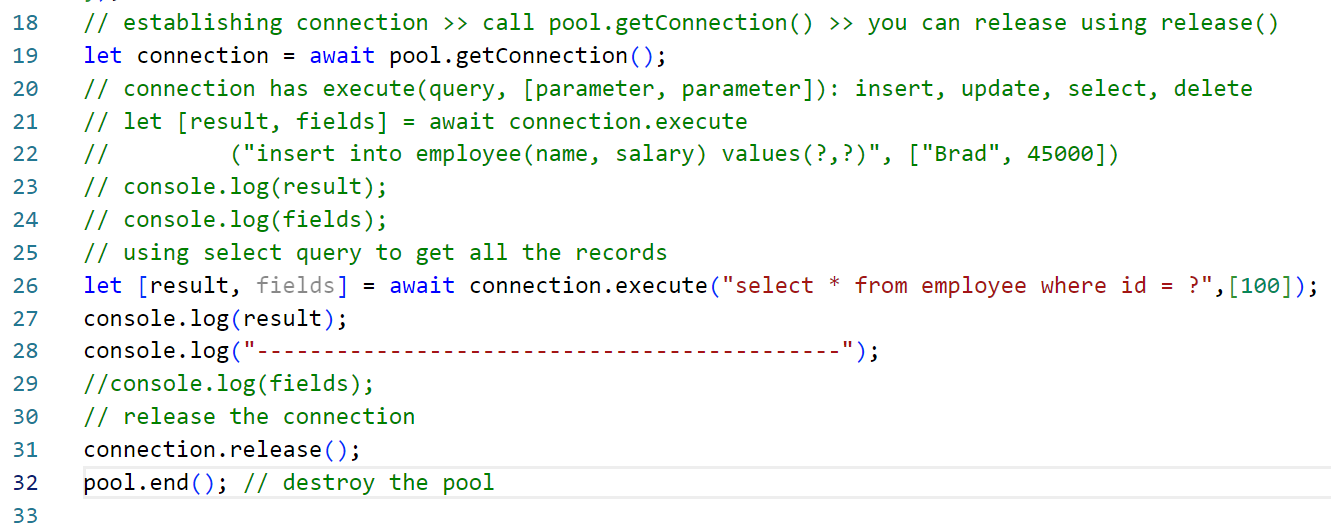
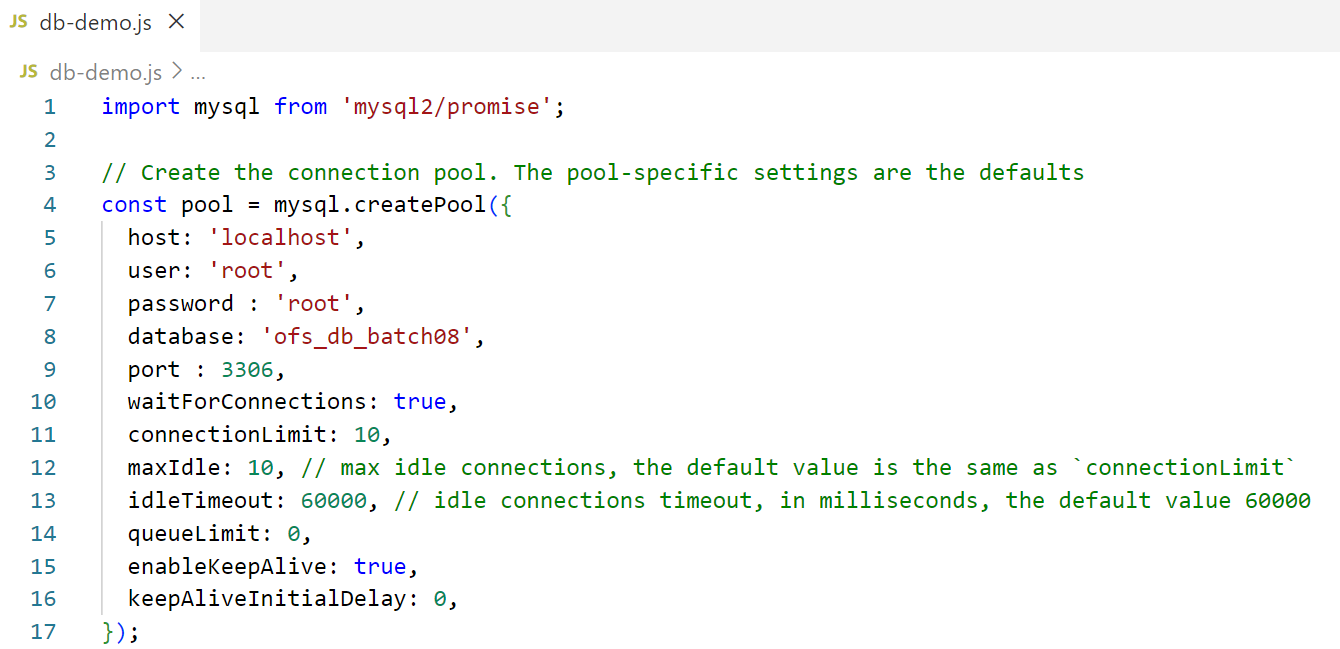


Create database table employee

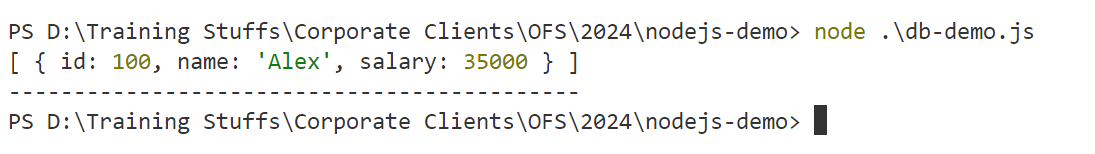


mysql2: lt is a library used to interact with mysql database





Output:



Summary:

* Require JS
* Node.js - REPL, Types of modules, fs, readline-sync, mysql2