**GitHub:** [**https://github.com/Mustafa-Roshdy/Node.Js-Task-Day1**](https://github.com/Mustafa-Roshdy/Node.Js-Task-Day1)

**1-What’s npm? And how to use it to install packages locally or globally?**

**npm (Node Package Manager)** is the default package manager for Node.js and used to install or manage packages in applications

npm install nodemon

npm install -g nodemon

**2-What is Node.js, and how is it different from a browser JavaScript runtime?**

**Node.js** => is JS runtime used to run JS every where .

used filesystem , networking , server and not access Dom or Bom in browser

**browser JavaScript** => used to run JS just in browsers Using Dom , Bom and can’t access fileSystem , networking like Nodejs

**3-Why is Node.js single-threaded, and how does it handle concurrency?**

Node.js using google v8 engine for JS synchronous which using single thread

Node.js using libuv which using workers to handle JS asynchronous methods

**4-What is the event loop in Node.js, and why is it important?**

Event loop => It continuously checks for pending events, callbacks, timers or async operations and executes them in order.

It enables asynchronous in Node.js to handle many requests without using blocking

**5-Explain the difference between blocking and non-blocking code in Node.js.**

Blocking Code (Synchronous) => execute code step by step , It blocks the event loop, meaning other tasks can’t run until it’s done.

Non-Blocking Code (Asynchronous) => execute code without waiting for the operation to finish and the event loop keeps running other tasks.

**6-What is the role of the V8 engine in Node.js**

V8 engine => JavaScript engine built by Google for Chrome to Compile JavaScript into machine code for execution.

**7-What’s the difference between CommonJS (require) and ES Modules (import) in Node.js?**

CommonJS (require) => Uses require() and module.exports for Synchronous loading better for server-side , used in Node.js before v14

ES Modules (import )=> Uses Uses import / export for Asynchronous loading better for network-based loading in browsers , used in Node.js after v14

**8-Explain what package.json is and why it is important.**

**package.json** => is the metadata file of a Node.js project.

Contains => Project name, version, description , Dependencies (for project package installed) , Scripts

Important for Enabling npm to install all dependencies easily.

**9-How do you create a custom module in Node.js and export**

Create a file (operations.js):

-------------------------

**function add(a, b) {**

**return a + b;**

**}**

**function multi(a, b) {**

**return a \* b;**

**}**

**module.exports = { add, multi };**

-------------------------

Use it in another file (index.js):

-------------------------

**const op = require("./operations");**

**console.log(op.add(2, 3));**

**console.log(op.multi(2, 3));**

-------------------------