📅 2-Week JavaScript + Node.js Weekday Study Plan for Freshers

🟢 Week 1: JavaScript Core (Mon–Fri)

Day 1 (Mon): JS Basics + Functions

- ✅ Topics:
    - Basics of JavaScript (variables, data types, operators, control structures, conditional statements)
    - Functions (declaration, expressions, arrow & class functions)
- 📖 Read:
    - MDN: JavaScript Guide → Basics
    - MDN: Functions
- 💻 Implement:
    - Build a simple calculator and tic tac toe.
    - Write a function to check palindrome, anagrams.

Day 2 (Tue): Arrays & Objects

- ✅ Topics:
    - Arrays: All methods (map, filter, reduce, etc.)
    - Objects: creation, access, loops, shallow & deep copy
- 📖 Read:
    - MDN: Arrays & methods
    - MDN: Working with objects
- 💻 Implement:
    - Student record manager (array of student objects) using all array prototypes covered till now.
    - Json stringify, Json parse, call apply bind.

Day 3 (Wed): All ES6+ Features

- ✅ Topics:
- Cover all ES6 topics (let, const, arrow functions, destructuring, template literals, RegExp, map, filter, etc)
- 📖 Read:
    - MDN: ES6 features
- 💻 Implement:
    - Use destructuring with nested objects.

o   Merge arrays and clone objects using spread.

Day 4 (Thu): Scope, Closures & Patterns

- ✅ Topics:
    - o   Scope (global, block, function)
    - o   Closures
    - o   JavaScript Patterns (Module pattern, IIFE)
- 📖 Read:
    - o   MDN: Scope and Closures
    - o   Eloquent JS Chapter: Functions as First-Class Citizens
- 💻 Implement:
    - o   Closure counter function.
    - o   Module pattern using IIFE for a task manager.

Day 5 (Fri): Asynchronous JS, Promises, Error Handling

- ✅ Topics:
    - o   Asynchronous JavaScript (setTimeout, setInterval)
    - o   Promises(allsettled, any, cancellable etc), callback, callback hell, promise chaining
    - o   Error handling (try/catch, .catch)
- 📖 Read:
    - o   MDN: Promises
    - o   JavaScript.info: Error Handling
- 💻 Implement:
    - o   Implement debouncing,
    - o   Wrap async logic in try/catch and handle rejection.

🟢 **Week 2: Node.js + Backend (Mon–Fri)**

Day 6 (Mon): Node.js Basics + NPM

- ✅ Topics:
- Event loops, execution(BTS), V8 engine and intro to nodejs
    - o   Node.js core (modules, file system)
    - o   Project setup / Folder structure

- 📖 Read:
  - Node.js docs → fs, path, module
  - npmjs.com → npm CLI basics
  - Understanding node modules.
- 💻 Implement:
  - Simple Node script to read/write file.
  - Setup package.json and install nodemo   n.

Day 7 (Tue): Express.js + Routing

- ✅ Topics:
  - Express.js setup
  - Routing: GET, POST, URL params, query strings
- 📖 Read:
  - expressjs.com → routing
  - Postman (API tool) – Install and execute all the api's here.
- 💻 Implement:
  - Create /hello, /user/:id, /search?q=
  - Log routes with middleware

Day 8 (Wed): Middleware + Templating

- ✅ Topics:
  - Express middleware (req, res, next)
  - JWT, Authentication, Auth middleware
  - Token in headers of all api's
- 📖 Read:
  - Express middleware docs
  - EJS/Handlebars basics
- 💻 Implement:
  - Create custom logger middleware.
  - Render dynamic user profile using EJS with authentication.

Day 9 (Thu): Databases

- ✅ Topics:
    - o Intro to database, Types of db, Uses of database
    - o SQL Vs NoSQL, ORM, Transactions,
    - o Intro to sql.
- 📖 Read:
    - o Postgresql
    - o REST API design guide
- 💻 Implement:
    - o Complete 50% exercises from sql bolt within 2 days.

Day 10 (Fri): Database & Project Setup

- ✅ Topics:
    - o Write schema's using ORM (Sequelize)
    - o Sequelize setup & Connecting to db from project
- 📖 Read:
    - o Sequelize
- 💻 Implement:
    - o Creating tables using sequelize
    - o Adding / Updating / Deleting columns & records from schema.
    - o Complete another 50% exercise from sqlbolt within Monday

Final Project: Backend

Building mentor / student assigning app – Crud operations

Expressjs

Nodemon

Sequelize

Postgres connectivity

Rest APIs

JWT validation

Transactions

Table relationships - Primary key & foreign key

Swagger documentation