



Download Roadmap

1. Prerequisites

- Basic HTML, CSS, JavaScript
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JavaScript ES6+ Concepts

- let, const
- Arrow Functions
- Template Literals
- Destructuring
- Spread & Rest Operators
- Promises and Async/Await
- Modules (import/export)
- Array Methods (map, filter, reduce)

2. Node.js Fundamentals

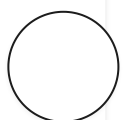
- What is Node.js
- How Node.js works (Event Loop, Non-blocking I/O)
- Node.js Architecture
- Installing Node.js and npm
- Running JavaScript in Node.js (node filename.js)

3. Core Modules

- fs (File System)
- path
- http / https
- os
- events
- util
- stream
- readline

npm (Node Package Manager)

- What is npm



- package.json and package-lock.json
- Installing local and global packages
- Semantic Versioning
- npm scripts (start, dev, build, test)

5. Module System

- CommonJS vs ES Modules
- require and module.exports
- import and export (ESM)
- Creating and using custom modules

6. Express.js Framework

- Introduction to Express.js
- Setting up a basic server
- Middleware (built-in, third-party, custom)
- Routing
- Handling requests and responses
- Error handling
- Serving static files

7. RESTful API Development

- REST principles
- Creating CRUD APIs
- Request parameters, query strings, and body
- Status codes and response formats (JSON)
- Postman / Thunder Client usage

8. Working with Databases

- Connecting to MongoDB using Mongoose
- MongoDB CRUD operations
- Schema and models
- Validation
- Connecting to PostgreSQL (optional)
- Using ORM/ODM (Mongoose, Sequelize, Prisma)

Authentication and Authorization

- User authentication basics

- JWT (JSON Web Tokens)
- Sessions and cookies
- Hashing passwords with bcrypt
- Role-based access control

File Uploads and Handling

- Handling file uploads with Multer
- File validation
- Saving files to disk or cloud (Cloudinary, S3)

11. Testing and Debugging

- Unit testing with Jest or Mocha
- Integration testing
- Supertest for API testing
- Debugging with Node.js and VS Code

12. Advanced Topics

- Event Emitters
- Streams and Buffers
- Child Processes
- Worker Threads
- Clustering

13. Building and Deployment

- Environment variables with dotenv
- Logging (winston, morgan)
- Linting and formatting (ESLint, Prettier)
- Building production-ready apps
- Using PM2 for process management
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Deploying to platforms like:

- Render
- Railway
- Vercel (backend functions)
- VPS (DigitalOcean, etc.)
- Docker & containers

14. Optional & Ecosystem

- WebSockets with Socket.IO
- GraphQL with Apollo Server
- Rate limiting and security (helmet, cors, express-rate-limit)
- Queue processing (Bull, Redis)
- CI/CD basics
- Monorepos (Nx, Turborepo)