

Mobile Back End Development with Node and Express

Duration 4 days

Prerequisites: Knowledge of JavaScript

Day 1 – Introduction to Node.js & Express: Building Your First REST API

Theory (2.5 hrs)

- What is Node.js? Use cases for mobile backend
- Node.js Architecture (Event Loop, Call Stack, Non-blocking I/O)
- What is Express? Features and Ecosystem
- RESTful API concepts (Resources, Verbs, Status Codes)
- Project structure best practices

Hands-on (5.5 hrs)

- Install Node.js and initialize a project (npm init)
 - Install Express, create your first API server
 - Setup routes: GET, POST endpoints (/status, /ping)
 - Use nodemon for auto-restart
 - Build and test APIs using Postman
 - Add error handling middleware and organize routes using Express Router
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Day 2 – Routing, Middleware, and Data Handling

Theory (3.0 hrs)

- Express Router: Route grouping and modularization
- Middleware: types, order of execution
- Parsing incoming data (body-parser, JSON, URL-encoded)
- HTTP request/response lifecycle
- Introduction to API validation & basic error handling

Hands-on (5.0 hrs)

- Create modular routes: /users, /auth
 - Implement custom middleware (logger, validator)
 - Handle JSON and form data in requests
 - Create a basic user registration/login flow (without database)
 - Return meaningful status codes and error messages
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Day 3 – MongoDB Integration & Secure Authentication

Theory (3.0 hrs)

- Introduction to NoSQL and MongoDB
- Overview of MongoDB Atlas and Compass

- Using Mongoose: schema, model, CRUD operations
- Authentication overview: Password hashing, JWT
- Securing APIs with middleware, CORS, Helmet

Hands-on (5.0 hrs)

- Connect to MongoDB Atlas using Mongoose
 - Define User model with Mongoose schema
 - Create registration endpoint with hashed password (using bcryptjs)
 - Create login endpoint, issue JWT tokens
 - Implement token-based authentication middleware
 - Protect routes like /profile, /dashboard using auth middleware
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Day 4 – API Features for Mobile + Deployment & Final Project

Theory (2.5 hrs)

- Structuring scalable mobile backend APIs
- Pagination, filtering, sorting for mobile responses
- Deployment options (Railway, Render, Vercel, Heroku)
- Managing environment variables securely
- Introduction to versioning APIs (/api/v1)

Hands-on (5.5 hrs)

- Add pagination and filtering to a /tasks endpoint
- Secure endpoints using JWT and role-based access (admin vs. user)
- Create .env config for secrets and DB connections
- Deploy project to Render/Railway with GitHub integration
- Final Project:
 - Build a mobile task manager backend
 - Features: user auth, CRUD on tasks, filtering, protected routes