

Node Integration with Angular

Prerequisites: Knowledge of Angular Development

Week 1: Bootstrap and Integration with Angular

Day 1: Introduction to Bootstrap

- Overview of Bootstrap framework
- Grid system and layout design
- Responsive design principles
- Working with Bootstrap components (e.g., Navbars, Buttons, Modals)
- Lab: Building a responsive webpage using Bootstrap

Day 2: Advanced Bootstrap Features

- Bootstrap utilities and custom classes
- Customizing Bootstrap with SCSS
- Integrating Bootstrap with Angular CLI
- Installing and configuring Bootstrap in an Angular project
- Lab: Create a custom Bootstrap theme for an Angular app

Day 3: Angular Components and Bootstrap Integration

- Introduction to Angular components
- Using Bootstrap classes and components within Angular templates
- Creating reusable Angular components styled with Bootstrap
- Lab: Developing a multi-page Angular app using Bootstrap for styling

Day 4: Bootstrap Forms and Angular Reactive Forms

- Bootstrap form components and validation
- Creating and managing Angular reactive forms
- Custom form validation in Angular
- Lab: Create a complex form in Angular styled with Bootstrap, including custom validation

Day 5: Bootstrap Themes and Angular Directives

- Applying and customizing Bootstrap themes in Angular

- Using Angular directives to manipulate Bootstrap components dynamically
- Lab: Build a theme switcher in Angular using Bootstrap themes and directives

Week 2: Node API Development with PostgreSQL

Day 6: Introduction to Node.js and PostgreSQL

- Overview of Node.js architecture
- Setting up Node.js and Express.js
- Introduction to PostgreSQL and pgAdmin
- Connecting Node.js with PostgreSQL using pg package
- Lab: Set up a PostgreSQL database and connect it to a Node.js app

Day 7: REST API Fundamentals

- RESTful API principles and HTTP methods (GET, POST, PUT, DELETE)
- Creating a simple REST API with Express.js
- Lab: Build a basic CRUD API with Node.js and PostgreSQL

Day 8: Advanced API Development

- Middleware in Express.js (Authentication, Logging, CORS)
- Handling errors and request validation
- Lab: Implement request validation and error handling in your Node.js API

Day 9: User Authentication and Authorization

- Implementing JWT-based authentication in a Node.js API
- Securing API routes with role-based access control
- Lab: Build authentication and authorization into your Node.js API

Day 10: Optimizing and Testing Node.js APIs

- Query optimization techniques in PostgreSQL
- Unit and integration testing with Mocha/Chai for Node.js APIs
- Lab: Optimize your API queries and implement tests for critical endpoints

Week 3: Git, GitHub, and Deployment

Day 11: Git Basics and Version Control

- Introduction to Git and version control concepts
- Git workflow (clone, branch, commit, merge, push, pull)
- Setting up repositories in GitHub
- Lab: Create a Git repository, commit changes, and push to GitHub

Day 12: Collaboration with GitHub

- Branching strategies (Feature branching, GitFlow)
- Working with pull requests and code reviews on GitHub
- Handling merge conflicts and resolving issues
- Lab: Collaborate on a group project using GitHub and pull requests

Day 13: Introduction to Deployment

- Overview of deployment pipelines and strategies
- Setting up a Node.js app for production
- Using PM2 for process management and monitoring
- Lab: Deploy a Node.js API to a local server using PM2

Day 14: Web Server Configuration with NGINX/Apache

- Configuring NGINX and Apache as reverse proxies for Node.js applications
- SSL/TLS certificates and HTTPS configuration
- Lab: Configure NGINX/Apache to serve your Node.js API securely

Day 15: Cloud Hosting and Continuous Deployment

- Introduction to cloud hosting platforms
- Setting up automatic deployments with GitHub Actions or Jenkins
- Lab: Deploy your Node.js API to a cloud platform and set up a CI/CD pipeline