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Certificate Course in Full-stack Development(React.js + Python Django)

1: Web & JavaScript Fundamentals

Goal: Build a solid foundation in frontend technologies.

Topics: • HTML5 & Semantic Tags • CSS3 (Box Model, Flexbox, Grid) • JavaScript (variables, functions, arrays, loops) • Modern JS (ES6+): arrow functions, destructuring, spread/rest • DOM manipulation and event handling • Working with JSON & Fetch API Tools: VS Code, Chrome DevTools, Git/GitHub

2: React.js Fundamentals

Goal: Build dynamic user interfaces with React.

Topics: • React project setup (Vite / CRA) • JSX syntax, components, props • State management with useState • Side effects with useEffect • React Router v6+ • Controlled forms and validation • Lifting state, conditional rendering • Context API / Redux Toolkit Tools: React.js, Axios, React Router, VS Code

3: Python & Django Basics

Goal: Master core Python skills and basic Django usage.

Topics: • Python basics: data types, functions, control flow, OOP • Virtual environments and pip • Django project & app structure • MTV architecture (Model-Template-View) • URL routing, views, and templates • Admin panel customization Tools: Python 3.x, Django, VS Code / PyCharm

4: Django Advanced + REST API Development

Goal: Build and expose APIs with Django REST Framework (DRF).

Topics: • Models, migrations, and ORM queries • Serializers and ModelSerializers • Function-based & class-based views • Routers and ViewSets • Authentication (Token / JWT) • CORS handling for React frontend Tools: Django REST Framework, SQLite / PostgreSQL, Postman

5: Full-stack Integration

Goal: Connect frontend and backend to form a full web application.

Topics: • Consuming Django REST APIs in React with Axios • Managing API tokens & headers • Protected routes and auth flow in React • State updates and UI sync with backend • Error handling and user feedback Tools: Axios, JWT, React Router, Django CORS headers

6: Testing, CI/CD & Deployment

Goal: Test and deploy full-stack applications.

Topics: • Unit testing (React: Jest / RTL, Django: unittest / pytest) • API testing with Postman / Swagger • Dockerizing Django and React • GitHub Actions for CI/CD • Deployment: Netlify (frontend) + Render / Railway / AWS (backend) Tools: Docker, GitHub Actions, Swagger, Netlify, Railway, Nginx, Gunicorn