

Step 1: Requirement Analysis and Environment Setup

- Understand project requirements and define user roles: Admin, Teacher, Student.
- Identify technology stack: HTML/CSS/JS for frontend, Node.js or Django for backend, MySQL or PostgreSQL for database.
- Install necessary tools: code editor (VS Code), Git, database client, backend framework, and dependency managers like npm or pip.
- Setup initial project repositories and initialize source control.

Step 2: Database Design and Creation

- Design entity relationship diagram (ERD) with primary and foreign key relationships.
- Create tables: users, courses, sections, enrollments, payments, progress, certificates.
- Normalize database to reduce redundancy.
- Create the database schema using SQL scripts and set up initial test data.

Step 3: Backend Development

- Set up backend project structure.
- Implement RESTful API endpoints:
 - /register, /login for authentication
 - /courses for managing courses
 - /enroll for student enrollments
 - /progress for tracking progress
 - /certificates for issuing completion certificates
- Connect backend to the database and implement input validation.
- Handle authentication using JWT or session tokens.

Step 4: Frontend Development

- Choose a frontend framework such as React, Angular, or plain HTML/CSS/JS.
- Develop UI pages:
 - Login/Register Page
 - Student Dashboard
 - Course Browsing and Filtering
 - Course Content Player
 - Certificate Download
- Use API calls to fetch and post data from/to backend.
- Ensure responsive and accessible UI.

Step 5: Integration and Testing

- Integrate frontend and backend using RESTful APIs.
- Perform testing:
 - Unit testing of backend logic
 - API testing using Postman
 - UI testing for usability and responsiveness
- Conduct bug fixing and QA review.
- Validate all business logic flows.

Step 6: Deployment

- Deploy backend using platforms like Heroku, AWS, or DigitalOcean.
- Deploy frontend using Vercel, Netlify, or traditional hosting.
- Use CI/CD pipelines for continuous integration and automated deployment.
- Set up environment variables and production configurations.

Step 7: Maintenance and Future Enhancements

- Monitor server performance and user behavior.
- Collect feedback from users (students, teachers, admins).
- Implement regular updates and security patches.
- Plan future features such as live classes, chat integration, and advanced analytics.

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Welcome, Admin



5

COURSES

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120

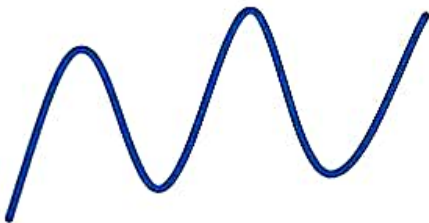
STUDENTS

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ENROLLED
STUDENTS

Course Progress



Recent Activity

- John Doe enrolled in web Development
- Jane Smith completed Data Science
- New course Marketing added
- John Doe purchased Graphic Design