

# Mrunal Arvind Bhosale

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## Project Portfolio

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### E-Learning Hub (HTML, CSS, JavaScript, MySQL)

- This project is an online single learning platform for engineering students where they can access syllabus, read notes, download reference books and textbooks, watch YouTube lectures related to topics, and practice from previous year question papers. It also provides resources for competitive exams like GATE with relevant study materials.

- **Problem Statement:** Engineering students face difficulty in accessing all study resources at one place.

- **Objective:**

- Provide a centralized platform for syllabus, notes, books, lectures, and question papers.

- Help students prepare for both academic exams and competitive exams.

- **Approach:** Developed a responsive web platform using HTML, CSS, and JavaScript for the front-end, with MySQL as the database for managing resources. Integrated YouTube links for lectures and structured storage for notes and books.

- **Key Features:**

- Year-wise and department-wise syllabus navigation.

- Downloadable notes, reference books, and previous year papers.

- YouTube lectures linked with topics for better understanding.

- Competitive exam preparation resources (e.g., GATE).

- **Tools Used:** HTML, CSS, JavaScript, MySQL.

- **Outcomes:**

- Simplified access to engineering resources in one platform.

- Helped students prepare efficiently for exams and competitive tests.

## **Gamified Coding Education App (In Progress) (Flutter, Spring Boot, Firebase)**

This project is focused on transforming the way beginners learn programming by making it fun, engaging, and rewarding. Traditional coding tutorials often fail to hold learners' attention, causing many to drop off early. The app introduces a gamified approach where users learn through interactive challenges, unlock rewards, and compete with peers on leaderboards. The aim is not only to teach coding but also to build a learning ecosystem that encourages consistency, collaboration, and enjoyment while mastering technical skills.

- **Problem Statement:** Beginners struggle to stay motivated due to lack of engagement in traditional learning methods.

- **Objective:**

- Make programming **fun and interactive** with gamification.
  - Provide structured coding pathways for skill development.

- **Approach:** Designed a cross-platform app with **Flutter** front-end, **Spring Boot** backend, and **Firebase** storage. Integrated gamified mechanics like points, levels, and challenges to sustain learner interest.

- **Key Features:**

- Interactive lessons, coding quizzes, and live challenges.
  - Leaderboards, badges, and progress tracking for motivation.
  - Real-time code execution environment built-in.
  - Admin panel to manage users, courses, and challenges.

- **Tools Used:** Flutter, Spring Boot, Firebase, REST APIs.

- **Outcomes:**

- Early tests show high engagement among students.
  - Aims to help learners build **practical coding skills** in an enjoyable way.