Student Q&A Platform — Project Report

---

1. Introduction

The Student Q&A Platform is a full-stack web application engineered to support and enhance student learning, collaboration, and career development. Built using the powerful MERN stack, it creates an interactive space for students to ask questions on key technological and academic topics—web development, machine learning, AI, internships, placements, and competitions. The platform's flexible architecture enables easy content sharing, including media attachments and achievements, allowing for a richer conversation and knowledge transfer among peers.

---

2. Motivation

- Solving Real Student Problems:
  Academic and career queries often go unanswered due to lack of a common, accessible peer-driven platform. Traditional forums are cluttered, generic, or do not support media sharing and achievements.
- Encouraging Collaborative Learning:
  Students learn best from each other. By enabling anyone to answer, comment, and upvote, the platform leverages the collective intelligence and experience of the student community.
- Recognizing Achievements:
  Every student's journey includes internships, placements, project wins, and competitions. Highlighting these on the platform inspires others and builds a record of accomplishment.
- Seamless Media Sharing:
  Explanations are more powerful with diagrams, code screenshots, or related documents. Allowing media uploads and sharing enriches the learning process.
- Practical, Modern Skills:
  Building and using this platform gives contributors hands-on experience with leading web technologies and cloud services—a vital skillset for tech placements and real-world projects.

---

3. Technology Stack (Expanded)

Frontend

- React (with Vite): Fast, component-based UI for smooth, dynamic experience; Vite optimizes hot-reload and developer speed.
- MUI (Material UI): Ensures clean, responsive, and accessible interface design.
- React Router: Declarative routing for multi-page navigation.
- Axios: Robust HTTP client for secure, reliable API communication, handling cookies and media uploads.

Backend

- Node.js: JavaScript runtime for fast server-side operations.
- Express: Lightweight framework for defining REST endpoints (questions, answers, users, auth, media).
- Passport.js & Google OAuth: Secure authentication, allowing students to sign in with Google for privacy and ease.

Database

- MongoDB Atlas: Cloud-hosted NoSQL database storing users, questions, answers, tags, and achievements. Flexible schema enables rapid MVP and growth.

Cloud Media

- Cloudinary: Handles media uploads (images, files), delivering secure URLs for embedded sharing in questions and answers.

Infrastructure

- CORS with Credentials: Ensures secure cookie-based sessions between Vite frontend (localhost:5173) and Node backend (localhost:5000).
- .ENV-based Config: Keeps credentials and URLs secure/flexible during development and deployment.

---

4. Key Features

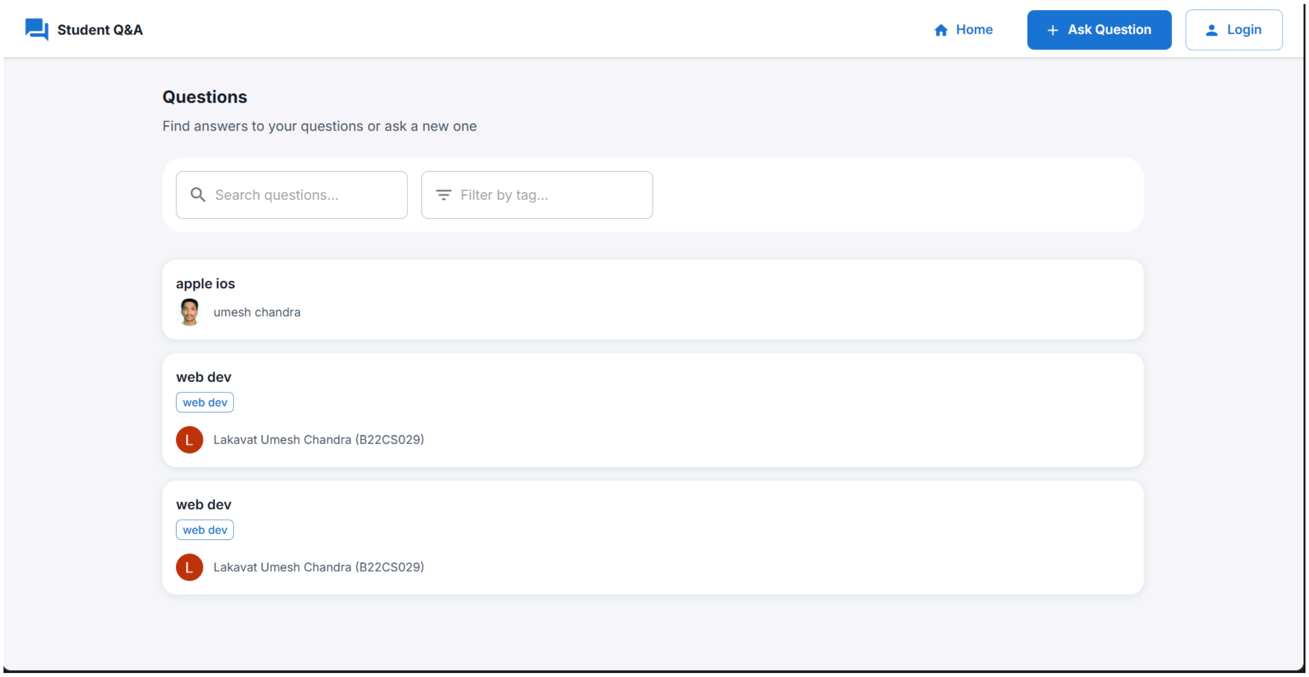
- Google OAuth Login: Quick, secure student sign-in using institutional or personal Google accounts.
- Ask Question: Post new queries with title, description, custom tags, and attach files/screenshots.
- Question Feed: Browse, search, or filter recent questions by tag or keyword; visually highlighted answers help learning.
- Answers and Upvotes: Community answers with file uploads and upvoting for best solutions.

- Profiles and Achievements: User profiles display badges/achievements, helping students to showcase and build reputation.

---

5. Workflow and User Experience

1. Login: Authenticate via Google for secure, personalized experience.



Questions

Find answers to your questions or ask a new one

apple ios

umesh chandra

web dev

web dev

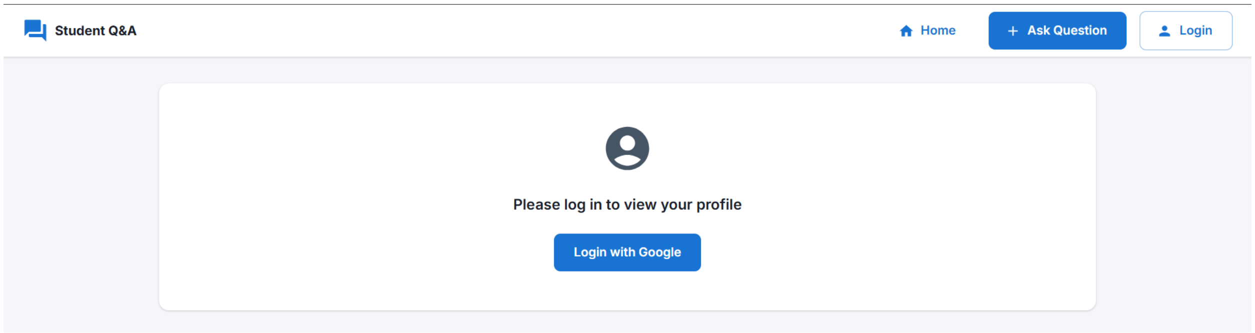
Lakavat Umesh Chandra (B22CS029)

web dev

web dev

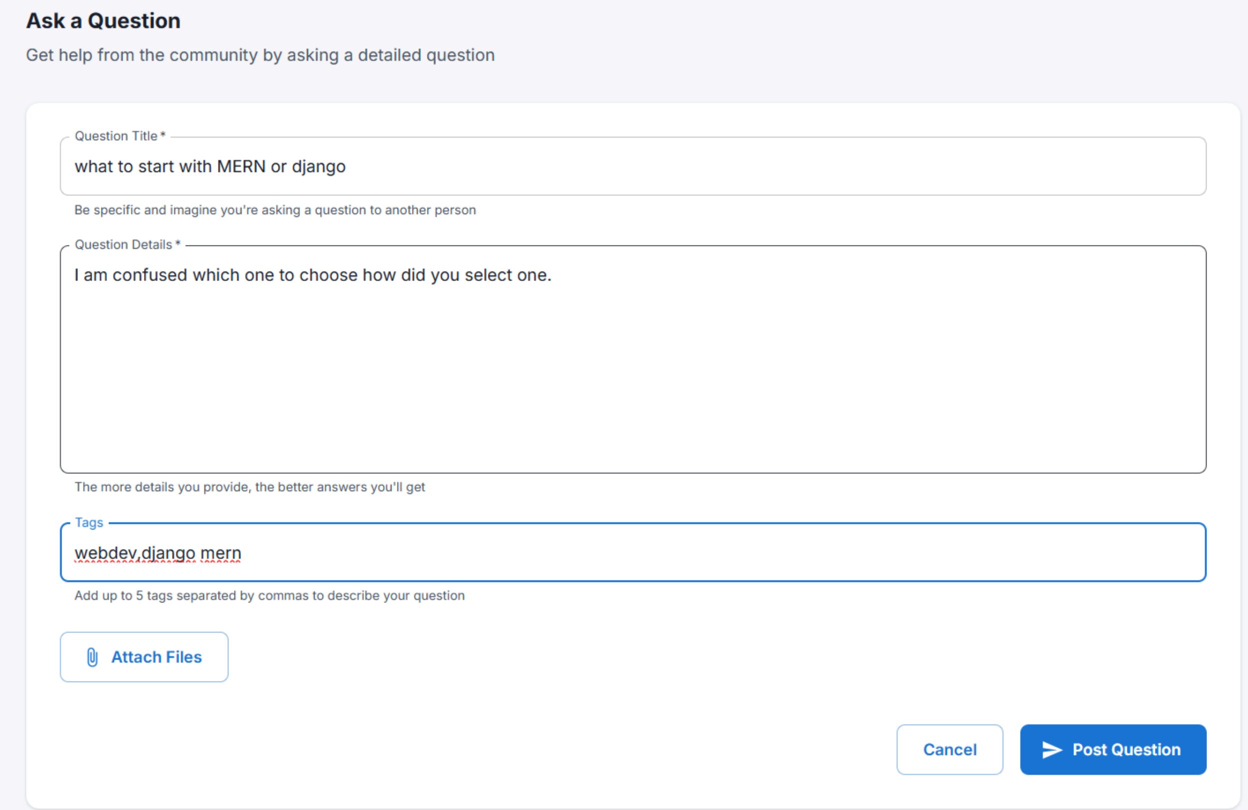
Lakavat Umesh Chandra (B22CS029)

V



Please log in to view your profile

2. Ask a Question: Fill out detailed forms and attach media for clarity.



Ask a Question

Get help from the community by asking a detailed question

Question Title *: what to start with MERN or django

Be specific and imagine you're asking a question to another person

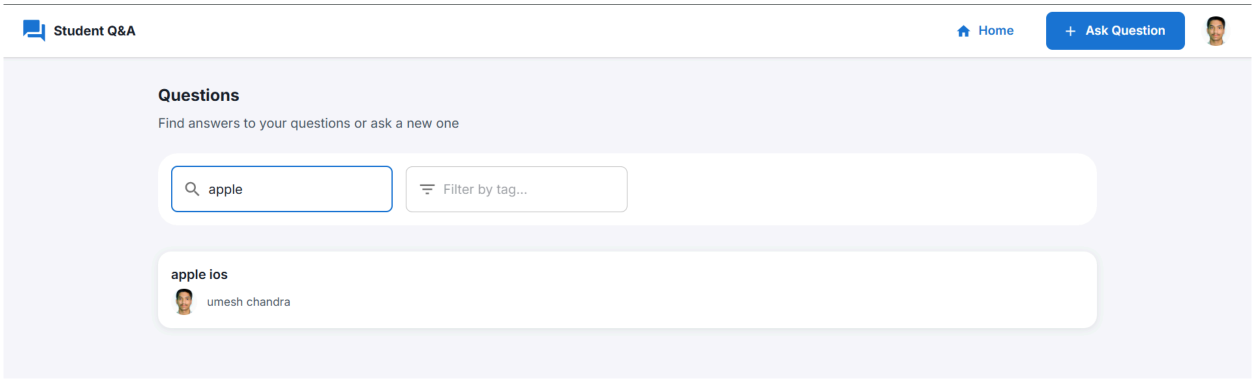
Question Details *: I am confused which one to choose how did you select one.

The more details you provide, the better answers you'll get

Tags: webdev,django mern

Add up to 5 tags separated by commas to describe your question

3. Browse/Filter Questions: Use search, tags, and sorting to find relevant problems and solutions.



Questions

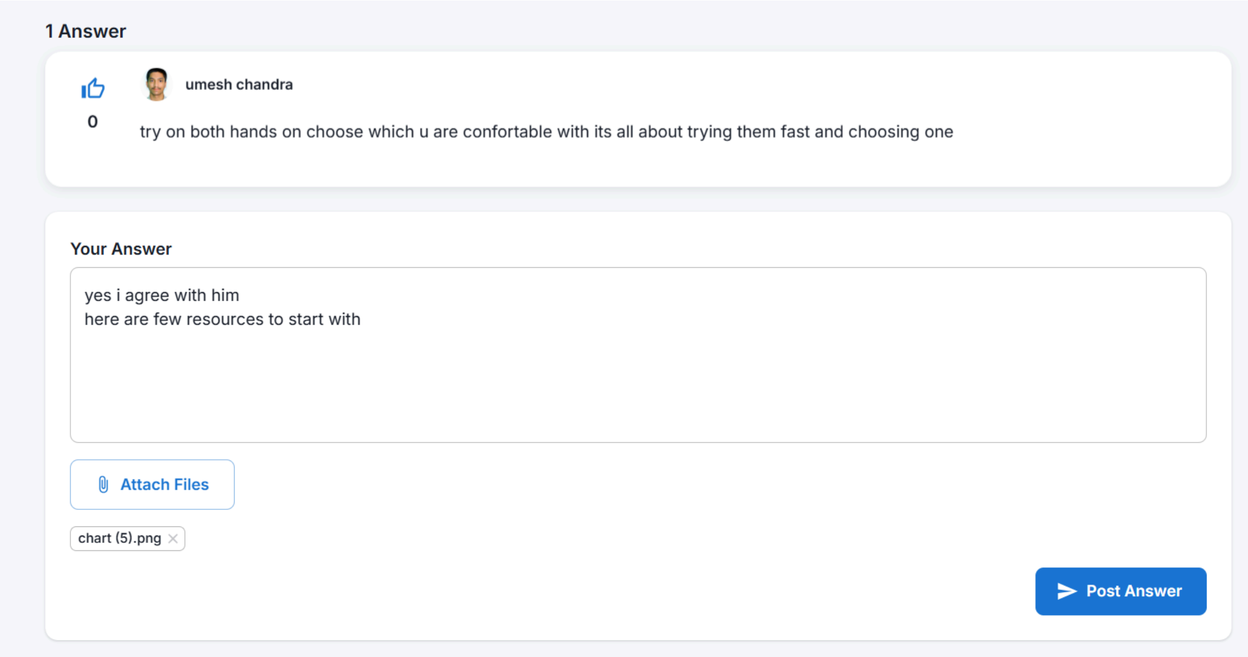
Find answers to your questions or ask a new one

Search: apple

apple ios

umesh chandra

4. Answer & Upvote: Multiple answers, media sharing, and upvoting drive quality and engagement.



1 Answer

umesh chandra

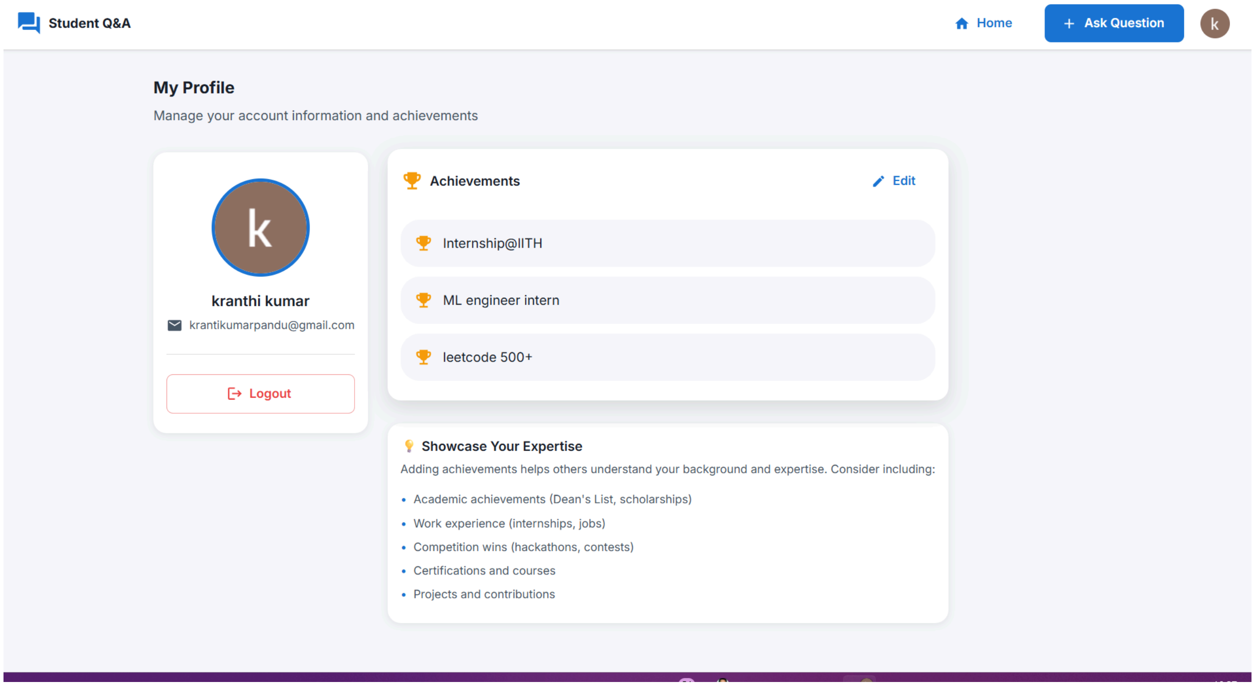
0

try on both hands on choose which u are confortable with its all about trying them fast and choosing one

Your Answer

yes i agree with him
here are few resources to start with

5. Profile/Achievements: Recognition through profile and achievement management.



My Profile

Manage your account information and achievements

kranthi kumar

krantikumarpandu@gmail.com

Achievements

- Internship@IITH
- ML engineer intern
- leetcode 500+

Showcase Your Expertise

Adding achievements helps others understand your background and expertise. Consider including:

- Academic achievements (Dean's List, scholarships)
- Work experience (internships, jobs)
- Competition wins (hackathons, contests)
- Certifications and courses
- Projects and contributions

---

6. Backend Overview

- Modular REST APIs for questions, answers, users, authentication, and uploads.

- MongoDB stores all main entities; Cloudinary stores file references.
- Secure sessions (Google OAuth, cookies) with Express server and Passport.js integration.
- Automatic sync of media, achievements, and user data between client and server.

---

7. Deployment and Testing

- Runs locally via Vite (frontend:
- http://localhost:5173
-) and Express (backend:
- http://localhost:5000
-).
- Cross-origin session setup for secure authentication and data exchange.
- Fully tested workflows with representative screenshots attached under each heading.

---

8. Future Improvements

- Add notifications, advanced filtering, and analytics.
- Integrate messaging, polls, and quizzes.
- Refine mobile-responsiveness and accessibility.

---

9. Conclusion

Our Student Q&A Platform offers a complete, collaborative learning environment, empowering students to ask, answer, share media, and showcase their achievements freely. Screenshots attached below each section demonstrate the clean user experience and practical workflows realized by this project.