

PROJECT

CSE Clubs Management App

1. Introduction

The CSE Clubs Management App is a multi-role platform developed using Flutter and Firebase to digitalize and streamline all club-related activities within the Computer Science department.

The app provides separate interfaces for:

- Students
- Leaders
- Faculty
- Supervisors

It includes modules for club details, announcements, chats, events, performance tracking, tasks and onboarding. Each user logs in through a single login page and is redirected to their role-specific dashboard.

The project focuses on real-time communication, role-based access, event management, and a structured mobile interface to remove manual processes.

2. Objectives

- To build a centralized digital platform for all CSE clubs.
- To provide role-based dashboards with customized features.
- To manage club announcements, events, tasks and chats.
- To allow students to join clubs, view updates and communicate.
- To provide leaders with tools to manage members, events & chats.
- To allow faculty & supervisors to monitor all clubs.
- To ensure secure authentication & real-time updates using Firebase.

3. System Requirements

Software Requirements

- Flutter SDK (3.x+)
- Dart SDK
- Firebase (Authentication, Firestore, Storage)
- Android Studio / VS Code
- Git (optional)

Hardware Requirements

- Laptop with 8GB RAM minimum
- Android phone or emulator for testing
- Stable internet for Firebase syncing

4. Project Planning

Phase 1 – Requirements

- Identify roles and features
- Define user journeys

Phase 2 – UI/UX

- Onboarding screens
- Role selection & dashboards
- Club & event pages

Phase 3 – Backend Setup

- Create Firestore collections:
users, clubs, announcements, chats, events, tasks
- Configure authentication & storage

Phase 4 – App Development

- Authentication module
- Dashboards
- Events & tasks
- Chat system

Phase 5 – Integration

- Connect all screens to Firestore
- Real-time syncing

Phase 6 – Testing

- UI/UX testing
 - Performance testing
 - Data validation
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5. Technology Stack Explanation

Frontend

- Flutter: Cross-platform UI framework
- Dart: Main programming language

Backend

- Firebase Authentication: Login/Signup
- Cloud Firestore:
 - Stores users, clubs, announcements, chats, events, tasks
- Firebase Storage: Club banners, images

Utilities

- Provider / setState (state management)
- Intl (date formatting)
- Custom widgets for input & UI consistency

6. Implementation Overview

Authentication

- Universal login page
- Role fetched from Firestore → redirects user to correct dashboard

Signup

- Separate student signup page
- Role selection page before registration
- User data stored in users collection

Dashboards

- Student: Club updates, announcements, events, performance
- Leader: Chat, tasks, events management, club updates
- Faculty: Approvals, club monitoring
- Supervisor: Full control & overview

Announcements

- Leader/Faculty post → Students view

Chats

- General Chat
- Club Chat
- Real-time Firestore streams

Events Module

- Add/update events
- Upcoming & Completed Events pages

Tasks Module

- Leaders assign tasks → students complete
- tasks collection stores status

Performance Module

- Tracks event participation & task completion

8. Code Snippets

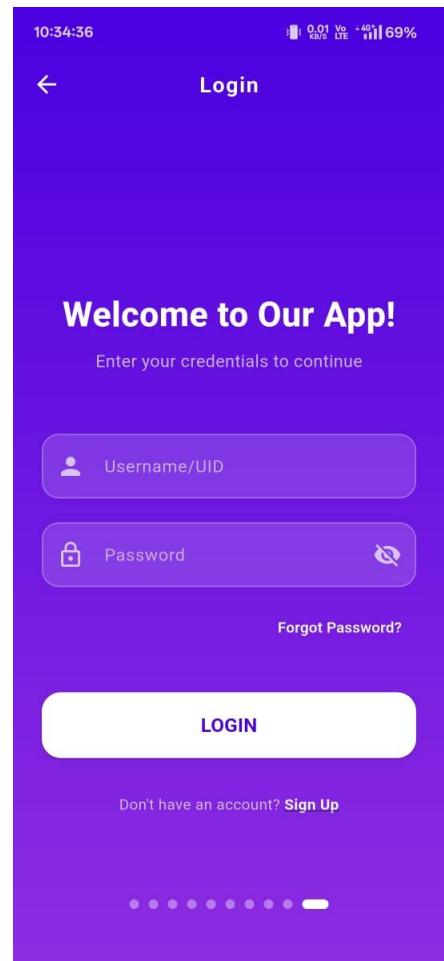
Welcome Page



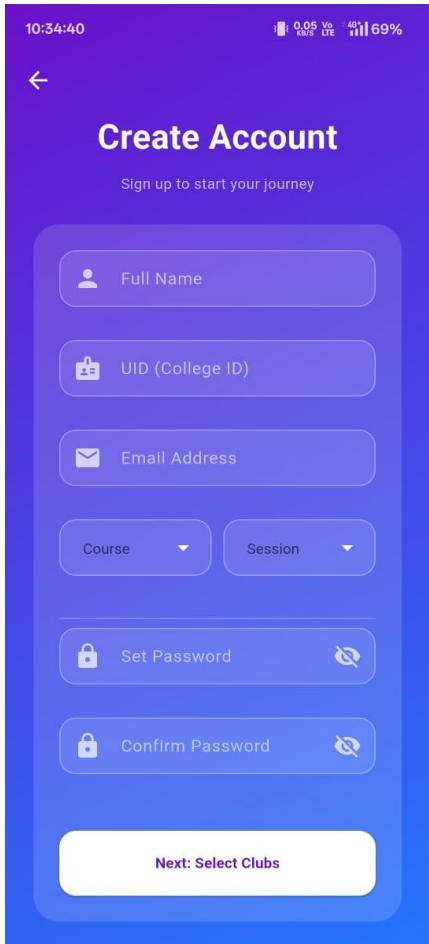
Club Page



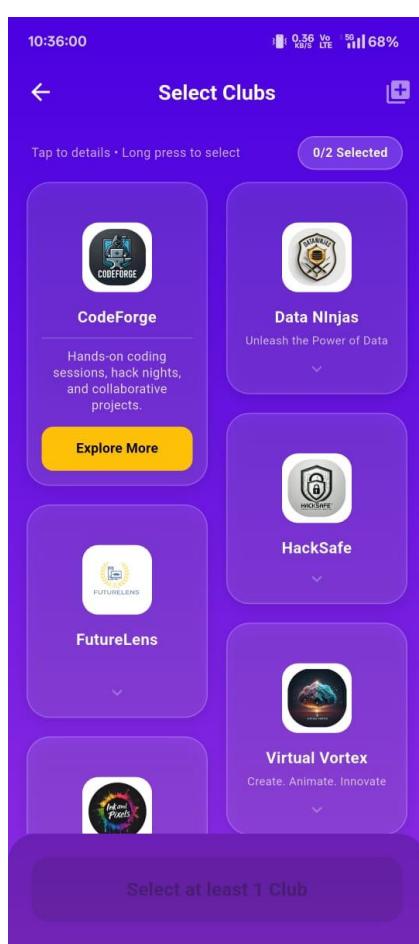
Login Page



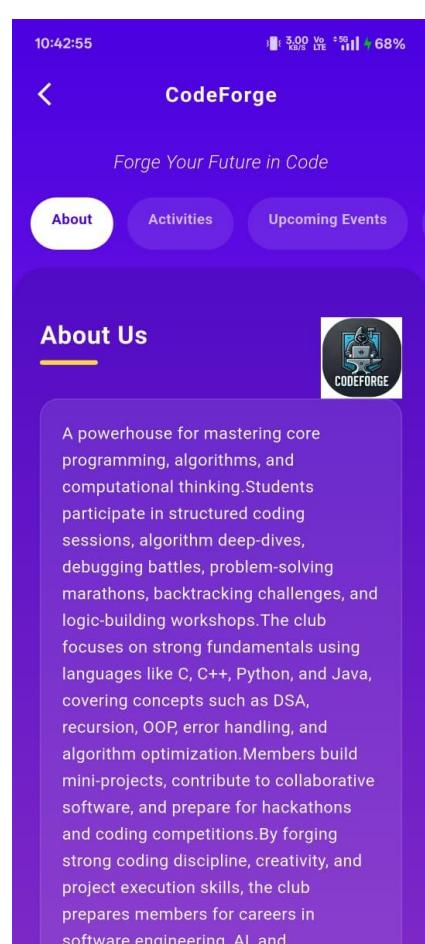
SignUp Page



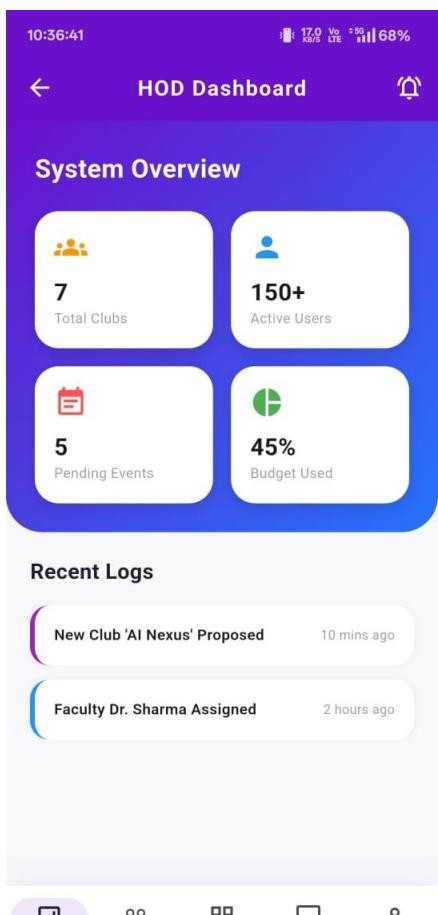
ClubSelection Page



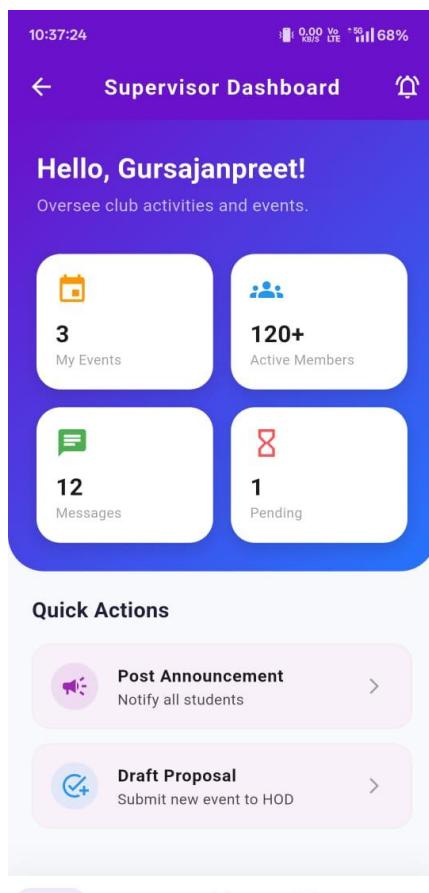
Club Detail Page



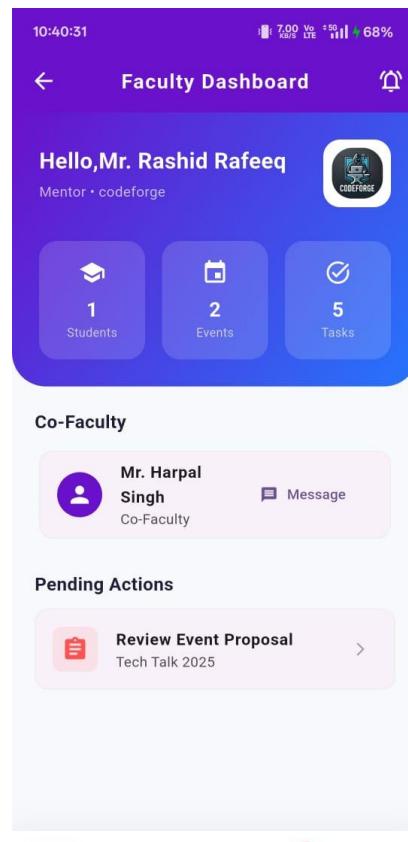
HOD Dashboard



Supervisor Dashboard



Faculty Dashboard



9. Workflow Summary

Student Workflow

1. Login → Student Dashboard
2. View announcements, events, tasks
3. Chat with club members
4. Track performance

Leader Workflow

1. Login → Leader Dashboard
2. Post announcements
3. Host club chats
4. Manage events & tasks

Faculty Workflow

1. Login → Faculty Dashboard
2. Review clubs & activities
3. Approve/monitor announcements

Supervisor Workflow

- Full control over all clubs, events, members & faculty

10. Conclusion

The CSE Clubs Management App successfully creates a centralized and digital environment for handling all club-related activities within the department.

Through its role-based dashboards, real-time Firestore integration, and modular folder structure, it provides a smooth and scalable app architecture.

The app improves communication, simplifies event and task management, and provides transparency and efficiency across all user roles. Its modern design, optimized widgets, and Firebase backend make it suitable for real-world deployment and future enhancement.