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Synopsis

On

COLLEGE SPACE
An Android Application for College Management

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INTRODUCTION

College Space is an Android application designed to simplify college management by providing an integrated platform for students, teachers, and administrators to collaborate and communicate effectively.

The application is aimed at improving the overall college experience by addressing some of the common challenges faced by students and faculty in day-to-day operations.

Existing System:

Currently, the college management system is based on a manual, paper-based approach for attendance tracking, timetable management, and communication among stakeholders. This traditional approach is inefficient, error-prone, and time-consuming. Teachers have to take attendance manually and maintain records, which can be prone to errors and inaccuracies. Timetables are created and managed manually, which can lead to conflicts and confusion among students and faculty.

Communication is also manual, through notices and announcements on bulletin boards, which can be easily missed by students and faculty who may not be present on campus. This approach has several limitations that affect the productivity and efficiency of the college.

Problems in Existing System.

- Manual attendance tracking and management system is time-consuming and prone to errors.
- Lack of a centralized system for communication and information sharing causes delays and confusion.
- Timetable creation and management is a manual process, which increases the likelihood of conflicts and scheduling errors.
- Limited options for collaboration and interaction among students, teachers, and administrators.
- Inability to easily monitor student progress and academic performance in real-time.
- Limited accessibility of information and resources, which can impede student learning and success.

The College Space project aims to address these challenges by providing an integrated platform that automates attendance tracking, timetable management, and communication among stakeholders.

Scope Of the Project:

The scope of the College Space Android application project includes the development of an Android application that supports the following features:

- Login and registration for students, teachers, and administrators
- Timetable creation and management
- Attendance tracking and management
- News and announcement sharing
- Document sharing
- Profile management for students, teachers, and administrators.
- Feedback and complaints module.

Operating Environment- H/W & S/W

Software Requirements
- Operating Windows 7/8/10(64-bit)/ Mac / Linux
- IDE: Android Studio, Apache NetBeans
- Android Minimum version: Android SDK 5 (API level 16)
- Android Target version: Android SDK 11 (API level 30)

Hardware Requirements:
- RAM: Minimum 4 GB Ram
- Recommended: 8GB Ram
- Recommended 2 GB of available disk space minimum,
- 4 GB recommended Screen :1280 X 800 minimum screen resolution
- Mobile: Android Phone with SDK 5 or above

For this Android application project, we will be using Android Studio or Apache NetBeans as the Integrated Development Environment (IDE), along with **Java Development Kit (JDK) 8** and **Volley library** for network communication. We will also be using **Java Servlet** for server-side APIs, **MySQL** for the database, and **Adobe XD** for designing the user interface. To test and debug the APIs, we will use **Postman**.

These software and hardware requirements are important to ensure that the application is developed and deployed smoothly and efficiently, and to provide the best user experience for students, teachers, and administrators

PROPOSED SYSTEM

Modules of Proposed System

1. **Login and registration:** This module will allow students, teachers, and administrators to create accounts and log in to the application.
2. **Timetable management:** This module will allow the administration to create and manage the timetable for different courses, and students and teachers will be able to view their schedules.
3. **Attendance tracking:** This module will allow teachers to take attendance digitally and automatically store it in the database for easy monitoring by administrators.
4. **News and announcement sharing:** This module will allow administrators to share news and announcements with students and teachers in real-time.
5. **Document sharing:** This module will allow students and teachers to share documents and resources related to courses.
6. **Profile management**: This module will allow students, teachers, and administrators to manage their profiles, update their information, and view their personal data.
7. **Feedback and complaints**: This module will allow students to submit feedback and complaints about courses, teachers, or the college management.

These modules are designed to address the common challenges faced by students and faculty in day-to-day operations, improve the overall college experience, and automate and centralize college management operations.

Proposed Hierarchy and User Roles.

The proposed hierarchy from top to bottom would be:
1. Admin
2. HOD
3. Teachers
4. TPO
5. Students

Here's a brief description of the responsibilities of each module:
1. **Admin Module:** The Admin module will be responsible for

managing the overall system, overseeing all other modules, managing the academic calendar and timetables, managing student attendance and academic performance, managing faculty information and performance, managing student information and admission process, and managing the placement process and TPO activities.

2. **HOD Module:** The HOD module will be responsible for managing the academic performance of students within their department, overseeing the work of teachers, approving leave requests, and managing the departmental budget.

3. **Teachers Module:** The Teachers module will be responsible for taking attendance, managing class schedules, uploading course materials, grading assignments and tests, and providing feedback to students.

4. **TPO Module:** The TPO module will be responsible for managing the placement process, organizing job fairs, inviting companies to campus for recruitment, and assisting students with job applications and interviews.

5. **Students Module:** The Students module will be responsible for accessing course materials, checking attendance records, viewing grades and academic performance, submitting assignments and tests, and accessing information related to campus placements and career development.

This proposed hierarchy is designed to promote efficient decision-making, clear communication, and effective collaboration between different stakeholders within the college ecosystem.

Objective of System

The objective of the College Space Android application project is to develop an integrated platform that simplifies college management by providing an efficient and effective way for students, teachers, and administrators to collaborate and communicate.

This project aims to address some of the common challenges faced by colleges, such as manual attendance tracking, timetable management, and communication among stakeholders. Additionally, the project aims to

provide better options for collaboration and interaction among students, teachers, and administrators, and provide easy monitoring of student progress and academic performance in real-time.

The overall objective of this project is to improve the college experience for all stakeholders and streamline college operations.

Feasibility Study

The College Space Android application project is technically feasible and can be developed using readily available software and hardware resources. The following aspects have been considered for the feasibility of the project:

Technical Feasibility:

- o The project will be developed using Android Studio IDE, Apache NetBeans, JDK 8, and MySQL database.
- o Java programming language and Volley library for HTTP requests will be used for development.
- o Existing Android SDK and APIs can be utilized for implementing the proposed modules and features.
- o Adobe XD will be used for designing the application's user interface.
- o Postman, an API testing tool, will be used to test server-side API functionality.

Resource Requirements:

- o The project requires a minimum of 4 GB RAM and 2 GB of available disk space for the development environment.
- o The application will be compatible with Android phones running SDK 5 or above.
- o The proposed hierarchy of users will require adequate server resources to handle user data and requests.
- o The project will require a team of developers, designers, and testers to implement and test the application.

Operational Feasibility:

- o The College Space application will streamline various college management processes, making them more efficient and less prone to errors.
- o The application will improve collaboration and information sharing among stakeholders, leading to a better college experience.
- o The application's user-friendly interface will ensure ease of use and will require minimal training for users to get started.

- The use of standard software and hardware requirements will ensure compatibility across devices and will reduce the need for additional investments in technology infrastructure.

Economic Feasibility:

- The College Space application is an economically feasible project, as it will result in long-term cost savings for the college.
- The college can reduce the need for manual labor and paper-based systems by automating various processes such as attendance tracking and timetable management, resulting in cost savings.
- The implementation of the College Space application will lead to improved productivity and efficiency, which will have a positive impact on the college's bottom line over the long term.

Overall, the project is technically feasible, operationally feasible, and economically feasible. The required resources are readily available for the successful implementation of the College Space Android application.

Entity Relationship Diagram
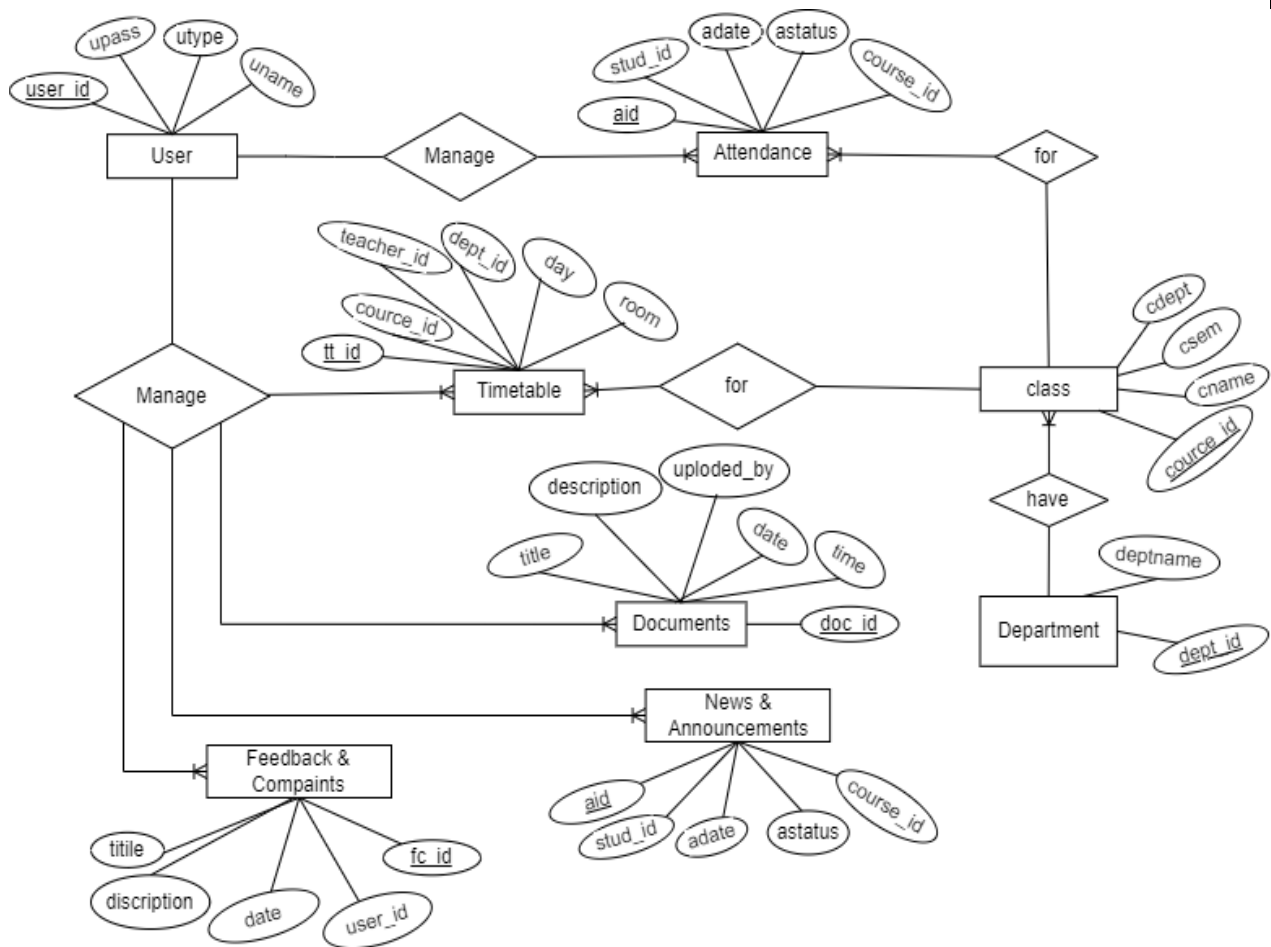
The ERD diagram consists of eight main entities, which are connected through various relationships. The five entities are Users, Courses, Departments, Timetable, Attendance, News and Announcements, Documents, and Feedback and Complaints.

Users: The Users entity stores information about all the users of the application, including their ID, name, email, phone number, password, and user type. This entity acts as the main entity, and all other entities are connected to it through foreign keys. User type include "Student", "HOD", "Admin", "TPO", and "Teacher", Student.

Courses: The Courses entity stores information about all the courses offered by the college, including the course ID, name, department ID,

semester, and credits. This entity is linked to the Departments entity through a foreign key.

Departments: The Departments entity stores information about all the departments in the college, including the department ID and name. This entity is linked to the Courses entity through a foreign key.

Timetable: The Timetable entity stores information about the schedule of each course, including the timetable ID, course ID, teacher ID, department ID, day, time, and room number. This entity is linked to both the Users and Courses entities through foreign keys.

Attendance: The Attendance entity stores information about the attendance of each student for each course, including the attendance ID, course ID, student ID, date, and status. This entity is linked to both the Users and Courses entities through foreign keys.
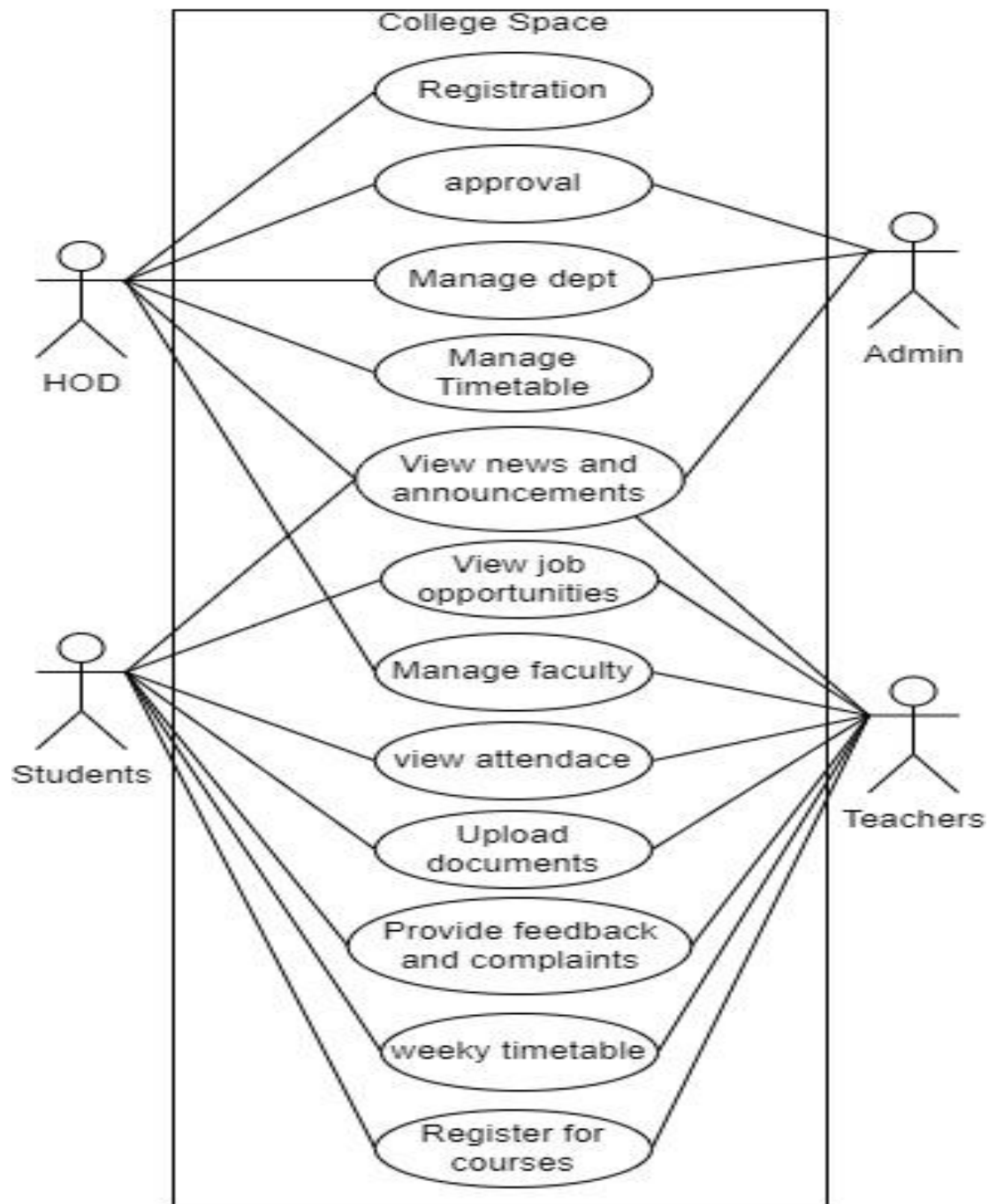
News and Announcements: The News and Announcements entity stores information about all the news and announcements posted on the application, including the news ID, title, description, date, and time. This entity is linked to the Users entity through a foreign key.

Documents: The Documents entity stores information about all the documents uploaded on the application, including the document ID, title, description, uploaded by, date, and time. This entity is linked to the Users entity through a foreign key.

Feedback and Complaints: The Feedback and Complaints entity stores information about all the feedback and complaints submitted by users, including the feedback ID, user ID, title, description, date, and time. This entity is linked to the Users entity through a foreign key.

Overall, the ERD diagram shows how all the entities in the College Space project are related to each other through various relationships, such as one-to-one, one-to-many, and many-to-many. This helps in understanding the flow of data and the relationships between different entities in the project.

Use case diagram Description

College Space Use Case Diagram Description ,The diagram includes the following actors:

1. **Student** - A user who can view and register for courses, view timetable, mark attendance, view news and announcements, view and upload documents, and provide feedback and complaints.

2. **Faculty** - A user who can view and update the timetable, mark attendance, view news and announcements, view and upload documents, and provide feedback and complaints.
3. **HOD** - A user who can manage departments, view and update course offerings, manage faculty, and generate reports.
4. **Admin** - A user who can manage users, manage departments, view and update course offerings, manage faculty, and generate reports.
5. **TPO** - A user who can manage placement activities, view job opportunities, and manage student placements.

The use cases include:

- **View courses** - Allows a user to view available courses.
- **Register for courses** - Allows a student to register for courses.
- **View timetable** - Allows a user to view the timetable for a specific course.
- **Update timetable** - Allows a faculty or HOD to update the timetable for a specific course.
- **Mark attendance** - Allows a faculty or student to mark attendance for a specific course.
- **View news and announcements** - Allows a user to view news and announcements.
- **Upload documents** - Allows a user to upload documents.
- **View documents** - Allows a user to view uploaded documents.
- **Provide feedback and complaints** - Allows a user to provide feedback and complaints.
- **Manage departments** - Allows an HOD or Admin to manage departments.
- **View course offerings** - Allows an HOD or Admin to view and update course offerings.
- **Manage faculty** - Allows an HOD or Admin to manage faculty.
- **Generate reports -** Allows an HOD or Admin to generate reports.
- **Manage users** - Allows an Admin to manage users.
- **Manage placement activities** - Allows a TPO to manage placement activities.
- **View job opportunities** - Allows a TPO to view job opportunities.

- **Manage student placements** - Allows a TPO to manage student placements.

This use case diagram provides an overview of the different user roles and their associated actions in the College Space Android Application.