Project Details:
Project Name: College Club Management System
Team Members: Ferduse Rahman, Maryam Tawfik, Kamila Karshieva
Team ID: 5

Problem Statement:
Describe the problem tag your proposed database will solve. Why do you need a database instead of an excel file?
Most colleges track memberships, officer roles, and events in spreadsheets or google forms or other unorganized documents. This causes problems such as duplicate records when students join multiple clubs and difficulty tracking attendance and leadership roles. A database is needed instead of an excel file because it supports relationships between students, clubs, roles, and events, it prevents duplication with primary / foreign keys, it enables complex queries (e.g., "Which students attended 3+ events this semester?"). There are also scalability issues as the number of clubs and events grow. A college can have hundreds of clubs and thousands of students. In summary, our database will ensure data integrity by using constraints, support complex quieres, and handle large datasets for efficient management and oversight of clubs within a college.

Target User:
Who will use the database? Who will administer the database? You are encouraged to give a real life scenario.
School administrators, club leaders, and college students will use the database.

1. School administrators include staff like Student Engagement Coordinators that monitor all registered clubs on campus. They can add new clubs, approve and remove events, and generate engagement reports.
2. Club leaders include appointed student leaders within each club (presidents, secretary, etc). They can manage club membership, schedule events, and keep track of member-event attendance.
3. Students include any student interested in joining or a current member in campus clubs. They can view clubs to join and their upcoming events.

Scenario:
The Students' Activities office uses the College Club Management System to track every club's events, members, and attendance. Club presidents can view their own club data, while admins can access all records. For example, the Student Engagement Coordinator can decide to increase or decrease the budget given to a club by tracking their total membership and event attendance at the end of the semester.
The college's IT department will be responsible for setting up and maintaining the database. The Office of Student Activities will be administrative users but they will not directly maintain the database, only using it to obtain and update information for student management.

Initial List of Relations:
Identify at least 4 relations (tables) that you need to maintain for this database. Provide a schema for these relations.

Clubs Table

Column Name	Data Type	Key	Description
club_id	Int or Serial	Primary key	Unique id for each club
club_name	Varchar		Name of club
category_id	Int	Foreign Key	References category
budget	Int		Budget allocated for the club by the college

Categories Table

Column Name	Data Type	Key	Description
category_id	Int	Primary Key	Unique id for each
name	Varchar		Type of club (academics, arts, sports, etc)

Club Events Table

Column Name	Data Type	Key	Description
event_id	Int	Primary Key	Stores event id
club_id	Int		References club
club_event	Varchar		Name of the event
attendance	Int		Amount of students that attended
location	Varchar		Where the event is
event_date	Date		Date of event

Event Attendance Table

Column Name	Data Type	Key	Description
student_id	Int	PK & FK	References student id
event_id	Int	PK & FK	References event id

Club Membership Table

Column Name	Data Type	Key	Description
club_id	Int	Primary Key & Foreign Key	Refrences club_id in Club table
student_id	Int	Primary Key & Foreign Key	Refrences student_id inStudents table
role	Varchar		Role in club (President, Secretary, Member, etc)

Members Table

Column Name	Data Type	Key	Description
student_id	Int	Primary key	Stores student's id
first_name	Varchar		Student first name
last_name	Varchar		Student last name
email	Varchar		Student email address

Data:

How will you populate your tables? You can get the data from external sources or you can create your own data.

The database will be populated using a combination of real-world and synthetic data. Club information will be collected from actual college clubs listed on student engagement sections of websites where possible. Student membership and attendance information will be generated to simulate a realistic student body, while event details will be created in relation to possible clubs. This combination of real and generated data will ensure the database contains realistic examples for system management. It will allow us to demonstrate useful queries that our target users would perform, such as tracking student membership, attendance, and budget allocation.