

CS 432 – Databases

Course Project (Task for Module – 1)

Due Date: 28th Feb 2025

Task Description (All Projects)

This project aims to design and implement a comprehensive database system that adheres to strict design constraints and real-world business rules. The system will demonstrate robust data management and integrity, providing a strong foundation for further development in the project domain.

Constraints/Requirements

Each project must adhere to the following constraints and requirements to ensure uniformity, functionality, and efficient evaluation:

1. **Member Table:** Each project must include a **Member** table with attributes: **Member_ID** (Primary Key), **Name**, **Image**, **Age**, **Email**, **Contact_Number**, etc., relevant to the project.
2. **Minimum 5 Functionalities:** The project should include at least five core functionalities.
3. **Minimum 5 Entities:** The project should have at least five distinct entities.
4. **At Least 10 Tables:** The database must consist of a minimum total of 10 tables.
5. **Primary and Foreign Keys:** Each table must have a Primary Key or a uniquely identifiable candidate key, and relationships between tables must utilize Foreign Keys.
6. **Functional Coverage:** Tables and queries must reflect the core functionalities of the specific project domain.
7. **Real-Life Scenarios:** Example data (synthetic data generated by project members, with at least 10 to 20 rows per table) should be meaningful and represent real-world use cases relevant to the project.
8. **Referential Integrity:** The database must satisfy referential integrity during update and delete operations.
9. **Non-NULL Columns:** At least three columns per table must be defined as NOT NULL.
10. **Unique Row Identification:** Each row in any table should be uniquely identifiable (using a single attribute or a combination of attributes).
11. **Logical Constraints:** Each project must follow all logical constraints relevant to the domain (e.g., in a car parking system, the exit time must be later than the entry time).

Evaluation Criteria

- All the above constraints must be followed for evaluation.
- Needless to say that we all uphold the Honour Code of our Institute [<https://iitgn.ac.in/students/honourcode>].
- **Note:** The project proposal must include an Introduction, Objective, Tech Stack, and Functionalities. We have included the tables and SQL queries for your reference only. You do not need to include this in your project proposal.
- You will receive the submission guidelines via google classroom.