**UE21CS351A: Database Management System**

**MINI PROJECT USER REQUIREMENT SPECIFICATION**

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1.Introduction

* Purpose of the project: The purpose of this project is to design and implement a database management system (DBMS) for an apartment complex that can store and manage the information of the residents, flats, parking, security, visitors, employees, and services
* Scope of the project: The scope of this project is to create a relational database schema for the apartment management system, populate the database with sample data, and develop a user interface that can perform various queries and operations on the database.

2.Project Description

* Project overview: The apartment management system is a DBMS that can handle the data and transactions related to the apartment complex. The system can store the details of the residents, such as their Aadhaar number, name, flat ID, phone number, date of birth, gender, and owner or tenant status. The system can also store the details of the flats, such as their flat ID, block, number, number of bedrooms, and area. The system can also keep track of the parking slots assigned to each flat, the security personnel assigned to each block, the visitors who enter and exit the complex, the employees who work in various services, such as cleaning, maintenance, gardening, etc., and the services availed by each resident.
* Major project functionalities:

1. The system can register new residents and assign them a flat and a parking slot.
2. The system can update or delete the information of existing residents.
3. The system can record the entry and exit of visitors and their purpose of visit.
4. The system can assign security personnel to each block and record their shift timings.
5. The system can manage the employees and their services, such as their employee ID, name, phone number, date of birth, date of joining, gender, service ID, service type, cost, and shift.
6. The system can record the services availed by each resident and their time of service.
7. The system can generate reports on various aspects of the apartment management system, such as occupancy rate, revenue from services, visitor frequency, security performance, etc.

3.System Features and Function Requirements

* Resident Registration:

1. Description: This feature allows the system to register new residents and assign them a flat and a parking slot. The system will ask for the Aadhaar number of the resident and verify it with the Aadhaar database. If the Aadhaar number is valid, the system will ask for other details such as name, phone number, date of birth, gender, and owner or tenant status. The system will then check the availability of flats and parking slots and assign them to the resident. The system will also generate a unique flat ID for each flat.
2. Functional Requirement:
   1. The system shall verify the Aadhaar number of the resident with the Aadhaar database.
   2. The system shall ask for other details of the resident such as name, phone number, date of birth, gender, and owner or tenant status.
   3. The system shall check the availability of flats and parking slots and assign them to the resident.
   4. The system shall generate a unique flat ID for each flat.
   5. The system shall store the information of the resident in the Residents table.
   6. The system shall store the information of the flat in the Flat table.
   7. The system shall store the information of parking slot in the Parking table.

* Resident Update/Delete:

1. Description: This feature allows the system to update or delete the information of existing residents. The system will ask for the Aadhaar number of the resident and display their current information. The system will then allow the user to modify or delete any field except for Aadhaar number and flat ID. If any field is modified or deleted, the system will update or delete it from the corresponding table in the database.
2. Functional Requirement:
3. The system shall ask for Aadhaar number of resident and display their current information.
4. The system shall allow user to modify or delete any field except for Aadhaar number and flat ID.
5. If any field is modified or deleted, The system shall update or delete it from corresponding table in database. The system shall also update or delete any related information in other tables. The system shall also update or delete any services availed by resident from Residents\_avail\_services table. (OR) If flat ID is changed, The system shall update or delete it from Flat table. The system shall also update or delete any parking slot assigned to flat from Parking table. \*If phone number is changed, The system shall update or delete it from Residents table. The system shall also update or delete any visitor who has same phone number from Visitors table.

* Visitor Entry/Exit:

1. Description: This feature allows the system to record the entry and exit of visitors and their purpose of visit. The system will ask for the Aadhaar number of the visitor and verify it with the Aadhaar database. If the Aadhaar number is valid, the system will ask for other details such as name, phone number, resident ID of the person they are visiting, and purpose of visit. The system will then record the time of entry and assign a unique visit ID for each visit. The system will also record the time of exit when the visitor leaves the complex.
2. Functional Requirement:
3. The system shall verify the Aadhaar number of the visitor with the Aadhaar database.
4. The system shall ask for other details of the visitor such as name, phone number, resident ID of the person they are visiting, and purpose of visit.
5. The system shall record the time of entry and assign a unique visit ID for each visit.
6. The system shall record the time of exit when the visitor leaves the complex.
7. The system shall store the information of the visitor in the Visitors table.
8. The system shall store the information of the visit in the Visits table.

* Security Assignment:

1. Description: This feature allows the system to assign security personnel to each block and record their shift timings. The system will ask for the security ID of the security personnel and display their current information. The system will then allow the user to modify or delete any field except for security ID. If any field is modified or deleted, the system will update or delete it from the corresponding table in the database. The system will also allow the user to assign a block and a shift to each security personnel.
2. Functional Requirement:
3. The system shall ask for security ID of security personnel and display their current information.
4. The system shall allow user to modify or delete any field except for security ID.
5. If any field is modified or deleted, The system shall update or delete it from Security table.
6. The system shall allow user to assign a block and a shift to each security personnel.
7. The system shall store the information of the security assignment in the Security table.

* Service Management:

1. Description: This feature allows the system to manage the employees and their services, such as their employee ID, name, phone number, date of birth, date of joining, gender, service ID, service type, cost, and shift. The system will also allow the user to record the services availed by each resident and their time of service. The system will also allow the user to generate reports on the revenue from services and the performance of employees.
2. Functional Requirement:
3. The system shall ask for employee ID of employee and display their current information.
4. The system shall allow user to modify or delete any field except for employee ID and service ID.
5. If any field is modified or deleted, The system shall update or delete it from Employees table. The system shall also update or delete any related information in other tables. \*For example, \*If service ID is changed, The system shall update or delete it from Services table. The system shall also update or delete any services availed by residents from Residents\_avail\_services table. \*If phone number is changed, The system shall update or delete it from Employees table. The system shall also update or delete any visitor who has same phone number from Visitors table.
6. The system shall allow user to record the services availed by each resident and their time of service.
7. The system shall store the information of the service availed by resident in the Residents\_avail\_services table.
8. The system shall allow user to generate reports on the revenue from services and the performance of employees.