MEMBERS:

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PROJECT TOPIC:

Property Rental Management System

PROBLEM STATEMENT:

A well-established property management system is a necessity for people to have an easy and efficient way to rent a property that they desire based on the location, address, and price. In a poorly organized and used property management system, keeping a huge number of tenant files could turn out to be tedious and can result in hours of confusion and redundancies.

1. Delay in solving maintenance issues or any other complaints.
2. Data in the database is prone to privilege abuse, injection attacks, and malware threats.
3. Difficulty accessing and controlling the data due to the high number of properties.

OBJECTIVES:

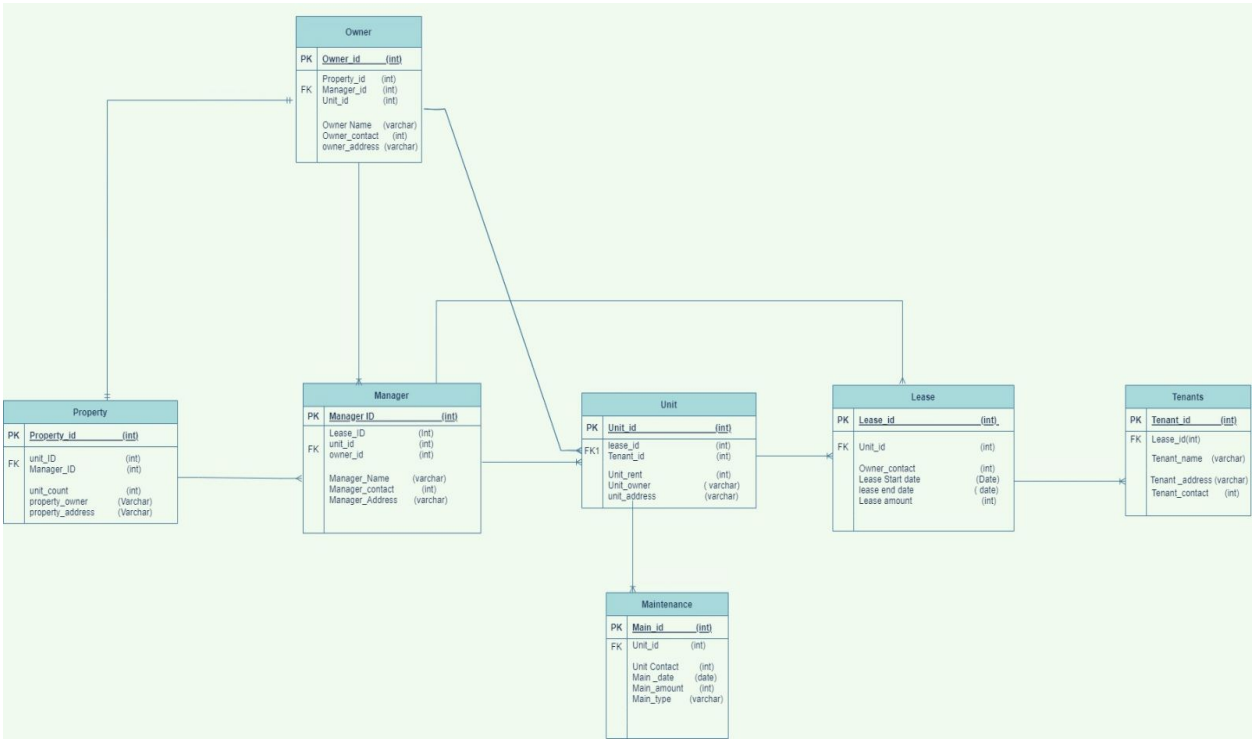
Implementing a successful property management system is important as it is required by people who are moving to a new city or country to have a systematic interpretation of how they can easily get access to the unit according to their convenience and within their budget. The utmost priority of our project will be to appropriately use our technical and organizational skills to implement a safe and easy property management system that will act as a link between the owner and the tenant.

1. To efficiently manage the details of the Owners and their respective Tenants.
2. To create a well-organized management system for tracking maintenance issues from time to time.
3. To provide a structured system of maintaining financial transaction-related matters.

PROPOSED SOLUTION:

1. A different entity will be made to look after the problems of the tenants in different property locations.
2. Monitoring the database activity with the usage patterns will be done regularly.
3. User access rights and privileges will be managed and will not be given to the other users or the property owners.
4. A well-designed property system will be created that will be storing all the data in one place and have full control over it making the data transparent and easy to find.

E-R DIAGRAM



ENTITIES & ATTRIBUTES

Owner

ATTRIBUTES	DATATYPE	CONSTRAINTS
Owner_id	INT	PRIMARY KEY, AUTO GENERATED
Manager_id	INT	FOREIGN KEY, NOT NULL
property_id	INT	FOREIGN KEY, NOT NULL
Unit_id	INT	FOREIGN KEY, NOT NULL
Owner_name	VARCHAR (20)	NOT NULL
Owner_Contact	VARCHAR (20)	NOT NULL
Owner_address	VARCHAR (20)	NOT NULL

Property

ATTRIBUTES	DATATYPE	CONSTRAINTS
property_id	INT	PRIMARY KEY, AUTO GENERATED
Unit_id	INT	FOREIGN KEY, NOT NULL
Manager_id	INT	FOREIGN KEY, NOT NULL
Unit_Count	INT	NOT NULL
Property_Owner	VARCHAR (20)	NOT NULL
Property_address	VARCHAR (20)	NOT NULL

Manager

ATTRIBUTES	DATATYPE	CONSTRAINTS
Manager_id	INT	PRIMARY KEY, AUTO GENERATED
Owner_id	INT	FOREIGN KEY, NOT NULL
Unit_id	INT	FOREIGN KEY, NOT NULL
Lease_id	VARCHAR (20)	NOT NULL
Manager_name	VARCHAR (20)	NOT NULL
Manager_Contact	VARCHAR (20)	NOT NULL
Manager_address	VARCHAR (50)	NOT NULL

Unit

ATTRIBUTES	DATATYPE	CONSTRAINTS
Unit_id	INT	PRIMARY KEY, AUTO GENERATED
Property_id	INT	FOREIGN KEY, NOT NULL
Tenant_id	INT	FOREIGN KEY, NOT NULL
Unit_Rent	INT	NOT NULL
Unit_Owner	VARCHAR (20)	NOT NULL
Unit_address	VARCHAR (50)	NOT NULL

Maintenance

ATTRIBUTES	DATATYPE	CONSTRAINTS
main_id	INT	PRIMARY KEY, AUTO GENERATED
Unit_id	INT	FOREIGN KEY, NOT NULL
Main_Amount	INT	NOT NULL
Unit_contact	VARCHAR (10)	NOT NULL
Main_Start_Date	DATE	NOT NULL
Main_End_Date	DATE	NOT NULL
Main_type	VARCHAR (100)	NOT NULL

Lease

ATTRIBUTES	DATATYPE	CONSTRAINTS
Lease_id	INT	PRIMARY KEY, AUTO GENERATED
Unit_id	INT	FOREIGN KEY, NOT NULL
Lease_Amount	INT	NOT NULL
Owner_contact	VARCHAR (20)	NOT NULL
Lease_Start_Date	DATE	NOT NULL
Lease_End_Date	DATE	NOT NULL

Tenant

ATTRIBUTES	DATATYPE	CONSTRAINTS
Tenant_id	INT	PRIMARY KEY, AUTO GENERATED
Lease_id	INT	FOREIGN KEY, NOT NULL
Tenant_Name	VARCHAR (20)	NOT NULL
Tenant_contact	INT	NOT NULL
Tenant_address	VARCHAR (50)	NOT NULL

BUSINESS RULES:

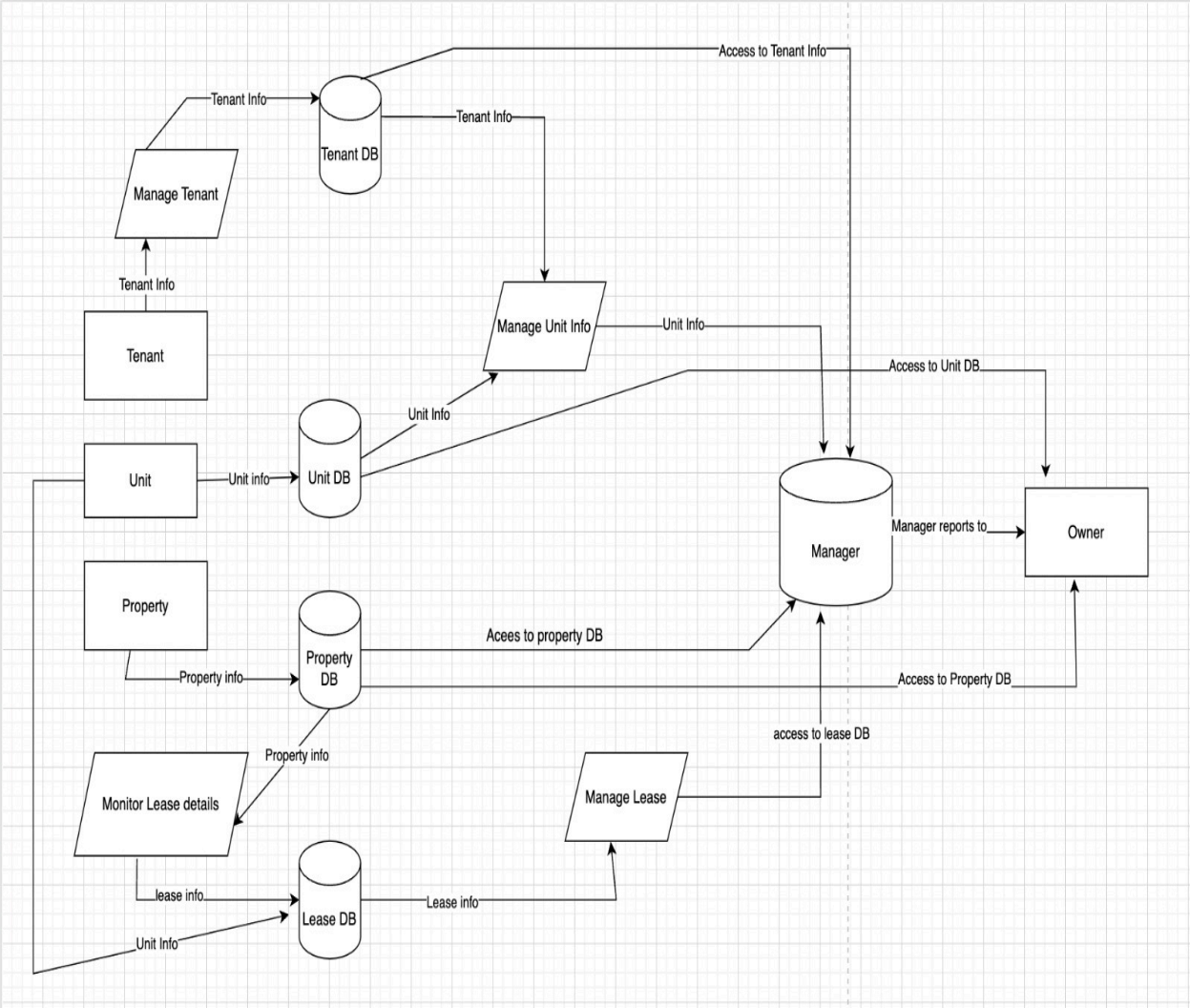
1. Our Property Rental Management System will be managing a single property with many units
2. The Owner will have a unique property with one or more units
3. Different units will be managed by different managers
4. Every unit will have unique tenants
5. One Unit at a time can have only one lease
6. Every Unit has its respective fixed rent
7. Every lease has an amount mentioned which includes
    - 1st-month rent
    - Last month rent
    - Security Deposit

VIEWS:

Our project will be having the following views:

- Owner_Manager_Relation
- Tenant_Manager_Relation
- Unit_Maintenance
- Tenant_Agreement

DATA FLOW DIAGRAM:



SECURITY CONSTRAINTS: (User level Access/Permissions)

- The owner will have access to all the attributes in the property entity and unit entity.
- The manager is the ultimate administrator and has access to control and make changes in all the entities like units, property, maintenance, lease, and tenants.
- The tenants have access to the unit, lease, and maintenance.

Roles:

1. The manager is an administrator
2. The owner has an owner level access to the system
3. The tenant has user-level access to the system.