Entity Relationship Diagram & Class Diagram:

Entity Relationship Diagram:

The entity relationship diagram data model is developed to facilitate database design by allowing specification of an enterprise schema that represents the overall logical structure of a database. E-R model is useful in mapping the meanings and intersections of real world enterprises onto a conceptual schema. Because of this usefulness many database design tools draw on concepts from the E-R model.

E-R data model employs three basic concepts:

1. Entity.
2. Relation.
3. Attribute.

Entity set Names:

1. Owner.
2. Salesman.
3. Stock.
4. Prescription.
5. Billing.

Entity set and attributes:

Details list of entities and their attributes.

- **Entity**: Owner.
- **Attributes and data type**:

- Owner_Id: int, (primary key).
- Owner_name: varchar.
- Owner_password: varchar.

❑ **Entity**: Salesman.

➢ **Attributes and data type**:

- Sales_Id: int,(primary key).
- Sales_name: varchar.
- Sales_password: varchar.
- Sales_address: varchar.

❑ **Entity**: Stock.

➢ **Attributes and data type**:

- Medicine_Id: int, (primary key)
- Medicine_name: varchar.
- Quantity: int.
- Price: double.
- Medicine_type: varchar.

❑ **Entity**: Billing.

➢ **Attributes and data type**:

- Bill_Id: int,(primary key).
- Salesman_Id: int.
- Customer_name: varchar.
- Date: datetime.
- Total_amount: double.
- Prescription_no: int.

- **Entity**: Prescription.

- **Attributes and data type**:

- Prescription_no: int, (primary key).
- Patient_name: varchar.
- Doctor_name: varchar.
- Quantity: int, (multivalued).
- Medicine_name: varchar, (multivalued).

Relationship among entity sets:

One-to-many relationship between owner and salesman:

Relationship between Owner and salesman is supervises .This relationship indicates that one owner can supervise many salesman information but many salesman may have at most one owner.

One- to-many relationship between owner and stock:

Relationship between owner and stock is supervises. This relationship indicates that one owner can supervise many stock but many stocks can be supervised by at most one owner.

One- to-many relationship between owner and prescription:

Relationship between owner and prescription is supervises. This relationship indicates that one owner can supervise information of many prescriptions but many prescriptions are supervised by at most one owner.

One- to-many relationship between owner and billing:

Relationship between owner and billing is supervises. This relationship indicates that one owner can supervise information of all bills but many bills are supervised by at most one owner.

Many- to-many relationship between salesman and stock:

Relationship between salesman and stock is records. This relationship indicates one salesman can record many stock and a stock can be recorded by many salesman.

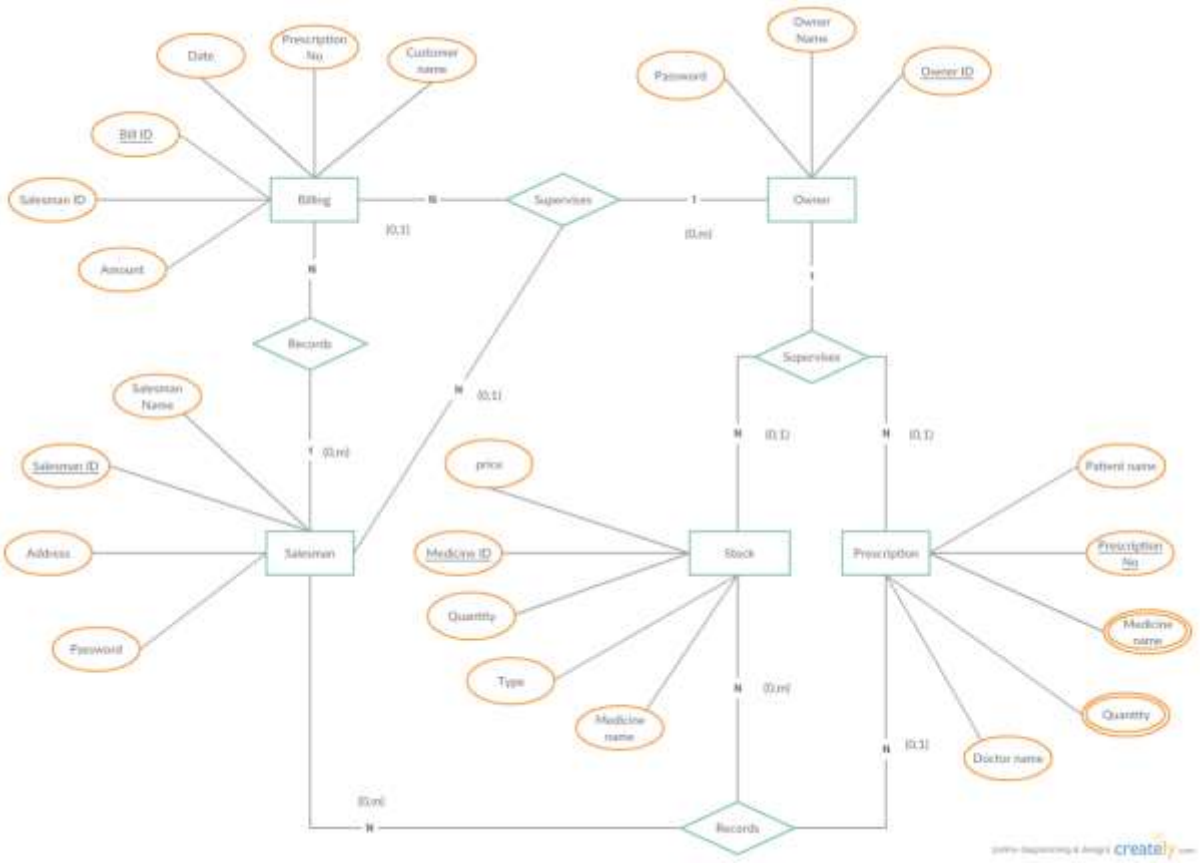
One-to-many relationship between salesman and billing:

Relationship between salesman and billing is records. This relationship indicates one salesman can record many bills but many bills can be recorded by at most one salesman.

One-to-many relationship between salesman and prescription:

Relationship between salesman and prescription is records. This relationship indicates one salesman can record many bills but many prescriptions can be recorded by at most one salesman.

E-R Diagram of Pharmacy Management System:



Class Diagram:

Object oriented methodologist work to discover classes, attributes, methods and relationships between classes. Programming occurs at class level, defining class is one of the most important object oriented analysis tasks. Class diagram show the static features of system and do not represent any particular processing and it also shows the nature of relationship between classes.

A class diagram is mainly list of classes, attributes and methods showing the relationship among them.

Scenario of class diagram in our project:

Administrator is consists of two different classes owner and user. Owner can modify information of salesman class, stock class, billing class, prescription class. Salesman records information about prescription, billing and stock class.

Class names:

1. Administration.
2. Owner.
3. Salesman.
4. Stock.
5. Prescription.
6. Billing.

Classes, attributes and methods name:

- **Class**: Administrator.
- **Attributes:**
- + User_name: String.
- + Pasword: String.
- **Methods:**
- - Login ( ): void.

❑ **Class**: Owner.

- **Attributes:**
- + Owner_name: String.
- + Owner_Id: int.
- + Password: String.

➢ **Methods:**

- - Create ( ): void.
- - Update ( ): void.
- - Delete ( ): void.
- - Clear ( ): void.
- - Search ( ): void.

❑ **Class**: Salesman.

- **Attributes:**
- + Owner_name: String.
- + Owner_Id: int.
- + Password: String.

➢ **Methods:**

- - Create ( ): void.
- - Update ( ): void.
- - Delete ( ): void.
- - Clear ( ): void.
- - Search ( ): void.

❑ **Class**: Stock.

- **Attributes:**
- + Medicine_Id: int
- + Medicine_Name: String
- + Quantity: int
- + Price: double

- + Medicine_Type : String

➢ **Methods:**

- - Create ( ): void.
- - Update ( ): void.
- - Delete ( ): void.
- - Clear ( ): void.
- - Search ( ): void.

❑ **Class**: Prescription.

- **Attributes:**
- + Patient_Name : String
- + Medicine_Name: String
- + Prescription_no: int
- + Quantity: int.
- + Doctor_Name: String.

➢ **Methods:**

- - Create ( ) : void
- - Update ( ) : void
- - Delete ( ) : void
- - Clear ( ) : void
- - Search ( ) : void

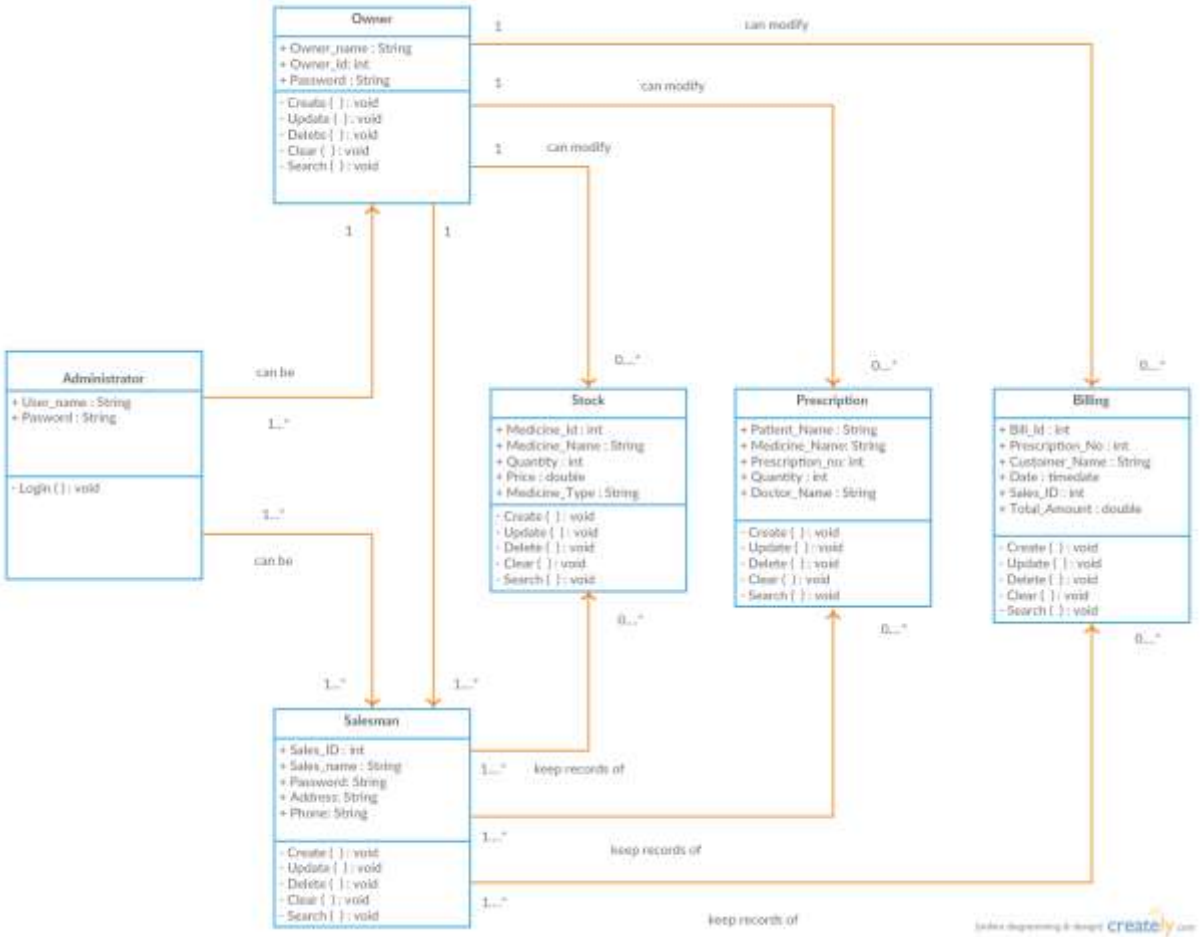
❑ **Class**: Billing.

- **Attributes:**
- + Bill_Id: int.
- + Prescription_No: int.
- + Customer_Name: String.
- + Date: timedate.
- + Sales_ID: int.
- + Total_Amount: double.

- **Methods:**

- - Create ( ): void.
- - Update ( ): void.
- - Delete ( ): void.
- - Clear ( ): void.
- - Search ( ): void.

UML Class Diagram of Pharmacy Management System:



Conclusion:

The Entity Relationship Diagram shows the entities, their attributes & relationships between them. The Class Diagram illustrates the relationships, different types of classes, their multiplicities and dependencies among classes in the UML. These diagrams will be used for the implementation of the system.