**Data Types :**

|  |  |  |
| --- | --- | --- |
| **Field** | **Data Type** | **Uses** |
| user\_id | INT (Primary Key) | Unique identifier for users. |
| name | VARCHAR(100) | Name of the user. |
| phone | VARCHAR(15) | Phone number (unique for authentication). |
| email | VARCHAR(100) | Email address (unique for authentication). |
| role | ENUM | User role (Doctor, Receptionist, Patient). |
| specialization | VARCHAR(100) | Field of expertise (Doctor-specific). |
| appointment\_id | INT (Primary Key) | Unique identifier for an appointment. |
| doctor\_id | INT (Foreign Key) | Doctor assigned to the appointment. |
| patient\_id | INT (Foreign Key) | Patient booking the appointment. |
| appointment\_date | DATE | Date of appointment. |
| appointment\_time | TIME | Time of appointment. |
| status | ENUM | Status (Scheduled, Completed, Cancelled). |
| report\_id | INT (Primary Key) | Unique identifier for a medical report. |
| report\_name | VARCHAR(255) | Name of the report. |
| upload\_date | TIMESTAMP | Date when the report was uploaded. |
| bill\_id | INT (Primary Key) | Unique identifier for a bill. |
| amount | DECIMAL(10,2) | Amount charged for the consultation. |
| payment\_method | ENUM | Payment type (Cash, UPI). |
| notification\_id | INT (Primary Key) | Unique identifier for a notification. |
| message | TEXT | Notification message content. |
| emergency\_id | INT (Primary Key) | Unique identifier for an emergency case. |
| details | TEXT | Details of the emergency case. |

**Classes (base cls and derived cls):**

**Base Class: User**

## Attributes:

* + user\_id, name, phone, email, role

## Functions:

* + login(), logout(), view\_profile()

# Derived Classes:

**Doctor (Extends User)**

* **Attributes:** doctor\_id, specialization (like Oncologist/Gyno/ortho)

## Functions:

* + set\_availability()
  + view\_appointments()
  + conduct\_consultation()
  + issue\_prescription()
  + manage\_reports()

# 

# Receptionist (Extends User)

## Functions:

* + schedule\_appointment()
  + cancel\_appointment()
  + reschedule\_appointment()
  + process\_payment()
  + send\_notifications()
  + manage\_patients()

# 

# Patient (Extends User)

## Functions:

* + book\_appointment()
  + cancel\_appointment()
  + view\_reports()
  + make\_payment()
  + submit\_feedback()

# Appointment

* **Attributes:** appointment\_id, doctor\_id, patient\_id, appointment\_date, appointment\_time, status

## Functions:

* + schedule()
  + reschedule()
  + cancel()
  + check\_status()

# Prescription

* **Attributes:** prescription\_id, appointment\_id, medicines, dosage

## Functions:

* + generate\_prescription()
  + update\_prescription()
  + view\_prescription()

# Medical Reports

* **Attributes:** report\_id, patient\_id, report\_name, upload\_date

## Functions:

* + upload\_report()
  + view\_report()
  + download\_report()

# Billing

* **Attributes:** bill\_id, appointment\_id, amount, payment\_method

## Functions:

* + generate\_bill()
  + process\_payment()
  + refund\_payment()

# Notifications

* **Attributes:** notification\_id, user\_id, message

## Functions:

* + send\_notification()
  + view\_notification()

# Emergency Assistance

* **Attributes:** emergency\_id, patient\_id, details

## Functions:

* + record\_emergency()

**Relational Database :**

1. **Users Table**

| Name | Data Type | Constraints |
| --- | --- | --- |
| user\_id | INT | PrimaryKey(PK) |
| name | VARCHAR(100) | NOT NULL |
| phone | VARCHAR(15) | UNIQUE |
| email | VARCHAR(100) | UNIQUE |
| role | ENUM(Doctor, Receptionist, Patient) | NOT NULL |

**2. Doctors Table**

| Name | Data Type | Constraints |
| --- | --- | --- |
| doctor\_id | INT | Primary Key (PK) |
| user\_id | INT | Foreign Key (FK)  Users(user\_id) |
| specialization | VARCHAR(100) | NOT NULL |

**3. Patients Table**

| Name | Data Type | Constraints |
| --- | --- | --- |
| patient\_id | INT | Primary Key (PK) |
| user\_id | INT | Foreign Key (FK)  Users(user\_id) |

**4. Receptionists Table**

| Column Name | Data Type | Constraints |
| --- | --- | --- |
| receptionist\_id | INT | Primary Key (PK) |
| user\_id | INT | Foreign Key (FK)  Users(user\_id) |

**5. Appointments Table**

| Column Name | Data Type | Constraints |
| --- | --- | --- |
| appointment\_id | INT | Primary Key (PK) |
| doctor\_id | INT | Foreign Key (FK) Doctors(doctor\_id) |
| patient\_id | INT | Foreign Key (FK) Patients(patient\_id) |
| appointment\_date | DATE | NOT NULL |
| appointment\_time | TIME | NOT NULL |
| status | ENUM(Scheduled, Completed, Cancelled) | NOT NULL |

**6. Prescriptions Table**

| Name | Data Type | Constraints |
| --- | --- | --- |
| prescription\_id | INT | Primary Key (PK) |
| consultation\_id | INT | Foreign Key (FK) Consultations(consultation\_id) |

**7. Prescription Details Table (New Table for Medicines)**

| Name | Data Type | Constraints |
| --- | --- | --- |
| prescription\_id | INT | Foreign Key (FK)  Prescriptions(prescription\_id) |
| medicine\_name | VARCHAR(255) | Primary Key (PK) |
| dosage | TEXT | NOT NULL |

**8. Medical Reports Table.**

| Name | Data Type | Constraints |
| --- | --- | --- |
| report\_id | INT | Primary Key (PK) |
| patient\_id | INT | Foreign Key (FK) Patients(patient\_id) |
| appointment\_id | INT | Foreign Key (FK) Appointments(appointment\_id) |
| report\_name | VARCHAR(255) | NOT NULL |
| upload\_date | TIMESTAMP | DEFAULT CURRENT\_TIMESTAMP |

**9. Billing Table**

| Name | Data Type | Constraints |
| --- | --- | --- |
| bill\_id | INT | Primary Key (PK) |
| appointment\_id | INT | Foreign Key (FK) Appointments(appointment\_id) |
| amount | DECIMAL(10,2) | NOT NULL |
| payment\_method | ENUM(Cash, UPI) | NOT NULL |

**10. Notifications Table**

| Name | Data Type | Constraints |
| --- | --- | --- |
| notification\_id | INT | Primary Key (PK) |
| user\_id | INT | Foreign Key (FK) Users(user\_id) |
| message | TEXT | NOT NULL |

**11. Emergency Assistance Table**

| Name | Data Type | Constraints |
| --- | --- | --- |
| emergency\_id | INT | Primary Key (PK) |
| patient\_id | INT | Foreign Key (FK) Patients(patient\_id) |
| doctor\_id | INT | Foreign Key (FK) Doctors(doctor\_id) |
| details | TEXT | NOT NULL |