1. User

- **Attributes:** User_ID (PK), Username, Password, Role, Email and created_at

- **Relationships:**

    a. **One-to-One** with a Patient — a user can be a patient.
    b. **One-to-One** with a Doctor — a user can be a doctor.
    c. A *user* acts as the base entity for authentication and role management {roles include patient, doctor, HR, front-desk, self-checkinKiosk}.

2. Patient

- **Attributes:** Patient_ID (PK), User_ID (FK → User.User_ID), First_Name, Last_Name, Address, Phone, Age, registration_date, date_of_birth

- **Relationships:**

    a. **Many-to-One** with **User** — each patient is linked to one user account.
    b. **One-to-Many** with **Appointment** — a patient can **book multiple appointments**.
    c. A patient can **view lab results** linked through their appointments.

3. Doctor

- **Attributes:** Doctor_ID (PK), User_ID (FK → User.User_ID), First_Name, Last_Name, Address, Phone, Age, Specialisation, registration_date

- **Relationships:**

    a. **Many-to-One** with **User** — each doctor has one associated user account.
    b. **One-to-Many** with **Appointment** — a doctor can **have multiple appointments**.
    c. **One-to-Many** with **Lab Results** — a doctor **generates multiple lab reports** for different appointments.

4. Appointment

- **Attributes:** Appointment_ID (PK), Patient_ID (FK → Patient.Patient_ID), Doctor_ID (FK → Doctor.Doctor_ID), appointment_date, appointment_time, Status, Reason_forVisit, notes

- **Relationships:**

    a. **Many-to-One** with a Patient — each appointment belongs to one patient.
    b. **Many-to-One** with a Doctor — each appointment belongs to one doctor.

c. **One-to-One** with **Lab Results** — an appointment can have one associated lab report.

5. Lab Results

- **Attributes:** Results_ID (PK), Appointment_ID (FK → Appointment.Appointment_ID), Lab_Test, Report, Doctor_ID (FK → Doctor.Doctor_ID), created_at

- **Relationships:**

  a. **One-to-One** with **Appointment** — each lab result is tied to one appointment.
  b. **Many-to-One** with **Doctor** — a doctor generates multiple lab reports.

Relationship	Description
User → Patient	One user creates one patient record
User → Doctor	One user creates one doctor record
Patient → Appointment	One patient books many appointments
Doctor → Appointment	One doctor attends many appointments
Appointment → Lab Results	One appointment generates one lab result
Doctor → Lab Results	One doctor creates many lab results