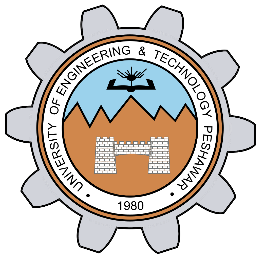
**KEY MILESTONE 2**

**Hospital Patient Management System**



**Spring 2025**

**CSE-403L**

**Database Management Systems Lab**

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**Finalized Normalized Relational Schema (Hospital Patient management system)**

1. **RELATIONAL SCHEMA:**

* **PERSON**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Person ID** | **Name** | **Gender** | **Date Of Birth** | **Contact Number** | **Address** |

* **PATIENT**

|  |  |  |  |
| --- | --- | --- | --- |
| **Patient ID** | **Primary Doctor ID** | **Insurance ID** | **Medical History** |

* **DOCTOR**

|  |  |  |  |
| --- | --- | --- | --- |
| **Doctor ID** | **Specialization** | **Departement ID** | **Postion** |

* **STAFF**

|  |  |
| --- | --- |
| **Staff ID** | **Role** |

* **NURSE**

|  |  |  |
| --- | --- | --- |
| **Nurse ID** | **Registered** | **Assigned Department ID** |

* **DEPARTEMENT**

|  |  |  |  |
| --- | --- | --- | --- |
| **Department ID** | **Name** | **Floor** | **Head Doctor ID** |

* **ROOM**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Room ID** | **Room Number** | **Room Type** | **Availability** | **Block** | **Floor** |

* **APPOINTMENT**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Appointment ID** | **Patient ID** | **Doctor ID** | **Room ID** | **Nurse ID** | **Appointment Type** | **Date Time** | **Reason** |

* **BILLING**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Bill ID** | **Appointment ID** | **Patient ID** | **Total Amount** | **Payment Status** | **Insurance Claimed** | **Date of Payment** |

* **TEST**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Test ID** | **Test Name** | **Test Type** | **Result** | **Order By Doctor ID** | **Patient ID** | **Date Performed** |

* **PRESCRIPTION**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Prescription ID** | **Appointment ID** | **Doctor ID** | **Medication** | **Dosage** | **Instruction** |

* **INSURANCE PROVIDER**

|  |  |  |
| --- | --- | --- |
| **Insurance ID** | **Provider Name** | **Contact info** |

1. **Normalization:**

* **Person**(Person ID, Name, Gender, Date Of Birth, Contact Number, Address)

**• 1NF: All values are atomic.  
• 2NF: Fully functionally dependent on Person ID.  
• 3NF: No transitive dependencies.  
Already in 3NF.**

## Patient(Patient ID, Primary Doctor ID, Insurance ID, Medical History)

**• 1NF: Atomic fields.  
• 2NF: All attributes depend on Patient ID.  
• 3NF: Foreign keys (Primary Doctor ID, Insurance ID) do not cause transitive dependency.  
In 3NF.**

## **Doctor**(Doctor ID, Specialization, Department ID, Position)

**• 1NF: Atomic values.  
• 2NF: Fully dependent on Doctor ID.  
• 3NF: Department ID is a FK and doesn’t cause transitive dependency.  
In 3NF.**

## **Staff**(Staff ID, Role)

**• 1NF: All fields are atomic.  
• 2NF: Fully dependent on Staff ID.  
• 3NF: No transitive dependency.  
In 3NF.**

## **Nurse**(Nurse ID, Registered, Assigned Department ID)

**• 1NF: No repeating groups.  
• 2NF: Fully dependent on Nurse ID.  
• 3NF: Assigned Department ID is a FK, no transitive dependency.  
In 3NF**.

## **Department**(Department ID, Name, Floor, Head Doctor ID)

**• 1NF: Atomic attributes.  
• 2NF: Fully dependent on Department ID.  
• 3NF: Head Doctor ID is FK; no transitive dependency.  
In 3NF**.

## **Room**(Room ID, Room Number, Room Type, Availability, Block, Floor)

**• 1NF: Atomic fields.  
• 2NF: All attributes depend only on Room ID.  
• 3NF: No indirect dependencies.  
In 3NF.**

## **Appointment**(Appointment ID, Patient ID, Doctor ID, Room ID, Nurse ID, Appointment Type, Date Time, Reason)

**• 1NF: All fields are atomic.  
• 2NF: Fully functionally dependent on Appointment ID.  
• 3NF: FKs (Patient ID, Doctor ID, Room ID, Nurse ID) do not cause transitive dependency.  
In 3NF.**

## **Billing**(Bill ID, Appointment ID, Patient ID, Total Amount, Payment Status, Insurance Claimed, Date Of Payment)

**• 1NF: Atomic values.  
• 2NF: Fully dependent on Bill ID.  
• 3NF: FKs are not transitively dependent on PK.  
In 3NF.**

## **Prescription**(Prescription ID, Appointment ID, Doctor ID, Medication, Dosage, Instructions)

**• 1NF: Atomic values.  
• 2NF: All fields depend only on Prescription ID.  
• 3NF: Appointment ID and Doctor ID are FKs with no transitive dependency.  
In 3NF.**

## **Insurance Provider**(Insurance ID, Provider Name, Contact Info)

**• 1NF: Atomic fields.  
• 2NF: Fully dependent on Insurance ID.  
• 3NF: No transitive dependencies.  
In 3NF.**