CSP362: Database Management Systems - Assignment 2

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1 Introduction

In this assignment, we have to create design a database for **Hospital Management System** in *mysql* for deployment at **IIT Jammu**. The details of various modules have been provided. The entities and relationships are described based on the modules. An ER diagram has been made.

2 Entities and Relationships

The color scheme followed to list the attributes is as follows:
- blue for **Primary Key**.
- red for **Foreign Key**.
- green for new attributes which are described in later sections.

- The following entities are required:

    - **Patient**
        * patient_id
        * name
        * gender
        * dob
        * weight
        * admitted (yes/no)
        * mother_name
        * contact_no

- ∗ address
  - **Doctor**
    - ∗ doctor_id
    - ∗ dob
    - ∗ gender
    - ∗ department
    - ∗ qualification
    - ∗ contact_no
    - ∗ address
    - ∗ email
    - ∗ salary
  - **Staff**
    - ∗ staff_id
    - ∗ type (consultant, intern, nurse)
    - ∗ name
    - ∗ dob
    - ∗ gender
    - ∗ address
    - ∗ contact_no
    - ∗ salary
    - ∗ qualification
  - **Ward**
    - ∗ ward_id
    - ∗ no_of_beds
    - ∗ class
    - ∗ current_status
  - **Bed**
    - ∗ bed_id
    - ∗ ward_id
    - ∗ patient_id
  - **Inpatient**
    - ∗ patient_id
    - ∗ bed_id
    - ∗ date_of_admission

* date_of_discharge
  - **Lab Report**
    * lab_id
    * patient_id
    * doctor_id
    * date
    * test_type
    * result
    * amount
  - **Stock**
    * stock_id
    * name
    * price
    * description
    * quantity_available
    * type (medicine, equipment)

- The following relationships are required:
  - **Patient_Equipment**
    * patient_id
    * equipment_id
  - **Patient_Bill**
    * patient_id
    * eq_bill_amount (equipment)
    * tr_bill_amount (treatment, includes lab)
    * to_bill_amount (total)
  - **Patient_Staff**
    * patient_id
    * staff_id

3 Normalizing the database upto BCNF

3.1 1NF

The database design is already in **first normal form** since there is no field which is multi-valued.

3.2 2NF

It is already in **second normal form** as there is no partial dependency of any non-key attribute on any key attribute. This is because all entity tables have single attribute as key, and for the relationship tables, there are only two attributes which themselves are part of the key.

3.3 3NF

3.4 BCNF

4 ER Diagram: