**Hospital Database Management System**

**Description and Assumptions:**

The scenario in a hospital is that it is an institution that provides medical and surgical treatment and nursing care for sick or injured people. Assumptions are mentioned below:

* **Department:**

Primarily we need a department’s ID and name to identify it.

* **Doctor:**

We need doctor’s ID to identify them. Furthermore, we need to mention their name, to which department they belong, their area of specialization, contact details and salary.

* **Patient:**

We need patient’s ID to identify them. Furthermore, we need to mention their name, in which room they are sent to, receptionist which received them, contact details, age & sex for medical purposes and bill payment status.

* **Room:**

A room can be easily identified with its number. Also, we add its location for assistance.

* **Bill:**

It can be easily identified with its ID. Also, it contains and mentions the amount.

* **Receptionist:**

We need receptionist’s ID to identify them. Furthermore, we need to mention their name and their salary. Here, we are assuming that the shift of receptionist is not changing.

Other entities of less importance like staff, floor, etc. are not included in the database management system in order to keep it simple.

**Entities:**

* Department
* Doctor
* Patient
* Room
* Bill
* Receptionist

**Attributes:**

All of the considered attributes of aforementioned entities are mentioned in the ERD and assumptions above.

**Primary and Foreign Keys:**

Every entity can be identified by their own ID and inherited foreign keys are dependent on their respective relations.

**Relationship and Cardinalities:**

* We considered all of the relationships as non-identifying because all of the entities could be uniquely identified with their own primary key and did not require foreign primary key of their parent for identification.
* **Department and Doctor (one to many):**
  + A department can have many doctors.
  + A doctor can belong to only one department.
* **Doctor and Patient (many to many):**
  + Many doctors can treat/diagnose many patients.
  + Many patients can be treated/diagnosed by multiple doctors.
  + A patient can go to many doctors for diagnosis of multiple diseases or for x-rays, multiple tests, etc.
* **Room and Patient (one to many):**
  + A room can have many patients.
  + A patient can reside in only one room.
* **Patient and Bill (one to one):**
  + A patient can have only one bill indicating patient’s total charges.
  + A bill can belong to only a single patient.
* **Receptionist and Patient (one to many):**
  + A receptionist can receive many patients.
  + A patient can be received by only one receptionist.

Reference Image:

<https://www.pinterest.com/pin/435582595209715272/>

