**DATABASE DESIGN**

**STEP 1:** According to the given scenario, we can define 4 tables to store the entire information, the tables being

1. Patient table
2. Doctor table
3. Lab table
4. In patient table
5. Out patient table
6. Room table
7. Bill table

**STEP 2:** After defining the tables, now we need to define the attributes for each table and cardinality.

1. The patient table contains attributes namely Patient IT, Name, Age, Weight, Sex, Address, Mobile, Disease and Doctor ID.
2. The Doctor table contains attributes namely Doctor ID, Doctor name and Department.
3. The lab table contains attributes namely Lab no, Patient ID, Weight, Doctor ID, Date, Category, Patient type and Amount.
4. The In patient table contains attributes namely Patient ID, room no, date of admission, date of dismissal, advance and room no.
5. The out patient table contains attributes namely Patient ID, Date and Lab number.
6. The room table contains Room no, Room type and status.
7. The bill table contains bill no, patient ID, patient type, doctor fee, medical fee, room fee, operation fee, number of days, nurse fee, advance, health card, lab fee and bill.

**STEP 3:**

1. For each of the attribute, we need to define the data type and also the relationship. Data types may be of different kinds namely character, binary, Boolean, integer, float, date, time etc. and the relationship of the attribute whether it is null or not null.
2. If we do not have to provide a value for a filed, it may be declared as null and if we must provide value for a field, it should be declared as not null.
3. The attribute which contains unique value can be declared as primary key and we should keep in mind that primary key cannot be a null value.
4. The attribute which points to the primary key of another table is defined as foreign key.
5. The doctor table has one to many (1-n) relationship with Patient table as each doctor deals with multiple patients.
6. The patient table has one to one relationship with Lab table, room table and bill table, in patient table and outpatient table.

Patient Table:

|  |  |  |
| --- | --- | --- |
| **Fields** | **Data Type** | **Relationships** |
| Patient ID | Varchar(20) | Primary Key |
| Name | Varchar(20) | Not Null |
| Age | Int | Not Null |
| Weight | Int | Not Null |
| Sex | Varchar(10) | Not null |
| Address | Varchar(50) | Not Null |
| Mobile | Int | Not Null |
| Disease | Varchar(20) | Not Null |
| Doctor ID | Varchar(5) | Not Null |
|  |  |  |

Doctor Table:

|  |  |  |
| --- | --- | --- |
| **Fields** | **Data Type** | **Relationships** |
| Doctor ID | Varchar(5) | Primary Key |
| Doctor name | Varchar(15) | Not Null |
| Department | Varchar(15) | Not Null |

Lab Table:

|  |  |  |
| --- | --- | --- |
| **Fields** | **Data Type** | **Relationships** |
| Labno | Varchar(5) | Primary Key |
| Patient ID | Varchar(5) | Not Null |
| Weight | Int | Not Null |
| Doctor ID | Varchar(5) | Foreign Key |
| Date | Date/Time | Not Null |
| Category | Varchar(15) | Not Null |
| patient\_type | Varchar(15) | Not Null |
| Amount | Int | Not Null |

In patient Table:

|  |  |  |
| --- | --- | --- |
| **Fields** | **Data Type** | **Relationships** |
| Patient ID | Varchar(5) | Primary Key |
| room\_no | Varchar(50) | Not Null |
| date\_of\_adm | Date/Time | Not Null |
| date\_of\_dis | Date/Time | Not Null |
| Advance | Int | Not Null |
| Labno | Varchar(5) | Foreign Key |

Out patient Table:

|  |  |  |
| --- | --- | --- |
| **Fields** | **Data Type** | **Relationships** |
| Patient ID | Varchar(5) | Primary Key |
| Date | Date/Time | Not Null |
| Labno | Varchar(5) | Foreign Key |

Room Table:

|  |  |  |
| --- | --- | --- |
| **Fields** | **Data Type** | **Relationships** |
| room\_no | Varchar(50) | Primary Key |
| room\_type | Varchar(10) | Not Null |
| Status | Varchar(10) | Not Null |

Bill Table:

|  |  |  |
| --- | --- | --- |
| **Fields** | **Data Type** | **Relationships** |
| bill\_no | Varchar(50) | Primary Key |
| Patient ID | Varchar(5) | Foreign Key |
| patient\_type | Varchar(10) | Allow Null |
| doctor\_fee | Int | Not Null |
| medicine\_fee | Int | Not Null |
| room\_fee | Int | Not Null |
| oprtn\_fee | Int | Allow Null |
| no\_of\_days | int | Allow Null |
| nurse\_fee | Int | Allow Null |
| Advance | Int | Allow Null |
| health\_card | Varchar(50) | Allow Null |
| lab\_fee | Int | Allow Null |
| Bill | Int | Not Null |

**E-R Diagram**

patient

Contacts

doctor

Checks

lab Report

Decides

In patient

Out patient

Issued to

Admitted to to

room

bill

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