**Database Project**

1. **Domain Description**

Title: Hospital Management Database

Entities and Relationships

* Doctor:
* Patient:
* Nurse:
* Inpatient:
* Outpatient:
* Room:
* Department:
* Prescription:
* Bill:

1. **Entity-Relationship Diagram**

Requirements:

At least 8-10 entity sets.

At least one weak entity set.

At least one Composite and multi-valued attribute

At least one many-many relationship

At least one descriptive attribute

At least many-one relationship

At least one -many relationship

Indicate any requirement for participation.

Indicate the cardinality of relationships.

1. **Relational Schema**

Requirements:

* Be sure to indicate primary keys.
* Verify your design is in BCNF.
  + Or if it is not, decompose it so that it is.
  + You should show work either checking that it is in BCNF or the process of decomposition to make it so.
* Doctor (doctor\_id, doctor\_name, gender, age, dept\_name, phone, office, city, salary)
* Patient (patient\_id, patient\_name, gender, age, weight, city)
* Inpatient (patient\_id, room\_no, date\_of\_adm, date\_of\_dis, lab\_no)
* Outpatient (patient\_id, date, lab\_no)
* Room (room\_no, room\_type, status)
* Department (dept\_name, building, budget)
* Prescription (prescription\_id, disease\_id, symptom\_id, lab\_no, medicine\_qty)
* Bill (bill\_no, patient\_id, service\_charge, no\_of\_days, due\_date)
* Nurse (nurse\_id , nurse\_name)
* The new weak relationship is between Nurse and Patient, and it indicates that a Nurse may assist one or more Patients, but a Patient may not necessarily have a Nurse assigned to them. The nurse\_id attribute is made a partial key to reflect that it may not be unique.

1. **Transaction and Query Executions**

Requirements:

* Comment the **intent of each command** or group of commands directly.
* Provide one SQL file for DDL
* Provide one SQL file for DML
* Provide one file for queries.
* Each query should be accompanied by an English statement of the intended result of the query.
* At least two queries should involve four or more relations.
* At least one query should involve outer joins.
* At least one query should use an aggregate function.
* At least three queries should use subqueries in a non-trivial way.
  + One of those should use a set comparison (e.g. > some)
* At least two queries should use grouping.
  + At least one of those should use having.
* At least one query should use set operations.

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| --- | --- | --- |
| 1. Doctor | | |
| Field | Data Type | Relationships |
| doctor\_id  doctor\_name  gender  age  dept\_name  phone  office  city  salary | Varchar(5)  Varchar(15)  Varchar(10)  Int  Varchar(20)  Int  Varchar(15)  Varchar(20)  int | Primary Key  Not Null  Not Null  Not Null  Foreign Key  Not Null  Not Null  Not Null  Not Null |

|  |  |  |
| --- | --- | --- |
| 1. Patient | | |
| Field | Data Type | Relationships |
| patient\_id  patient\_name  gender  age  weight  city  prescription\_id  doctor\_id | Varchar(5)  Varchar(20)  Varchar(10)  Int  Int  Varchar(20)  Varchar(10)  Varchar(5) | Primary Key  Not Null  Not Null  Not Null  Not Null  Not Null  Foreign Key  Foreign Key |

|  |  |  |
| --- | --- | --- |
| 1. Inpatient | | |
| Field | Data Type | Relationships |
| patient\_id  room\_no  date\_of\_adm date\_of\_dis  lab\_no | Varchar(5)  Varchar(50)  Date/Time  Date/Time  Varchar(5) | Primary key  Not Null  Not Null  Not Null  Foreign Key |

|  |  |  |
| --- | --- | --- |
| 1. Lab | | |
| Field | Data Type | Relationships |
| lab\_no  patient\_id weight  doctor\_id  date  category | Varchar(5)  Varchar(5)  Int  Varchar(5)  Date/Time  Varchar(15) | Primary Key  Not Null  Not Null  Foreign Key  Not Null  Not Null |

|  |  |  |
| --- | --- | --- |
| 1. Outpatient | | |
| Field | Data Type | Relationships |
| patient\_id date  lab\_no | Varchar(5)  Date/Time  Varchar(5) | Primary Key  Not Null  Foreign Key |

|  |  |  |
| --- | --- | --- |
| 1. Room | | |
| Field | Data Type | Relationships |
| room\_no  room\_type  status | Varchar(50)  Varchar(10)  Varchar(10) | Primary Key  Not Null  Not Null |

|  |  |  |
| --- | --- | --- |
| 1. Department | | |
| Field | Data Type | Relationships |
| dept\_name  building  budget | Varchar(20)  Varchar(20)  int | Primary Key  Not Null  Not Null |

|  |  |  |
| --- | --- | --- |
| 1. Prescription | | |
| Field | Data Type | Relationships |
| prescription\_id disease\_id  symptom\_id  lab\_no  medicine\_qty | Varchar(5)  Varchar(10)  Varchar(10)  Varchar(5)  Int | Primary key  Not Null  Not Null  Foreign key  Not Null |

|  |  |  |
| --- | --- | --- |
| 1. Bill | | |
| Field | Data Type | Relationships |
| bill\_no  patient\_id  service\_charge no\_of\_days  due\_date | Varchar(50)  Varchar(5)  Int  Int  Date/Time | Primary Key  Foreign Key  Not Null  Allow Null  Allow Null |