

HOSPITAL MANAGEMENT SYSTEM

USING MYSQL

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Batch: BH03

Project Name: Hospital Management System

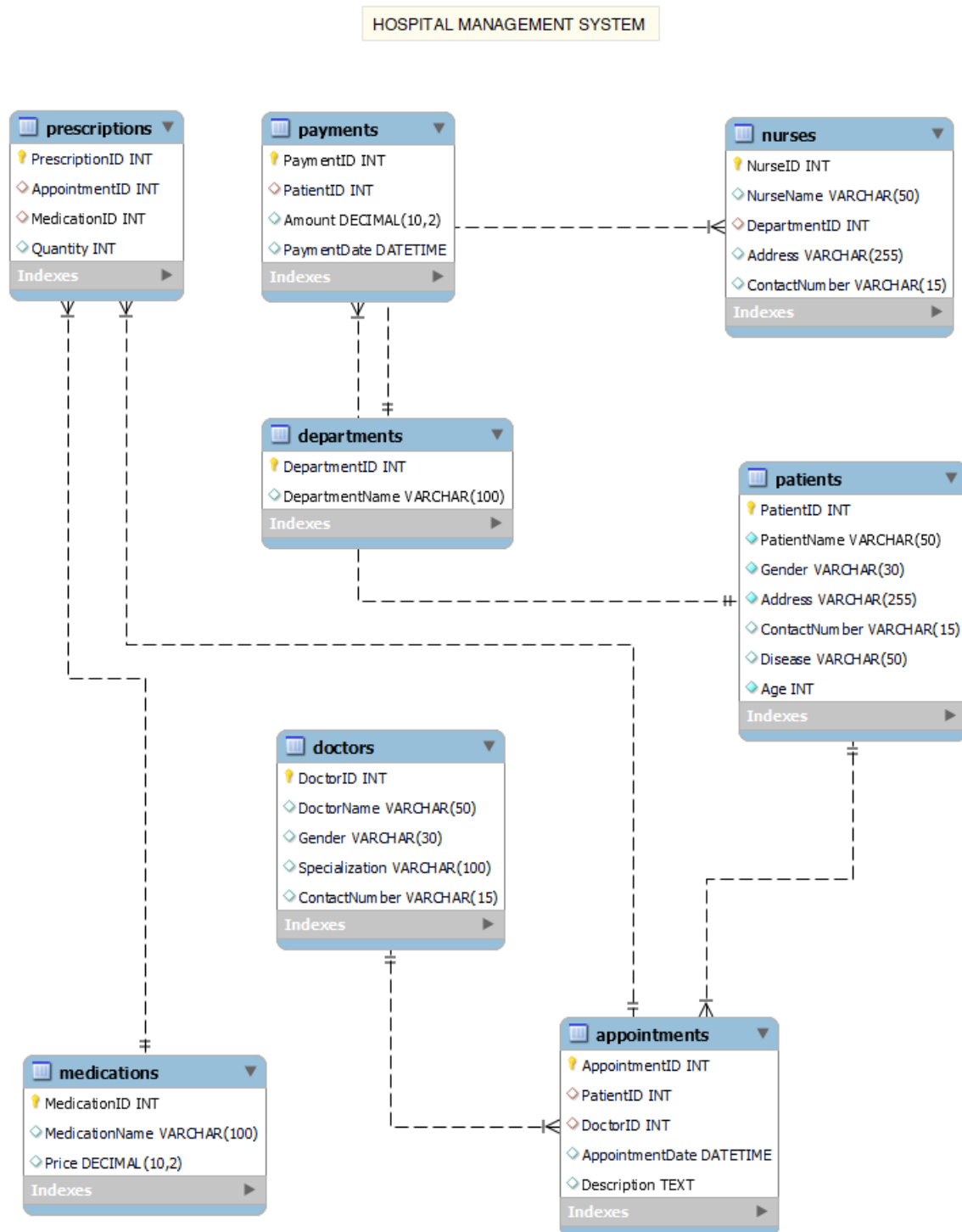
SQL (Structured Query Language), which stands for Structured Query Language, is a domain-specific language used for managing and manipulating relational databases.

MySQL is an open-source relational database management system (RDBMS) that uses SQL as its query language. It is one of the most popular and widely used RDBMSs in the world. MySQL is known for its speed, reliability, and ease of use.

You have been assigning to create a database of hospital management database system that should store information about patients, doctors, nurses, appointments, prescriptions, medications and payments. Design the database scheme answer the following questions.

Steps:

• ER DIAGRAM:



Er diagram on Hospital Management :

- PatientID, DoctorID, NurseID, DepatmentID, MedicationID, PrescriptionID, PaymentID are primary keys
- In Nurses, Appointments, Prescriptions, Medications, Payments and PatientID, DoctorID, DepatmentID s are foreign keys.

- Open MySQL and Create a Database with database_name called “HospitalManagementSystem”

```
MySQL 8.0 Command Line Cli  ×  +  v
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 25
Server version: 8.0.33 MySQL Community Server - GPL

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> create database HospitalManagementSystem;
Query OK, 1 row affected (0.01 sec)

mysql> |
```

- Use that database

```
mysql> use HospitalManagementSystem;
Database changed
mysql> show databases;
+-----+
| Database |
+-----+
| durgesh |
| hospital-managementproject |
| hospitalmanagementsystem |
| information_schema |
| mysql |
| performance_schema |
| sakila |
| sql_hr |
| sql_inventory |
| sql_invoicing |
| sql_store |
| sys |
| world |
+-----+
13 rows in set (0.01 sec)
```

- Create Tables of Patients, Doctors, Departments, Nurses, Appointments, Medications, Prescriptions, Payments. Specify necessary columns and data types for each table

```
mysql> CREATE TABLE Patients(  
-> PatientID int not null primary key,  
-> PatientName varchar(50) NOT NULL,  
-> Gender varchar(30) NOT NULL,  
-> Address varchar(255) NOT NULL,  
-> ContactNumber int NOT NULL,  
-> Join_date date NOT NULL,  
-> Discharge_date date NOT NULL,  
-> Disease varchar(50)  
-> );
```

Query OK, 0 rows affected (0.01 sec)

```
mysql> CREATE TABLE Doctors (  
-> DoctorID INT PRIMARY KEY,  
-> DoctorName VARCHAR(50),  
-> Gender VARCHAR(30),  
-> Specialization VARCHAR(100),  
-> ContactNumber INT NOT NULL  
-> );
```

Query OK, 0 rows affected (0.01 sec)

```
mysql> CREATE TABLE Departments (  
-> DepartmentID INT PRIMARY KEY,  
-> DepartmentName VARCHAR(100)  
-> );
```

Query OK, 0 rows affected (0.01 sec)

- Describe the tables

```
mysql> alter table patients
-> drop column Join_date;
Query OK, 0 rows affected (0.03 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> alter table patients
-> drop column Discharge_date;
Query OK, 0 rows affected (0.01 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> alter table patients
-> add Age int NOT NULL;
Query OK, 0 rows affected (0.02 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> desc patients;
```

Field	Type	Null	Key	Default	Extra
PatientID	int	NO	PRI	NULL	
PatientName	varchar(50)	NO		NULL	
Gender	varchar(30)	NO		NULL	
Address	varchar(255)	NO		NULL	
ContactNumber	int	NO		NULL	
Disease	varchar(50)	YES		NULL	
Age	int	NO		NULL	

```
7 rows in set (0.00 sec)
```

```
mysql> desc patients;
```

Field	Type	Null	Key	Default	Extra
PatientID	int	NO	PRI	NULL	
PatientName	varchar(50)	NO		NULL	
Gender	varchar(30)	NO		NULL	
Address	varchar(255)	NO		NULL	
ContactNumber	int	NO		NULL	
Join_date	date	NO		NULL	
Discharge_date	date	NO		NULL	
Disease	varchar(50)	YES		NULL	

```
8 rows in set (0.00 sec)
```

```
mysql> desc doctors;
```

Field	Type	Null	Key	Default	Extra
DoctorID	int	NO	PRI	NULL	
DoctorName	varchar(50)	YES		NULL	
Gender	varchar(30)	YES		NULL	
Specialization	varchar(100)	YES		NULL	
ContactNumber	int	NO		NULL	

```
5 rows in set (0.00 sec)
```

```
mysql> desc nurses;
```

Field	Type	Null	Key	Default	Extra
NurseID	int	NO	PRI	NULL	
NurseName	varchar(50)	YES		NULL	
DepartmentID	int	YES	MUL	NULL	
Address	varchar(255)	YES		NULL	
ContactNumber	int	NO		NULL	

```
5 rows in set (0.00 sec)
```

```
mysql> desc departments;
```

Field	Type	Null	Key	Default	Extra
DepartmentID	int	NO	PRI	NULL	
DepartmentName	varchar(100)	YES		NULL	

2 rows in set (0.00 sec)

```
mysql> desc appointments;
```

Field	Type	Null	Key	Default	Extra
AppointmentID	int	NO	PRI	NULL	
PatientID	int	YES	MUL	NULL	
DoctorID	int	YES	MUL	NULL	
AppointmentDate	datetime	YES		NULL	
Description	text	YES		NULL	

5 rows in set (0.00 sec)

```
mysql> desc medications;
```

Field	Type	Null	Key	Default	Extra
MedicationID	int	NO	PRI	NULL	
MedicationName	varchar(100)	YES		NULL	
Price	decimal(10,2)	YES		NULL	

3 rows in set (0.00 sec)

```
mysql> desc prescriptions;
```

Field	Type	Null	Key	Default	Extra
PrescriptionID	int	NO	PRI	NULL	
AppointmentID	int	YES	MUL	NULL	
MedicationID	int	YES	MUL	NULL	
Quantity	int	YES		NULL	

4 rows in set (0.00 sec)

```
mysql> desc payments;
```

Field	Type	Null	Key	Default	Extra
PaymentID	int	NO	PRI	NULL	
PatientID	int	YES	MUL	NULL	
Amount	decimal(10,2)	YES		NULL	
PaymentDate	datetime	YES		NULL	

4 rows in set (0.00 sec)

- Insert Values into tables,
- Retrieve the data from tables

```
mysql> INSERT INTO PATIENTS VALUES(02,'Praveen','M','Nangavaram','9885050502','Malaria',23),(03,'Santhosh','M','Uppalaguptham','7680890975','Thypoid',24),(04,'Hari','M','Sathupalli','9652343345','Dengue',21),(05,'Naveen','M','Razole','7731090242','Fewer',25),(06,'Manoj','M','Vizag','9988553462','fewer',23);
Query OK, 5 rows affected (0.00 sec)
Records: 5 Duplicates: 0 Warnings: 0
```

```
mysql> select * from patients;
```

PatientID	PatientName	Gender	Address	ContactNumber	Disease	Age
1	Durgesh	M	Amalapuram	7569259998	Thypoid	21
2	Praveen	M	Nangavaram	9885050502	Malaria	23
3	Santhosh	M	Uppalaguptham	7680890975	Thypoid	24
4	Hari	M	Sathupalli	9652343345	Dengue	21
5	Naveen	M	Razole	7731090242	Fewer	25
6	Manoj	M	Vizag	9988553462	fewer	23

```
6 rows in set (0.00 sec)
```

```
mysql> INSERT INTO DOCTORS VALUES(101,'Dr. K.Subba Rao','M','INDIAN MEDICINE / FAMILY PHYSICIAN','9398828865'),(102,'Dr. S. B. Venkatapati Raju','M','OPHTHALMOLOGY','9705474065'),(103,'Dr. Dhanuantary K. V. Naidu','M','INDIAN MEDICINE / FAMILY PHYSICIAN','8885562453'),(104,'Dr. V L Ndikshithula Srinivasu','M','UROLOGY','7695182145');
Query OK, 4 rows affected (0.01 sec)
Records: 4 Duplicates: 0 Warnings: 0
```

```
mysql> select * from doctors;
```

DoctorID	DoctorName	Gender	Specialization	ContactNumber
101	Dr. K.Subba Rao	M	INDIAN MEDICINE / FAMILY PHYSICIAN	9398828865
102	Dr. S. B. Venkatapati Raju	M	OPHTHALMOLOGY	9705474065
103	Dr. Dhanuantary K. V. Naidu	M	INDIAN MEDICINE / FAMILY PHYSICIAN	8885562453
104	Dr. V L Ndikshithula Srinivasu	M	UROLOGY	7695182145

```
4 rows in set (0.00 sec)
```

```
mysql> INSERT INTO DEPARTMENTS VALUES(1001,'Surgical department'),(1002,'Nursing department'),
-> (1003,'Accident and emergency (A&E)
'> '), (1004,'Operation theater complex (OT)'),(1005,'Radiology department (X-ray)');
Query OK, 5 rows affected (0.01 sec)
Records: 5 Duplicates: 0 Warnings: 0
```

```
mysql> select * from departments;
```

DepartmentID	DepartmentName
1001	Surgical department
1002	Nursing department
1003	Accident and emergency (A&E)
1004	Operation theater complex (OT)
1005	Radiology department (X-ray)

```
5 rows in set (0.00 sec)
```

```
mysql> INSERT INTO NURSES VALUES(201,'Likhitha','1001','Kothapeta','8185051196'),(202,'Naga Ratna','1002','Kothapeta','8442268235'),(203,'Roshitha','1003','Razole','7730955067'),(204,'Seetha','1004','Amalapuram','9985263654'),(205,'Geetha','1001','Amalapuram','9685474655'),(206,'Amrutha','1005','Vizag','8845589625'),(207,'Fathima','1004','Vijayawada','9965854741');
Query OK, 7 rows affected (0.01 sec)
Records: 7 Duplicates: 0 Warnings: 0
```

```
mysql> select * from nurses;
```

NurseID	NurseName	DepartmentID	Address	ContactNumber
201	Likhitha	1001	Kothapeta	8185051196
202	Naga Ratna	1002	Kothapeta	8442268235
203	Roshitha	1003	Razole	7730955067
204	Seetha	1004	Amalapuram	9985263654
205	Geetha	1001	Amalapuram	9685474655
206	Amrutha	1005	Vizag	8845589625
207	Fathima	1004	Vijayawada	9965854741


```
mysql> INSERT INTO APPOINTMENTS VALUES(1100,1,101,'2023-08-24 10:00:00', 'Thypoid checkup'),
-> (1101,2,102,'2023-08-24 10:30:00', 'Malaria Checkup'),(1102,3,101,'2023-08-24 11:00:00',
'Thypoid CHeckup'),(1103,4,102,'2023-08-25 10:00:00', 'Bones checkup'),(1104,5,103,'2023-08-
25 10:30:00', 'Fewer Checkup'),(1105,6,103,'2023-08-25 11:00:00', 'Fewer Checkup');
Query OK, 6 rows affected (0.01 sec)
Records: 6 Duplicates: 0 Warnings: 0
```

```
mysql> select * from appointments;
+-----+-----+-----+-----+-----+
| AppointmentID | PatientID | DoctorID | AppointmentDate | Description |
+-----+-----+-----+-----+-----+
| 1100 | 1 | 101 | 2023-08-24 10:00:00 | Thypoid checkup |
| 1101 | 2 | 102 | 2023-08-24 10:30:00 | Malaria Checkup |
| 1102 | 3 | 101 | 2023-08-24 11:00:00 | Thypoid CHeckup |
| 1103 | 4 | 102 | 2023-08-25 10:00:00 | Bones checkup |
| 1104 | 5 | 103 | 2023-08-25 10:30:00 | Fewer Checkup |
| 1105 | 6 | 103 | 2023-08-25 11:00:00 | Fewer Checkup |
+-----+-----+-----+-----+-----+
6 rows in set (0.04 sec)
```

```
mysql> INSERT INTO PAYMENTS VALUES(1001,1,525.65,'2023-08-25 12:00:00'),(1002,2,419.65,'2023-0
8-25 12:30:20'),(1003,3,399.58,'2023-08-25 12:40:00'),(1004,4,785.33,'2023-08-25 01:12:50'),(1
005,5,688.45,'2023-08-25 01:33:12'),(1006,6,985.2,'2023-08-26 02:05:55');
Query OK, 6 rows affected (0.02 sec)
Records: 6 Duplicates: 0 Warnings: 0
```

```
mysql> select * from payments;
+-----+-----+-----+-----+
| PaymentID | PatientID | Amount | PaymentDate |
+-----+-----+-----+-----+
| 1001 | 1 | 525.65 | 2023-08-25 12:00:00 |
| 1002 | 2 | 419.65 | 2023-08-25 12:30:20 |
| 1003 | 3 | 399.58 | 2023-08-25 12:40:00 |
| 1004 | 4 | 785.33 | 2023-08-25 01:12:50 |
| 1005 | 5 | 688.45 | 2023-08-25 01:33:12 |
| 1006 | 6 | 985.20 | 2023-08-26 02:05:55 |
+-----+-----+-----+-----+
6 rows in set (0.00 sec)
```

```
mysql> INSERT INTO MEDICATIONS VALUES(11100, 'AUGMENTIN 625mg', 204.85),(11101, 'L MONTUS', 277.78),(11102, 'C
laribid 250', 238.67),(11103, 'CEFTAS', 125.55),(11104, 'Abbott', 100.25),(11105, 'Citrazen', 25.28),(11106, '
Paracetmal 500mg', 75.68),(11107, 'DOLO 650mg', 120.25),(11108, 'ACETAMINOPHEN', 399.58),(11109, 'Platenza', 2
89.55),(11110, 'CARPAGO', 804.85),(11111, 'G-Plet', 99.25);
Query OK, 12 rows affected (0.00 sec)
Records: 12 Duplicates: 0 Warnings: 0
```

```
mysql> select * from medications;
+-----+-----+-----+
| MedicationID | MedicationName | Price |
+-----+-----+-----+
| 11100 | AUGMENTIN 625mg | 204.85 |
| 11101 | L MONTUS | 277.78 |
| 11102 | Claribid 250 | 238.67 |
| 11103 | CEFTAS | 125.55 |
| 11104 | Abbott | 100.25 |
| 11105 | Citrazen | 25.28 |
| 11106 | Paracetmal 500mg | 75.68 |
| 11107 | DOLO 650mg | 120.25 |
| 11108 | ACETAMINOPHEN | 399.58 |
| 11109 | Platenza | 289.55 |
| 11110 | CARPAGO | 804.85 |
| 11111 | G-Plet | 99.25 |
+-----+-----+-----+
12 rows in set (0.00 sec)
```

```

mysql> INSERT INTO PRESCRIPTIONS VALUES(1, 1100, 11100, 2);
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO PRESCRIPTIONS VALUES(2, 1101, 11101, 3);
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO PRESCRIPTIONS VALUES(3, 1102, 11102, 4);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO PRESCRIPTIONS VALUES(4, 1103, 11103, 1);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO PRESCRIPTIONS VALUES(5, 1104, 11104, 6);
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO PRESCRIPTIONS VALUES(6, 1105, 11105, 3);
Query OK, 1 row affected (0.04 sec)

mysql> INSERT INTO PRESCRIPTIONS VALUES(7, 1106, 11106, 5);
ERROR 1452 (23000): Cannot add or update a child row: a foreign
ibfk_1' FOREIGN KEY (`AppointmentID`) REFERENCES `appointments`
mysql> select * from prescriptions;
+-----+-----+-----+-----+
| PrescriptionID | AppointmentID | MedicationID | Quantity |
+-----+-----+-----+-----+
| 1 | 1100 | 11100 | 2 |
| 2 | 1101 | 11101 | 3 |
| 3 | 1102 | 11102 | 4 |
| 4 | 1103 | 11103 | 1 |
| 5 | 1104 | 11104 | 6 |
| 6 | 1105 | 11105 | 3 |
+-----+-----+-----+-----+
6 rows in set (0.00 sec)

```

- Retrieve data from specific column name from tables

```
mysql> select patientID,Disease from patients;
+-----+-----+
| patientID | Disease |
+-----+-----+
|          1 | Thypoid |
|          2 | Malaria |
|          3 | Thypoid |
|          4 | Dengue  |
|          5 | Fewer   |
|          6 | fewer   |
+-----+-----+
6 rows in set (0.02 sec)
```

```
mysql> select patientID,DoctorID from appointments;
+-----+-----+
| patientID | DoctorID |
+-----+-----+
|          1 |        101 |
|          2 |        102 |
|          3 |        101 |
|          4 |        102 |
|          5 |        103 |
|          6 |        103 |
+-----+-----+
6 rows in set (0.00 sec)
```

```
mysql> select patientID,amount from payments;
+-----+-----+
| patientID | amount |
+-----+-----+
|          1 | 525.65 |
|          2 | 419.65 |
|          3 | 399.58 |
|          4 | 785.33 |
|          5 | 688.45 |
|          6 | 985.20 |
+-----+-----+
6 rows in set (0.00 sec)
```

- Join Operations:

INNER JOIN:

```
mysql> SELECT Appointments.AppointmentID, Appointments.AppointmentDate, Appointments.Description
-> FROM Appointments INNER JOIN Patients ON Appointments.PatientID = Patients.PatientID INNER JOIN Doctors ON Appointments.DoctorID = Doctors.DoctorID;
```

AppointmentID	AppointmentDate	Description
1100	2023-08-24 10:00:00	Thypoid checkup
1101	2023-08-24 10:30:00	Malaria Checkup
1102	2023-08-24 11:00:00	Thypoid CHeckup
1103	2023-08-25 10:00:00	Bones checkup
1104	2023-08-25 10:30:00	Fewer Checkup
1105	2023-08-25 11:00:00	Fewer Checkup

6 rows in set (0.02 sec)

```
mysql> desc appointments;
```

Field	Type	Null	Key	Default	Extra
AppointmentID	int	NO	PRI	NULL	
PatientID	int	YES	MUL	NULL	
DoctorID	int	YES	MUL	NULL	
AppointmentDate	datetime	YES		NULL	
Description	text	YES		NULL	

5 rows in set (0.01 sec)

```
mysql> select * from appointments;
```

AppointmentID	PatientID	DoctorID	AppointmentDate	Description
1100	1	101	2023-08-24 10:00:00	Thypoid checkup
1101	2	102	2023-08-24 10:30:00	Malaria Checkup
1102	3	101	2023-08-24 11:00:00	Thypoid CHeckup
1103	4	102	2023-08-25 10:00:00	Bones checkup
1104	5	103	2023-08-25 10:30:00	Fewer Checkup
1105	6	103	2023-08-25 11:00:00	Fewer Checkup

6 rows in set (0.00 sec)

LEFT JOIN:

```
mysql> SELECT Nurses.NurseID, Departments.DepartmentName
-> FROM Nurses
-> LEFT JOIN Departments ON Nurses.DepartmentID = Departments.DepartmentID;
```

NurseID	DepartmentName
201	Surgical department
205	Surgical department
202	Nursing department
203	Accident and emergency (A&E)
204	Operation theater complex (OT)
207	Operation theater complex (OT)
206	Radiology department (X-ray)

7 rows in set (0.05 sec)

RIGHT JOIN:

```
mysql> SELECT Payments.PaymentID, Payments.Amount, Payments.PaymentDate
-> FROM Payments
-> RIGHT JOIN Patients ON Payments.PatientID = Patients.PatientID;
```

PaymentID	Amount	PaymentDate
1001	525.65	2023-08-25 12:00:00
1002	419.65	2023-08-25 12:30:20
1003	399.58	2023-08-25 12:40:00
1004	785.33	2023-08-25 01:12:50
1005	688.45	2023-08-25 01:33:12
1006	985.20	2023-08-26 02:05:55

6 rows in set (0.00 sec)

- Update the data using UPDATE command

```
mysql> update prescriptions set quantity=8 where prescriptionID=2 or prescriptionID=3;
Query OK, 2 rows affected (0.09 sec)
Rows matched: 2 Changed: 2 Warnings: 0
```

```
mysql> select * from prescriptions;
```

PrescriptionID	AppointmentID	MedicationID	Quantity
1	1100	11100	2
2	1101	11101	8
3	1102	11102	8
4	1103	11103	1
5	1104	11104	6
6	1105	11105	3

6 rows in set (0.00 sec)

- Group by Statements

```
mysql> SELECT COUNT(PatientID), Patientname FROM patients GROUP BY patientname;
```

COUNT(PatientID)	Patientname
1	Durgesh
1	Praveen
1	Santhosh
1	Hari
1	Naveen
1	Manoj

6 rows in set (0.01 sec)

- Retrieve the amount values greater than 500

```
mysql> select * from payments where amount>500;
+-----+-----+-----+-----+
| PaymentID | PatientID | Amount | PaymentDate |
+-----+-----+-----+-----+
| 1001 | 1 | 525.65 | 2023-08-25 12:00:00 |
| 1004 | 4 | 785.33 | 2023-08-25 01:12:50 |
| 1005 | 5 | 688.45 | 2023-08-25 01:33:12 |
| 1006 | 6 | 985.20 | 2023-08-26 02:05:55 |
+-----+-----+-----+-----+
4 rows in set (0.01 sec)
```

- Total amount from payments table

```
mysql> select sum(amount) from payments;
+-----+
| sum(amount) |
+-----+
| 3803.86 |
+-----+
1 row in set (0.00 sec)
```

- Sub Queries – Retrieve Max of Amount:

```
mysql> select patientID, paymentID, amount from payments where amount
in(select max(amount) from payments);
+-----+-----+-----+
| patientID | paymentID | amount |
+-----+-----+-----+
| 6 | 1006 | 985.20 |
+-----+-----+-----+
1 row in set (0.04 sec)
```