SQL Project

HMS_DB

“Hospital Management System”

Project Overview

Project Title :

Hospital Managment System

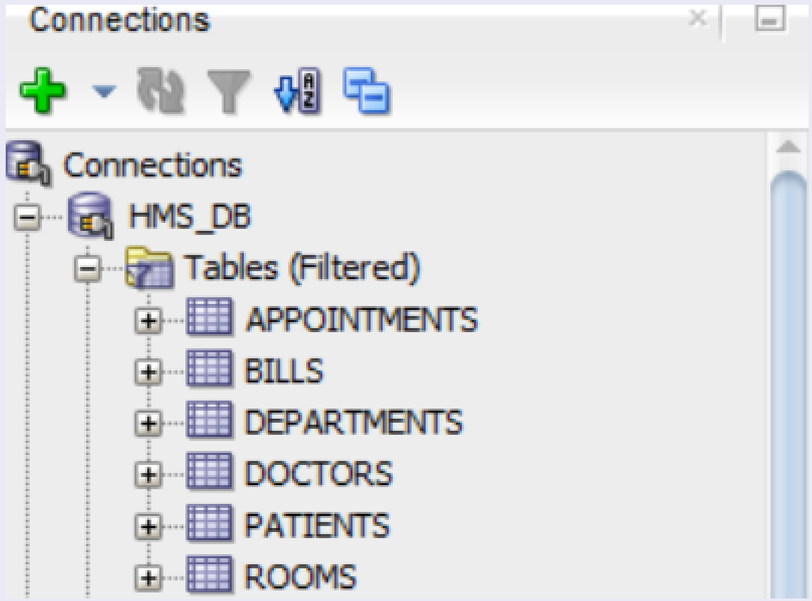
Tool Used :

Oracle SQL Developer

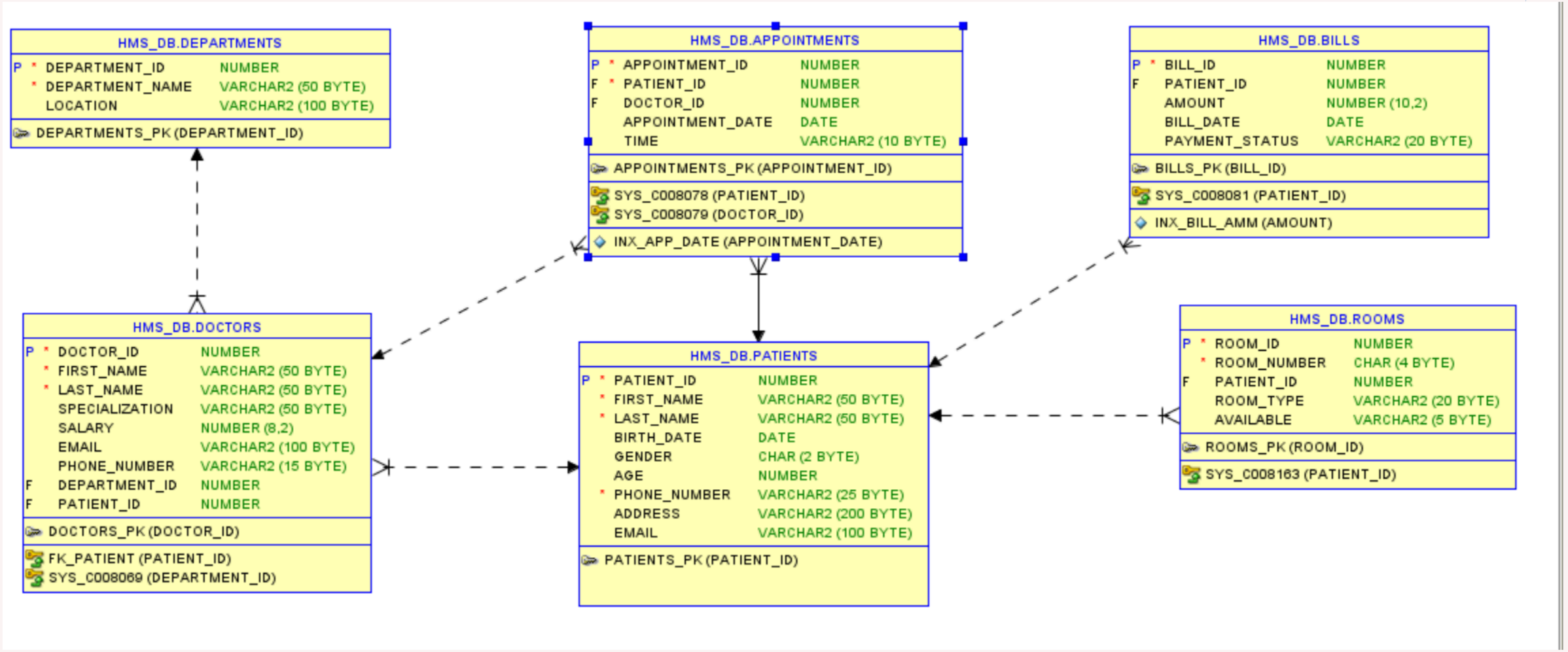
PROJECT INTRODUCTION

In this project, I, Kavita Pawar, have developed a Hospital Management System aimed at streamlining the various processes involved in hospital administration. Utilizing SQL queries, I have addressed key functionalities such as patient registration, appointment scheduling, billing management, and doctor-patient interactions. This system enhances the efficiency of hospital operations, improves data accuracy, and ensures better service delivery to patients. Through the implementation of structured queries, the project facilitates effective data management and retrieval, contributing to a well-organized healthcare environment.

Project Schema



ER Diagram :


HMS_DB.DEPARTMENTS
P * DEPARTMENT_ID NUMBER
* DEPARTMENT_NAME VARCHAR2 (50 BYTE)
LOCATION VARCHAR2 (100 BYTE)
DEPARTMENTS_PK (DEPARTMENT_ID)
HMS_DB.APPOINTMENTS
P * APPOINTMENT_ID NUMBER
F * PATIENT_ID NUMBER
F DOCTOR_ID NUMBER
APPOINTMENT_DATE DATE
TIME VARCHAR2 (10 BYTE)
APPOINTMENTS_PK (APPOINTMENT_ID)
SYS_C008078 (PATIENT_ID)
SYS_C008079 (DOCTOR_ID)
INX_APP_DATE (APPOINTMENT_DATE)
HMS_DB.BILLS
P * BILL_ID NUMBER
F PATIENT_ID NUMBER
AMOUNT NUMBER (10,2)
BILL_DATE DATE
PAYMENT_STATUS VARCHAR2 (20 BYTE)
BILLS_PK (BILL_ID)
SYS_C008081 (PATIENT_ID)
INX_BILL_AMM (AMOUNT)
HMS_DB.DOCTORS
P * DOCTOR_ID NUMBER
* FIRST_NAME VARCHAR2 (50 BYTE)
* LAST_NAME VARCHAR2 (50 BYTE)
SPECIALIZATION VARCHAR2 (50 BYTE)
SALARY NUMBER (8,2)
EMAIL VARCHAR2 (100 BYTE)
PHONE_NUMBER VARCHAR2 (15 BYTE)
F DEPARTMENT_ID NUMBER
F PATIENT_ID NUMBER
DOCTORS_PK (DOCTOR_ID)
FK_PATIENT (PATIENT_ID)
SYS_C008069 (DEPARTMENT_ID)
HMS_DB.PATIENTS
P * PATIENT_ID NUMBER
* FIRST_NAME VARCHAR2 (50 BYTE)
* LAST_NAME VARCHAR2 (50 BYTE)
BIRTH_DATE DATE
GENDER CHAR (2 BYTE)
AGE NUMBER
* PHONE_NUMBER VARCHAR2 (25 BYTE)
ADDRESS VARCHAR2 (200 BYTE)
EMAIL VARCHAR2 (100 BYTE)
PATIENTS_PK (PATIENT_ID)
HMS_DB.ROOMS
P * ROOM_ID NUMBER
* ROOM_NUMBER CHAR (4 BYTE)
F PATIENT_ID NUMBER
ROOM_TYPE VARCHAR2 (20 BYTE)
AVAILABLE VARCHAR2 (5 BYTE)
ROOMS_PK (ROOM_ID)
SYS_C008163 (PATIENT_ID)

Retrieve the total count of doctors in the system.

```
SELECT
    COUNT(DOCTOR_ID) AS TOTAL_DOCTORS
FROM
    DOCTORS;
```

	TOTAL_DOCTORS
1	24

Find Doctors by Specialization.

```
SELECT
DOCTOR_ID,SPECIALIZATION,FIRST_NAME ||' '|| LAST_NAME AS DOCTOR_NAME
FROM
DOCTORS
WHERE
SPECIALIZATION = 'Gynecologist';
```

DOCTOR_ID	SPECIALIZATION	DOCTOR_NAME
110	Gynecologist	Deepak Mehta

Retrieve Specific Patient Details.

```sql
SELECT
    PATIENT_ID, FIRST_NAME, LAST_NAME, AGE,GENDER
FROM
    PATIENTS
WHERE
    PATIENT_ID = 8;
```

	PATIENT_ID	FIRST_NAME	LAST_NAME	AGE	GENDER
1	8	Meena	Iyer	30	F

Retrieve the Records for Appointments Scheduled between two dates.

```
SELECT *
FROM
    APPOINTMENTS
WHERE
    APPOINTMENT_DATE BETWEEN TO_DATE('2024-02-01', 'YYYY-MM-DD')
                         AND TO_DATE('2024-02-05', 'YYYY-MM-DD');
```

APPOINTMENT_ID	PATIENT_ID	DOCTOR_ID	APPOINTMENT_DATE	TIME
200	1	108	01-02-24	10:00 AM
201	2	108	02-02-24	11:00 AM
202	13	102	03-02-24	02:00 PM
203	3	100	04-02-24	03:30 PM
204	5	100	05-02-24	01:00 PM

Find the Average Age of Patients.

```
SELECT
    AVG(AGE) AS AVERAGE_AGE
FROM
    PATIENTS;
```

AVERAGE_AGE
30.85

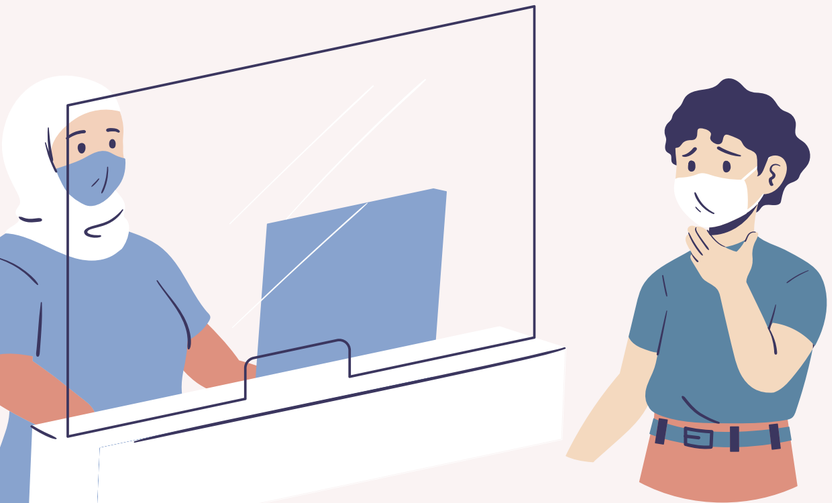
Select Room_Number,Room_id,Patient_id,Available from Rooms Where Available = 'Yes';

```
SELECT
    ROOM_NUMBER,ROOM_ID,PATIENT_ID,AVAILABLE
FROM
    ROOMS
WHERE AVAILABLE = 'Yes';
```

ROOM_NUMBER	ROOM_ID	PATIENT_ID	AVAILABLE
101A	1	1	Yes
103C	3	3	Yes
104D	4	2	Yes
106F	6	4	Yes
108H	8	11	Yes
110J	10	18	Yes
113M	13	11	Yes
114N	14	10	Yes
115O	15	13	Yes
117Q	17	19	Yes

Retrieve the BILL_ID, patient's full name, AMOUNT, BILL_DATE, and PAYMENT_STATUS for bills where the payment status is "Pending" and the BILL_ID is 30 or higher, ordering the results by BILL_ID.

```
SELECT
 B.BILL_ID, P.FIRST_NAME || ' ' || P.LAST_NAME AS PATIENT_NAME,
 B.AMOUNT, B.BILL_DATE, B.PAYMENT_STATUS
FROM
 BILLS B
JOIN
  PATIENTS P ON B.PATIENT_ID = P.PATIENT_ID
WHERE
  B.PAYMENT_STATUS = 'Pending' AND BILL_ID >=30
ORDER BY BILL_ID;
```



BILL_ID	PATIENT_NAME	AMOUNT	BILL_DATE	PAYMENT_STATUS
30	Rohan Yadav	1850	01-03-24	Pending
32	Meena Iyer	2800	02-03-24	Pending
33	Rahul Verma	1800	03-03-24	Pending
34	Anjali Patel	2050	04-03-24	Pending
36	Arjun Rao	1900	06-03-24	Pending
40	Lakshmi Mehatani	2805	09-03-24	Pending

Find Appointments for Multiple Doctors, for example, DOCTOR_IDs 101 and 102?

```
SELECT D.FIRST_NAME || ' ' || D.LAST_NAME AS DOCTOR_NAME,
       P.PATIENT_ID, P.FIRST_NAME || ' ' || P.LAST_NAME AS PATIENT_NAME,
       A.APPOINTMENT_DATE,D.DOCTOR_ID
FROM DOCTORS D
JOIN APPOINTMENTS A ON D.DOCTOR_ID = A.DOCTOR_ID
JOIN PATIENTS P ON A.PATIENT_ID = P.PATIENT_ID
WHERE D.DOCTOR_ID IN (101,102)
ORDER BY A.APPOINTMENT_DATE;
```

DOCTOR_NAME	PATIENT_ID	PATIENT_NAME	APPOINTMENT_DATE	DOCTOR_ID
Priya Iyer	13	Suresh Gupta	03-02-24	102
Rajesh Verma	6	Anjali Patel	11-02-24	101
Priya Iyer	13	Suresh Gupta	29-02-24	102
Rajesh Verma	6	Anjali Patel	04-03-24	101
Rajesh Verma	6	Anjali Patel	05-03-24	101

Create a view that includes the FIRST_NAME, LAST_NAME, and AGE of patients who are over 40 years old.

```
CREATE VIEW ADULT_PATIENTS AS
SELECT FIRST_NAME, LAST_NAME, AGE
FROM PATIENTS
WHERE AGE > 40;
```

FIRST_NAME	LAST_NAME	AGE
Sunita	Kumar	46
Ravi	Desale	44

Find All Patients in Andheri or Bandra

```sql
SELECT
  PATIENT_ID,FIRST_NAME ||''|| LAST_NAME AS PATIENT_NAME,ADDRESS
FROM
  PATIENTS
WHERE ADDRESS LIKE '%Andheri%' OR ADDRESS LIKE '%Bandra%';
```

PATIENT_ID	PATIENT_NAME	ADDRESS
1	AmitValle	19 Andheri, Mumbai
2	SunitaKumar	09 Bandra, Mumbai
6	AnjaliPatel	456 Andheri, Mumbai

Find Patients Who Have Had More than 3 Appointments, Calculate their total Bill, and Show their Average Bill Rounded to Two Decimal Places:

```sql
SELECT P.PATIENT_ID,P.FIRST_NAME || ' ' || P.LAST_NAME AS PATIENT_NAME,ROUND(SUM(B.AMOUNT), 2) AS TOTAL_BILL,
ROUND(AVG(B.AMOUNT), 2) AS AVERAGE_BILL
FROM PATIENTS P
JOIN BILLS B ON P.PATIENT_ID = B.PATIENT_ID
WHERE P.PATIENT_ID IN (
    SELECT A.PATIENT_ID FROM APPOINTMENTS A
    GROUP BY A.PATIENT_ID
    HAVING COUNT(A.APPOINTMENT_ID) > 3)
GROUP BY P.PATIENT_ID, P.FIRST_NAME, P.LAST_NAME
HAVING SUM(B.AMOUNT) > 0;
```

PATIE...	PATIENT_NAME	TOTAL_BILL	AVERAGE_BILL
3	Rahul Verma	10000	2500
11	Nikhil Joshi	9100	2275

Thank you for your attention