Hospital Management system 🏥

Data Analysis Final Project

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-- Start of Our Queries --


Select * From Department; -- (31)-

-- Select * From Room; -- (391)-

-- Select * From Doctor; -- (400)-

Select * From Nurse; -- (500)-

Select * From Helpers; -- (1100)-

-- Select * From Bed; -- (500)-

Select * From Patients; -- (1500)-

-- Select * From BedRecords; -- (1000)-

Select * From RoomRecords; -- (1000)-

Select * From Appointment; -- (1000)-

-- Select * From MedicalRecord ;-- (3000)

-- Select * From StaffShift ;-- (2058)

-- Select * From SurgeryRecord; -- (1000)


-- Check for duplicates in each table

SELECT *

FROM Appointment a

WHERE EXISTS (

  SELECT 1

  FROM Appointment b

  WHERE a.appointment_Id = b.appointment_Id
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   GROUP BY b.appointment_Id
   HAVING COUNT(*) > 1
);

 SELECT *
FROM Department d
WHERE EXISTS (
   SELECT 1
   FROM Department t
   WHERE d.dept_Id = t.dept_Id
   GROUP BY t.dept_Id
   HAVING COUNT(*) > 1
);

 SELECT *
FROM Room r
WHERE EXISTS (
   SELECT 1
   FROM Room o
   WHERE r.room_No = o.room_No
   GROUP BY o.room_No
   HAVING COUNT(*) > 1
);
 SELECT *
FROM Doctor c
WHERE EXISTS (
   SELECT 1
   FROM Doctor f
   WHERE c.doct_id = f.doct_id
   GROUP BY f.doct_id
   HAVING COUNT(*) > 1
```

```
);
 SELECT *
FROM Nurse n
WHERE EXISTS (
   SELECT 1
   FROM Nurse u
   WHERE n.nurse_id = u.nurse_id
   GROUP BY u.nurse_id
   HAVING COUNT(*) > 1
);
 SELECT *
FROM Helpers h
WHERE EXISTS (
   SELECT 1
   FROM Helpers s
   WHERE h.helper_id = s.helper_id
   GROUP BY s.helper_id
   HAVING COUNT(*) > 1
);
 SELECT *
FROM Patients p
WHERE EXISTS (
   SELECT 1
   FROM Patients i
   WHERE p.patient_Id = i.patient_Id
   GROUP BY i.patient_Id
   HAVING COUNT(*) > 1
);
 SELECT *
FROM RoomRecords w
WHERE EXISTS (
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```
  SELECT 1
  FROM RoomRecords e
  WHERE w.admisson_ID = e.admisson_ID
  GROUP BY e.admisson_ID
  HAVING COUNT(*) > 1
);
 SELECT *
FROM MedicalRecord mr
WHERE EXISTS (
  SELECT 1
  FROM MedicalRecord me
  WHERE mr.record_Id =  me.record_Id
  GROUP BY  me.record_Id
  HAVING COUNT(*) > 1
);
SELECT *
FROM SurgeryRecord sr
WHERE EXISTS (
  SELECT 1
  FROM SurgeryRecord rs
  WHERE sr.surgery_Id =  rs.surgery_Id
  GROUP BY rs.surgery_Id
  HAVING COUNT(*) > 1
);
--  Droping unnecssary tables
Drop table bedrecords;
Drop table bed;
Drop table ward;
Drop table staffshift;

-- Adding Room Price to Room
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```
SELECT DISTINCT room_Type
FROM Room;

ALTER TABLE Room
ADD room_price DECIMAL(10,2);
SET SQL_SAFE_UPDATES = 0;

UPDATE Room
SET room_price = CASE
   WHEN room_Type = 'Consultation Room' THEN 10250.00
   WHEN room_Type = 'Super Deluxe Room' THEN 21800.00
   WHEN room_Type = 'Deluxe Room' THEN 16500.00
   WHEN room_Type = 'Standard Room' THEN 5750.00
   WHEN room_Type = 'Emergency Room' THEN 7200.00
   WHEN room_Type = 'Operation Theatre' THEN 14000.00
   ELSE 1500.00 -- fallback for undefined types
END
WHERE room_No IS NOT NULL;

select * from Room;

-- Adding salaries to nurse, dotor , helpers
SELECT DISTINCT surgeon_Type FROM Doctor;

ALTER TABLE Doctor
ADD Doct_salary DECIMAL(10,2);

UPDATE Doctor
SET Doct_salary = CASE
   WHEN surgeon_Type = 'General Surgeon' THEN 12000.00
   WHEN surgeon_Type = 'Trauma Surgeon' THEN 13500.00
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WHEN surgeon_Type = 'Cardiothoracic Surgeon' THEN 18000.00
WHEN surgeon_Type = 'Neurosurgeon' THEN 20000.00
WHEN surgeon_Type = 'Orthopedic Surgeon' THEN 16000.00
WHEN surgeon_Type = 'Plastic Surgeon' THEN 15500.00
WHEN surgeon_Type = 'Pediatric Surgeon' THEN 14000.00
WHEN surgeon_Type = 'Vascular Surgeon' THEN 16500.00
WHEN surgeon_Type = 'Colorectal Surgeon' THEN 14500.00
WHEN surgeon_Type = 'Transplant Surgeon' THEN 19000.00
WHEN surgeon_Type = 'Oncologic Surgeon' THEN 17000.00
WHEN surgeon_Type = 'Endocrine Surgeon' THEN 13000.00
WHEN surgeon_Type = 'Urologic Surgeon' THEN 15000.00
WHEN surgeon_Type = 'Gynecologic Surgeon' THEN 13500.00
WHEN surgeon_Type = 'Hepatobiliary Surgeon' THEN 17500.00
WHEN surgeon_Type = 'Bariatric Surgeon' THEN 14500.00
WHEN surgeon_Type = 'Ophthalmic Surgeon' THEN 12500.00
WHEN surgeon_Type = 'Otolaryngologic (ENT) Surgeon' THEN 13000.00
WHEN surgeon_Type = 'Maxillofacial Surgeon' THEN 14000.00
WHEN surgeon_Type = 'Thoracic Surgeon' THEN 17000.00
WHEN surgeon_Type = 'Hand Surgeon' THEN 12000.00
WHEN surgeon_Type = 'Foot And Ankle Surgeon' THEN 11500.00
WHEN surgeon_Type = 'Spinal Surgeon' THEN 18500.00
WHEN surgeon_Type = 'Craniofacial Surgeon' THEN 16000.00
WHEN surgeon_Type = 'Reconstructive Microsurgeon' THEN 15500.00
WHEN surgeon_Type = 'Laparoscopic Surgeon' THEN 13500.00
WHEN surgeon_Type = 'Robotic Surgeon' THEN 17500.00
WHEN surgeon_Type = 'Gastrointestinal Surgeon' THEN 14000.00
WHEN surgeon_Type = 'Fetal Surgeon' THEN 19000.00
WHEN surgeon_Type = 'Neonatal Surgeon' THEN 18500.00
WHEN surgeon_Type = 'Dermatologic Surgeon' THEN 12500.00
WHEN surgeon_Type = 'Emergency Surgeon' THEN 13000.00
WHEN surgeon_Type = 'Proctologic Surgeon' THEN 12000.00
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    WHEN surgeon_Type = 'Burn Surgeon' THEN 13500.00
    WHEN surgeon_Type = 'Oral Surgeon' THEN 12500.00
    WHEN surgeon_Type = 'Peripheral Nerve Surgeon' THEN 15000.00
    WHEN surgeon_Type = 'Transoral Surgeon' THEN 14000.00
    WHEN surgeon_Type = 'Chest Wall Surgeon' THEN 16000.00
    ELSE 10000.00 -- fallback salary for undefined types
END;

SELECT
    doct_Id,
    dept_Id,
    Concat(FName," ",LName) AS Full_Name ,
    Gender,
    contact_No,
    coalesce(surgeon_Type, 'Not a Surgeon') AS surgeon_Type,
    coalesce(office_No, 0) AS office_No,
    Doct_salary
FROM Doctor;

-- Nurse SAlary
SELECT DISTINCT dept_id FROM Nurse;

ALTER TABLE Nurse
ADD Nurse_salary DECIMAL(10,2);

UPDATE Nurse
SET Nurse_salary = CASE
    WHEN dept_Id = 101 THEN 3200.00
    WHEN dept_Id = 102 THEN 3400.00
    WHEN dept_Id = 103 THEN 3600.00
    WHEN dept_Id = 104 THEN 3800.00
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```
    WHEN dept_Id = 105 THEN 4000.00
    WHEN dept_Id = 107 THEN 4200.00
    WHEN dept_Id = 108 THEN 4400.00
    WHEN dept_Id = 109 THEN 4600.00
    WHEN dept_Id = 110 THEN 4800.00
    WHEN dept_Id = 111 THEN 5000.00
    WHEN dept_Id = 112 THEN 5200.00
    WHEN dept_Id = 113 THEN 5400.00
    WHEN dept_Id = 114 THEN 5600.00
    WHEN dept_Id = 115 THEN 5800.00
    WHEN dept_Id = 116 THEN 6000.00
    WHEN dept_Id = 117 THEN 6200.00
    WHEN dept_Id = 118 THEN 6400.00
    WHEN dept_Id = 119 THEN 6600.00
    WHEN dept_Id = 120 THEN 6800.00
    WHEN dept_Id = 121 THEN 7000.00
    WHEN dept_Id = 122 THEN 7200.00
    WHEN dept_Id = 123 THEN 7400.00
    WHEN dept_Id = 124 THEN 7600.00
    WHEN dept_Id = 125 THEN 7800.00
    WHEN dept_Id = 126 THEN 8000.00
    WHEN dept_Id = 127 THEN 8200.00
    WHEN dept_Id = 128 THEN 8400.00
    WHEN dept_Id = 129 THEN 8600.00
    WHEN dept_Id = 130 THEN 8800.00
    WHEN dept_Id = 131 THEN 9000.00
    ELSE 3000.00 -- fallback salary for undefined departments
END;

SELECT * FROM Nurse;
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```
-- Adding helpers salary
SELECT DISTINCT dept_id FROM Helpers;

ALTER TABLE Helpers
ADD Helper_salary DECIMAL(10,2);

UPDATE Helpers
SET Helper_salary = CASE
  WHEN dept_Id = 101 THEN 800.00
  WHEN dept_Id = 102 THEN 850.00
  WHEN dept_Id = 103 THEN 900.00
  WHEN dept_Id = 104 THEN 950.00
  WHEN dept_Id = 105 THEN 1000.00
  WHEN dept_Id = 106 THEN 1050.00
  WHEN dept_Id = 107 THEN 1100.00
  WHEN dept_Id = 108 THEN 1150.00
  WHEN dept_Id = 109 THEN 1200.00
  WHEN dept_Id = 110 THEN 1250.00
  WHEN dept_Id = 111 THEN 1300.00
  WHEN dept_Id = 112 THEN 1350.00
  WHEN dept_Id = 113 THEN 1400.00
  WHEN dept_Id = 114 THEN 1450.00
  WHEN dept_Id = 115 THEN 1500.00
  WHEN dept_Id = 116 THEN 1550.00
  WHEN dept_Id = 117 THEN 1600.00
  WHEN dept_Id = 118 THEN 1650.00
  WHEN dept_Id = 119 THEN 1700.00
  WHEN dept_Id = 120 THEN 1750.00
  WHEN dept_Id = 121 THEN 1800.00
  WHEN dept_Id = 122 THEN 1850.00
  WHEN dept_Id = 123 THEN 1900.00
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```
    WHEN dept_Id = 124 THEN 1950.00
    WHEN dept_Id = 125 THEN 2000.00
    WHEN dept_Id = 126 THEN 2050.00
    WHEN dept_Id = 127 THEN 2100.00
    WHEN dept_Id = 128 THEN 2150.00
    WHEN dept_Id = 129 THEN 2200.00
    WHEN dept_Id = 130 THEN 2250.00
    WHEN dept_Id = 131 THEN 2300.00
    ELSE 750.00 -- fallback salary for undefined departments
END;

SELECT * FROM Helpers;

-- Adding Treatment price based on its type in Medical record
SELECT DISTINCT treatment FROM MedicalRecord;

ALTER TABLE MedicalRecord
ADD Treatment_price DECIMAL(10,2);

UPDATE MedicalRecord
SET treatment_price = CASE
    WHEN treatment = 'Physical Therapy, NSAIDs' THEN 120.00
    WHEN treatment = 'Triptans, Rest' THEN 90.00
    WHEN treatment = 'Metformin, Diet Control' THEN 100.00
    WHEN treatment = 'ACE Inhibitors, Lifestyle Changes' THEN 110.00
    WHEN treatment = 'Advice' THEN 40.00
    WHEN treatment = 'Nitroglycerin, Beta Blockers' THEN 150.00
    WHEN treatment = 'Inhaled Corticosteroids' THEN 130.00
    WHEN treatment = 'Paracetamol, Rest' THEN 50.00
    WHEN treatment = 'SSRIs, Cognitive Behavioral Therapy' THEN 200.00
    WHEN treatment = 'Beta Blockers, Lifestyle Modifications' THEN 110.00
```

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    WHEN treatment = 'Vaccinations, Health Education' THEN 80.00
    WHEN treatment = 'SSRIs, Counseling' THEN 180.00
    WHEN treatment = 'Multidisciplinary Care Plan' THEN 250.00
    WHEN treatment = 'Topical Steroids, Antihistamines' THEN 95.00
    WHEN treatment = 'Pain Management, Increased Fluid Intake' THEN 70.00
    WHEN treatment = 'Speech Therapy, Parent Training' THEN 160.00
    WHEN treatment = 'PPIs, Dietary Changes' THEN 90.00
    WHEN treatment = 'Bronchodilators, Rest' THEN 100.00
    WHEN treatment = 'Physical Therapy, Pain Management' THEN 140.00
    WHEN treatment = 'Cognitive Therapy, Memory Exercises' THEN 170.00
    WHEN treatment = 'Anticonvulsants, Regular Monitoring' THEN 190.00
    WHEN treatment = 'Antibiotics, Pain Relief' THEN 85.00
    WHEN treatment = 'Prenatal Vitamins, Regular Monitoring' THEN 100.00
    WHEN treatment = 'Iron Supplements, Dietary Changes' THEN 75.00
    WHEN treatment = 'Levothyroxine, Regular Monitoring' THEN 95.00
    ELSE 60.00 -- fallback price for undefined treatments
END
WHERE treatment IS NOT NULL;

ALTER TABLE MedicalRecord
ADD previousvisits_count INT;

SELECT
    m.record_Id,
    m.doct_Id,
    m.patient_Id,
    m.visit_Date,
    m.curr_Weight,
    m.curr_height,
    m.curr_Blood_Pressure,
    m.curr_Temp_F,
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```
    m.diagnosis,
    m.treatment,
    COALESCE(m.next_Visit, '2025-01-01') AS Next_visit,
    m.Treatment_price,
    pv.previousvisits_count
FROM MedicalRecord AS m
LEFT JOIN (
    SELECT
        patient_Id,
        COUNT(*) AS previousvisits_count
    FROM MedicalRecord
    GROUP BY patient_Id
) pv ON m.patient_Id = pv.patient_Id;


-- Adding surgery price based on surgery type in Surgery record table
SELECT DISTINCT surgery_Type FROM SurgeryRecord;

ALTER TABLE SurgeryRecord
ADD Surgery_price DECIMAl(10,2);

UPDATE SurgeryRecord
SET Surgery_price = CASE
    WHEN surgery_Type = 'Otolaryngologic (ENT) Surgery' THEN 3500.00
    WHEN surgery_Type = 'Thoracic Surgery' THEN 12000.00
    WHEN surgery_Type = 'Gynecologic Surgery' THEN 6000.00
    WHEN surgery_Type = 'Reconstructive Microsurgery' THEN 9500.00
    WHEN surgery_Type = 'Oncologic Surgery' THEN 11000.00
    WHEN surgery_Type = 'Neonatal Surgery' THEN 13000.00
    WHEN surgery_Type = 'Hand Surgery' THEN 4000.00
    WHEN surgery_Type = 'Bariatric Surgery' THEN 8500.00
```

```
WHEN surgery_Type = 'Dermatologic Surgery' THEN 2500.00
WHEN surgery_Type = 'Transplant Surgery' THEN 25000.00
WHEN surgery_Type = 'Neurosurgery' THEN 18000.00
WHEN surgery_Type = 'General Surgery' THEN 5000.00
WHEN surgery_Type = 'Emergency Surgery' THEN 7000.00
WHEN surgery_Type = 'Oral Surgery' THEN 3000.00
WHEN surgery_Type = 'Pediatric Surgery' THEN 8000.00
WHEN surgery_Type = 'Proctologic Surgery' THEN 4500.00
WHEN surgery_Type = 'Chest Wall Surgery' THEN 10000.00
WHEN surgery_Type = 'Trauma Surgery' THEN 9000.00
WHEN surgery_Type = 'Laparoscopic Surgery' THEN 7500.00
WHEN surgery_Type = 'Endocrine Surgery' THEN 5500.00
WHEN surgery_Type = 'Spinal Surgery' THEN 14000.00
WHEN surgery_Type = 'Hepatobiliary Surgery' THEN 12500.00
WHEN surgery_Type = 'Ophthalmic Surgery' THEN 4000.00
WHEN surgery_Type = 'Vascular Surgery' THEN 9500.00
WHEN surgery_Type = 'Gastrointestinal Surgery' THEN 7000.00
WHEN surgery_Type = 'Foot and Ankle Surgery' THEN 3500.00
WHEN surgery_Type = 'Colorectal Surgery' THEN 6000.00
WHEN surgery_Type = 'Transoral Surgery' THEN 5000.00
WHEN surgery_Type = 'Maxillofacial Surgery' THEN 6500.00
WHEN surgery_Type = 'Orthopedic Surgery' THEN 10000.00
WHEN surgery_Type = 'Robotic Surgery' THEN 15000.00
WHEN surgery_Type = 'Plastic Surgery' THEN 8000.00
WHEN surgery_Type = 'Peripheral Nerve Surgery' THEN 7000.00
WHEN surgery_Type = 'Urologic Surgery' THEN 6000.00
WHEN surgery_Type = 'Craniofacial Surgery' THEN 11000.00
WHEN surgery_Type = 'Cardiothoracic Surgery' THEN 20000.00
WHEN surgery_Type = 'Fetal Surgery' THEN 22000.00
WHEN surgery_Type = 'Burn Surgery' THEN 6500.00
ELSE 3000.00 -- fallback price for undefined types
```

```
END
WHERE surgery_Type IS NOT NULL;


SELECT
  surgery_Id ,
        patient_Id ,
        surgeon_Id ,
        surgery_Type ,
        surgery_Date ,
        room_no ,
        notes ,
        nurse_Id ,
        helper_Id ,
  TIME(start_Time) AS start_time_only,
  TIME(end_Time)   AS end_time_only,
  Surgery_price,
  -- Surgery Duration
  TIME_TO_SEC(end_Time) - TIME_TO_SEC(start_Time) AS duration_seconds,
  ROUND((TIME_TO_SEC(end_Time) - TIME_TO_SEC(start_Time)) / 60, 2) AS
surgery_duration_minutes
FROM SurgeryRecord;


-- Calculating Pateint age in Patients price from date of birth
SELECT        patient_Id ,
        FName ,LName ,
        Gender,
        Date_Of_Birth ,
        contact_No ,
        pt_Address ,
  TIMESTAMPDIFF(YEAR, Date_Of_Birth, CURDATE()) AS Age_of_Patient
  FROM Patients;
```