**CREATE DATABASE HealthcareFinance;**

**USE HealthcareFinance;**

**CREATE TABLE Patients (**

patient\_id INT PRIMARY KEY,

name VARCHAR(50),

age INT,

gender VARCHAR(10),

department VARCHAR(30),

admission\_date DATE,

insurance\_provider VARCHAR(50));

**INSERT INTO Patients** (patient\_id, name, age, gender, department, admission\_date, insurance\_provider)

VALUES (1, 'Amit Sharma', 45, 'Male', 'Cardiology', '2025-01-10', 'ICICI Lombard'),

(2, 'Pooja Verma', 33, 'Female', 'Oncology', '2025-01-12', 'Star Health'),

(3, 'Rahul Singh', 29, 'Male', 'Neurology', '2025-01-15', NULL),

(4, 'Sneha Patel', 54, 'Female', 'Orthopedics', '2025-01-18', 'HDFC Ergo'),

(5, 'Manish Kumar', 40, 'Male', 'Oncology', '2025-01-20', 'Star Health'),

(6, 'Ritu Gupta', 38, 'Female', 'Gynecology', '2025-01-22', 'ICICI Lombard'),

(7, 'Arjun Mehta', 60, 'Male', 'Cardiology', '2025-01-25', 'Reliance Health'),

(8, 'Kavita Jain', 50, 'Female', 'Oncology', '2025-01-28', NULL),

(9, 'Vikram Yadav', 27, 'Male', 'Neurology', '2025-01-30', 'HDFC Ergo'),

(10, 'Priya Das', 36, 'Female', 'Orthopedics', '2025-02-01', 'ICICI Lombard'),

(11, 'Deepak Joshi', 41, 'Male', 'Cardiology', '2025-02-05', 'Star Health'),

(12, 'Shalini Nair', 47, 'Female', 'Oncology', '2025-02-08', NULL),

(13, 'Suresh Kumar', 55, 'Male', 'Neurology', '2025-02-11', 'ICICI Lombard'),

(14, 'Anita Singh', 30, 'Female', 'Gynecology', '2025-02-14', 'HDFC Ergo'),

(15, 'Rakesh Sharma', 49, 'Male', 'Oncology', '2025-02-17', 'Star Health'),

(16, 'Meera Iyer', 42, 'Female', 'Cardiology', '2025-02-20', NULL),

(17, 'Anil Chauhan', 65, 'Male', 'Orthopedics', '2025-02-23', 'Reliance Health');

**CREATE TABLE Billing (**

bill\_id INT PRIMARY KEY,

patient\_id INT,

service VARCHAR(50),

cost DECIMAL(10,2),

billing\_date DATE,

FOREIGN KEY (patient\_id) REFERENCES Patients(patient\_id)

);

**INSERT INTO Billing (bill\_id, patient\_id, service, cost, billing\_date)**

**VALUES**

(101, 1, 'Angioplasty', 150000, '2025-01-11'),

(102, 1, 'Consultation', 2000, '2025-01-11'),

(103, 2, 'Chemotherapy', 60000, '2025-01-12'),

(104, 2, 'Blood Test', 1500, '2025-01-13'),

(105, 3, 'MRI Scan', 12000, '2025-01-16'),

(106, 4, 'Knee Surgery', 80000, '2025-01-19'),

(107, 5, 'Radiation Therapy', 50000, '2025-01-21'),

(108, 6, 'Ultrasound', 3000, '2025-01-22'),

(109, 7, 'Heart Bypass', 200000, '2025-01-26'),

(110, 8, 'Chemotherapy', 55000, '2025-01-28'),

(111, 9, 'EEG Test', 8000, '2025-01-31'),

(112, 10, 'Physiotherapy', 4000, '2025-02-02'),

(113, 11, 'ECG', 2500, '2025-02-05'),

(114, 12, 'Chemotherapy', 62000, '2025-02-08'),

(115, 13, 'Brain Surgery', 250000, '2025-02-12'),

(116, 14, 'Delivery', 45000, '2025-02-14'),

(117, 15, 'Chemotherapy', 58000, '2025-02-18'),

(118, 16, 'Angiography', 20000, '2025-02-21'),

(119, 17, 'Hip Replacement', 120000, '2025-02-24'),

(120, 18, 'Chemotherapy', 60000, '2025-02-27'),

(121, 19, 'MRI Scan', 13000, '2025-03-02'),

(122, 20, 'C-section', 50000, '2025-03-05');

**CREATE TABLE InsuranceClaims (**

claim\_id INT PRIMARY KEY,

bill\_id INT,

claim\_status VARCHAR(20), -- Approved, Pending, Rejected

claim\_amount DECIMAL(10,2),

FOREIGN KEY (bill\_id) REFERENCES Billing(bill\_id)

);

**INSERT INTO InsuranceClaims (claim\_id, bill\_id, claim\_status, claim\_amount)**

**VALUES**

(201, 101, 'Approved', 120000),

(202, 102, 'Rejected', 0),

(203, 103, 'Approved', 50000),

(204, 104, 'Approved', 1200),

(205, 105, 'Pending', 8000),

(206, 106, 'Approved', 70000),

(207, 107, 'Rejected', 0),

(208, 108, 'Approved', 2500),

(209, 109, 'Approved', 180000),

(210, 110, 'Pending', 50000),

(211, 111, 'Rejected', 0),

(212, 112, 'Approved', 3500),

(213, 113, 'Approved', 2000),

(214, 114, 'Pending', 60000),

(215, 115, 'Approved', 200000),

(216, 116, 'Approved', 40000),

(217, 117, 'Rejected', 0),

(218, 118, 'Approved', 15000),

(219, 119, 'Pending', 100000),

(220, 120, 'Approved', 50000);

**All patients, their department, billing service, and claim status;**

select p.name, p.department,b.service, b.cost, i.claim\_status, i.claim\_amount

from patients p

join billing b on p.patient\_id = b.patient\_id

left join insuranceClaims i on b.bill\_id = i.bill\_id;

**Total\_hospital\_revenue\_by\_department;**

SELECT p.department, SUM(b.cost) AS total\_revenue

FROM Patients p

JOIN Billing b ON p.patient\_id = b.patient\_id

GROUP BY p.department

ORDER BY total\_revenue DESC;

**Patients whose bill cost\_is\_above average;**

SELECT name, department

FROM Patients

WHERE patient\_id IN

(

SELECT patient\_id

FROM Billing

GROUP BY patient\_id

HAVING SUM(cost) > (SELECT AVG(cost) FROM Billing)

);

**A view of insurance claim summary**

CREATE VIEW InsuranceSummary AS

SELECT p.name, b.service, b.cost, i.claim\_status, i.claim\_amount

FROM Patients p

JOIN Billing b ON p.patient\_id = b.patient\_id

JOIN InsuranceClaims i ON b.bill\_id = i.bill\_id;

**Rank\_departments\_by\_revenue;**

SELECT

department,

dept\_revenue,

RANK() OVER (ORDER BY dept\_revenue DESC) AS revenue\_rank

FROM (

SELECT

p.department,

SUM(b.cost) AS dept\_revenue

FROM Patients p

JOIN Billing b ON p.patient\_id = b.patient\_id

GROUP BY p.department

) AS dept\_summary;

**Total\_Revenue\_Generated\_by\_Hospital;**

SELECT

SUM(cost) AS total\_revenue

FROM billing;

**Revenue\_by\_Department;**

SELECT

p.department,

SUM(cost) AS department\_revenue

FROM billing b

JOIN patients p

ON b.patient\_id = p.patient\_id

GROUP BY p.department

ORDER BY department\_revenue DESC;

**Insurance vs Non-Insurance-Patients**

SELECT

CASE

WHEN p.insurance\_provider IS NULL THEN 'Non-Insured'

ELSE 'Insured'

END AS patient\_type,

SUM(b.cost) AS total\_spent,

COUNT(DISTINCT p.patient\_id) AS total\_patients

FROM billing b

JOIN patients p

ON b.patient\_id = p.patient\_id

GROUP BY patient\_type;

**Insurance\_Claim\_Coverage [Out\_of\_Pocket vs Covered]**

SELECT

p.name AS patient\_name,

p.insurance\_provider,

SUM(b.cost) AS total\_bill,

IFNULL(SUM(i.claim\_amount), 0) AS insurance\_covered,

(SUM(b.cost) - IFNULL(SUM(i.claim\_amount), 0)) AS out\_of\_pocket

FROM billing b

JOIN patients p

ON b.patient\_id = p.patient\_id

LEFT JOIN InsuranceClaims i

ON b.bill\_id = i.bill\_id

GROUP BY p.name, p.insurance\_provider;