Coding Challenge : Insurance Claims Analysis Challenge

You are working as a **data analyst** in an insurance company. The management wants insights into their **policyholders, claims, and payments** to make better decisions on risk and profitability.

Tables:

1. Customers

customer_id	name	age	gender	city	state
101	Ramesh	35	M	Hyderabad	Telangana
102	Priya	42	F	Bangalore	Karnataka
103	Arjun	29	M	Chennai	Tamil Nadu
104	Divya	51	F	Mumbai	Maharashtra

2. Policies

policy_id	customer_id	policy_type	premium_amount	start_date	end_date
201	101	Health	12000	2022-01-01	2023-01-01
202	102	Vehicle	18000	2022-06-15	2023-06-14
203	103	Life	25000	2022-03-10	2023-03-09
204	104	Health	20000	2022-09-01	2023-08-31

3. Claims

claim_id	policy_id	claim_date	claim_amount	claim_status
301	201	2022-05-10	5000	Approved
302	202	2022-08-01	15000	Rejected
303	203	2022-12-20	20000	Approved
304	204	2023-02-15	7000	Pending

Tasks

Basic Queries

- List all customers who purchased a **Health insurance policy**.
- Find customers who are above **40 years** and have **Vehicle insurance**.

2. **Joins & Aggregations**
   - Display customer name, policy type, and claim status for all claims.
   - Find the **total premium collected** by policy type.
   - Calculate the **average claim amount** for approved claims.
3. **Advanced Queries**
   - Identify the customer who has paid the **highest premium**.
   - Find customers who made a claim but it was **rejected**.
   - Show the **policy renewal due in the next 30 days** (based on end_date).
4. **Analytical Queries**
   - Calculate **claim ratio** = (Approved Claims / Total Claims) * 100 for each policy type.
   - Rank customers by their **total premium paid** (use window functions if MySQL 8+).

SQL Script – Insurance Dataset

```
-- Create Database
CREATE DATABASE IF NOT EXISTS InsuranceDB;
USE InsuranceDB;


-- Customers Table
CREATE TABLE Customers (
    customer_id INT PRIMARY KEY,
    name VARCHAR(50),
```

```
    age INT,
    gender CHAR(1),
    city VARCHAR(50),
    state VARCHAR(50)
);

-- Policies Table
CREATE TABLE Policies (
    policy_id INT PRIMARY KEY,
    customer_id INT,
    policy_type VARCHAR(20),
    premium_amount DECIMAL(10,2),
    start_date DATE,
    end_date DATE,
    FOREIGN KEY (customer_id) REFERENCES Customers(customer_id)
);

-- Claims Table
CREATE TABLE Claims (
    claim_id INT PRIMARY KEY,
    policy_id INT,
    claim_date DATE,
    claim_amount DECIMAL(10,2),
    claim_status VARCHAR(20),
    FOREIGN KEY (policy_id) REFERENCES Policies(policy_id)
);
```

```
-- Insert Customers
INSERT INTO Customers (customer_id, name, age, gender, city, state) VALUES
(101, 'Ramesh', 35, 'M', 'Hyderabad', 'Telangana'),
(102, 'Priya', 42, 'F', 'Bangalore', 'Karnataka'),
(103, 'Arjun', 29, 'M', 'Chennai', 'Tamil Nadu'),
(104, 'Divya', 51, 'F', 'Mumbai', 'Maharashtra');

-- Insert Policies
INSERT INTO Policies (policy_id, customer_id, policy_type, premium_amount, start_date, end_date) VALUES
(201, 101, 'Health', 12000, '2022-01-01', '2023-01-01'),
(202, 102, 'Vehicle', 18000, '2022-06-15', '2023-06-14'),
(203, 103, 'Life', 25000, '2022-03-10', '2023-03-09'),
(204, 104, 'Health', 20000, '2022-09-01', '2023-08-31');

-- Insert Claims
INSERT INTO Claims (claim_id, policy_id, claim_date, claim_amount, claim_status) VALUES
(301, 201, '2022-05-10', 5000, 'Approved'),
(302, 202, '2022-08-01', 15000, 'Rejected'),
(303, 203, '2022-12-20', 20000, 'Approved'),
(304, 204, '2023-02-15', 7000, 'Pending');
```