**1. Average Fuel Consumption per Route**

SELECT Route, AVG("ActualFuel\_kg") AS Avg\_Fuel\_Consumed\_KG

FROM FuelData

GROUP BY Route

ORDER BY Avg\_Fuel\_Consumed\_KG DESC;

**2. Average Fuel Burn per Aircraft Type**

SELECT AircraftType,AVG("ActualFuel\_kg") AS Avg\_Fuel\_Burn\_KG

FROM FuelData

GROUP BY AircraftType

ORDER BY Avg\_Fuel\_Burn\_KG DESC;

**3. Fuel Consumption vs Payload**

SELECT Payload\_kg,ActualFuel\_kg

FROM FuelData

ORDER BY Payload\_kg;

**4. CG Position vs Fuel Burn**

SELECT CG\_Position\_percent\_MAC,ActualFuel\_kg

FROM FuelData

WHERE CG\_Position\_percent\_MAC IS NOT NULL;

**✅ 5. Fuel Wastage Due to Delay (Planned vs Actual)**

SELECT FlightNumber,Route,PlannedFuel\_kg,ActualFuel\_kg,("ActualFuel\_kg" - "PlannedFuel\_kg") AS Fuel\_Difference\_KG,DelayMinutes

FROM FuelData

WHERE ("ActualFuel\_kg" - "PlannedFuel\_kg") > 200

ORDER BY Fuel\_Difference\_KG DESC;

**✅ 6. Taxi-Out Time vs Fuel Burn**

SELECT TaxiOutTime\_min, AVG("ActualFuel\_kg") AS Avg\_Fuel\_Burn

FROM FuelData

GROUP BY TaxiOutTime\_min

ORDER BY TaxiOutTime\_min;

**✅ 7. Impact of Wind Component on Fuel Usage**

SELECT WindComponent\_kts, AVG("ActualFuel\_kg") AS Avg\_Fuel\_Burn

FROM FuelData

GROUP BY WindComponent\_kts

ORDER BY WindComponent\_kts;

**✅ 8. Top 10 Most Inefficient Flights**

SELECT FlightNumber, Route, Distance\_km, ActualFuel\_kg,

ROUND(("ActualFuel\_kg" / "Distance\_km"), 2) AS Fuel\_per\_KM

FROM FuelData

WHERE "Distance\_km" > 0

ORDER BY Fuel\_per\_KM DESC

LIMIT 10;

**✅ 9. Diversions and Fuel Impact**

SELECT Diversion,COUNT(\*) AS Num\_Flights,AVG("ActualFuel\_kg") AS Avg\_Fuel\_Used

FROM FuelData

WHERE "Diversion" IS NOT NULL AND "Diversion" <> ''

GROUP BY "Diversion"

ORDER BY Avg\_Fuel\_Used DESC;

**✅ 10. Monthly Fuel Burn Trends (If Date is in proper format)**

SELECT STRFTIME('%Y-%m', "Date") AS Month,

SUM("ActualFuel\_kg") AS Total\_Fuel\_Burn

FROM FuelData

GROUP BY Month

ORDER BY Month;