ASSIGNMENT – SQL

🎯 ANALYSING ROAD SAFETY IN UK

Problem: The UK Department of Transport provides open datasets on road safety and casualties, and one can use these datasets to analyse how safe the roads in the UK are. This project will help you answer a few questions using their 2015 dataset.

--- We are using SQL to solve these problems.

P1: Evaluate the median severity value of accidents caused by various Motorcycles.

```
-----Problem Statement 1: Evaluate the median severity value of accidents caused by various Motorcycles.---------
    ------------------CREATE A TABLE WHERE ACCIDENTS ARE BY DIFFERENT MOTORCYCLES-----------------
        CREATE TABLE ACC_MOT AS
        SELECT V.ACCIDENT_INDEX, ACCIDENT_SEVERITY, M.LABEL, M.CODE
        FROM ACCIDENTS A
        INNER JOIN VEHICLES V
        ON A.Accident_Index = V.Accident_Index
        INNER JOIN (SELECT * FROM VEHICLE_TYPES WHERE LABEL LIKE '%MOTORCYCLE%') M
        ON V.VEHICLE_TYPE = M.CODE
        ORDER BY CODE

-----------------------------------EVALUATING MEDIAN SEVERITY-------------------------------------
SELECT CODE,LABEL,ROUND(AVG(ACCIDENT_SEVERITY)) AS MEDIAN_SEVERITY
FROM
(SELECT *,ROW_NUMBER() OVER (PARTITION BY LABEL ORDER BY ACCIDENT_SEVERITY) AS RN,COUNT(*) OVER
(PARTITION BY LABEL) AS TOTAL
FROM ACC_MOT) AS A
WHERE RN BETWEEN (TOTAL/2) AND (TOTAL/2 + 1)
GROUP BY LABEL
ORDER BY CODE
```

Output:

CODE	LABEL	MEDIAN_SEVERITY
2	Motorcycle 50cc and under	3
3	Motorcycle 125cc and under	3
4	Motorcycle over 125cc and up to 500cc	3
5	Motorcycle over 500cc	3
23	Electric motorcycle	2
97	Motorcycle - unknown cc	3

P2: Evaluate Accident Severity and Total Accidents per Vehicle Type

```
-----Problem Statement 2: Evaluate Accident Severity and Total Accidents per Vehicle Type---------
    -------------------ACCIDENT SEVERITY AND TOTAL SEVERITY BY DIFFERENT VEHICLE TYPES ------------------
    SELECT T.LABEL, a.ACCIDENT_SEVERITY AS SEVERITY , COUNT(T.LABEL) AS TOTAL_ACCIDENTS
    from accidents a
    inner join vehicles v
    on a.accident_index = v.accident_index
    inner join vehicle_types T
    on v.vehicle_type = t.code
    GROUP BY LABEL
```

Output:

LABEL	SEVERITY	TOTAL_ACCIDENTS
Electric motorcycle	3	9
Tram	3	18
Data missing or out of range	3	58
Ridden horse	2	107
Mobility scooter	1	222
Motorcycle - unknown cc	2	275
Minibus (8 - 16 passenger seats)	3	498
Agricultural vehicle	3	504
Goods vehicle - unknown weight	3	615
Other vehicle	3	1286
Goods over 3.5t. and under 7.5t	3	1708
Motorcycle over 125cc and up to 500cc	3	2187
Motorcycle 50cc and under	3	2237
Goods 7.5 tonnes mgw and over	3	4762
Bus or coach (17 or more pass seats)	3	5381
Taxi/Private hire car	3	5420
Motorcycle over 500cc	3	7054
Motorcycle 125cc and under	3	9234
Van / Goods 3.5 tonnes mgw or under	3	13876
Pedal cycle	2	19440
Car	3	182954

P3: Calculate the Average Severity by vehicle type.

```
SELECT T.LABEL, AVG(a.ACCIDENT_SEVERITY) AS AVERAGE_SEVERITY
from accidents a
inner join vehicles v
on a.accident_index = v.accident_index
inner join vehicle_types T
on v.vehicle_type = t.code
GROUP BY LABEL
```

Output:

LABEL	AVERAGE_SEVERITY
Van / Goods 3.5 tonnes mgw or under	2.8508
Car	2.8665
Pedal cycle	2.8108
Motorcycle 125cc and under	2.7807
Motorcycle over 500cc	2.5849
Taxi/Private hire car	2.8814
Motorcycle over 125cc and up to 500cc	2.6904
Bus or coach (17 or more pass seats)	2.8576
Goods over 3.5t. and under 7.5t	2.8109
Goods 7.5 tonnes mgw and over	2.7341
Motorcycle 50cc and under	2.8266
Other vehicle	2.7784
Agricultural vehicle	2.6786
Minibus (8 - 16 passenger seats)	2.8173
Tram	2.8889
Mobility scooter	2.7162
Goods vehicle - unknown weight	2.8390
Electric motorcycle	2.4444
Motorcycle - unknown cc	2.6945
Ridden horse	2.8318
Data missing or out of range	2.8103

P4: Calculate the Average Severity and Total Accidents by Motorcycle

```
SELECT M.LABEL,A.ACCIDENT_SEVERITY AS SEVERITY ,AVG(ACCIDENT_SEVERITY) AS AVERAGE_SEVERITY
FROM ACCIDENTS A
INNER JOIN VEHICLES V
ON A.Accident_Index = V.Accident_Index
INNER JOIN (SELECT * FROM VEHICLE_TYPES WHERE LABEL LIKE '%MOTORCYCLE%') M
ON V.VEHICLE_TYPE = M.CODE
GROUP BY LABEL
```

Output:

LABEL	SEVERITY	AVERAGE_SEVERITY
Motorcycle 125cc and under	3	2.7807
Motorcycle over 500cc	3	2.5849
Motorcycle over 125cc and up to 500cc	3	2.6904
Motorcycle 50cc and under	3	2.8266
Motorcycle - unknown cc	3	2.6945
Electric motorcycle	3	2.4444