**ROAD ACCIDENT QUERY DOC**

**SQL/POWER BI.**

**ABOUT.**

This project focuses on analyzing road accidents using SQL and Power BI, leveraging key metrics such as accident date, severity, casualties, road surface conditions, road type, vehicle type, urban or rural area classification, and weather conditions. The goal is to gain insights into accident patterns, identify risk factors, and inform targeted safety interventions.

**PROBLEM STATEMENT**

**A.KPI's**

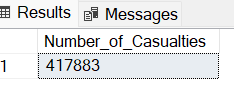
**1.PRIMARY KPI'S**

**-Total Casualties**

SELECT

SUM(Number\_of\_Casualties) as Number\_of\_Casualties

FROM Road\_Accident\_Data



**-CY Casualties**

ALTER TABLE Road\_Accident\_Data

ADD Accident\_Yr DATE

ALTER TABLE Road\_Accident\_Data

ALTER COLUMN Accident\_Yr INT

UPDATE Road\_Accident\_Data

SET Accident\_Yr = YEAR(Accident\_Date)

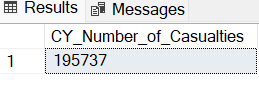
--..NOW CY Casualties

SELECT

SUM(Number\_of\_Casualties) as CY\_Number\_of\_Casualties

FROM Road\_Accident\_Data

WHERE Accident\_Yr = 2022

****

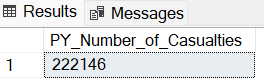
**-PY Casualties**

SELECT

SUM(Number\_of\_Casualties) as PY\_Number\_of\_Casualties

FROM Road\_Accident\_Data

WHERE Accident\_Yr = 2021

****

**-YoY Change**

SELECT

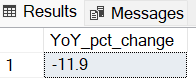
ROUND(

100 \*(

CAST((SELECT SUM(Number\_of\_Casualties) FROM Road\_Accident\_Data WHERE Accident\_Yr = 2022) AS FLOAT)-

CAST((SELECT SUM(Number\_of\_Casualties) FROM Road\_Accident\_Data WHERE Accident\_Yr = 2021)AS FLOAT))/

CAST((SELECT SUM(Number\_of\_Casualties) FROM Road\_Accident\_Data WHERE Accident\_Yr = 2021) AS FLOAT), 1) AS YoY\_pct\_change

****

**-Fatal Casualties**

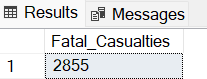
**-CY Fatal Casualties**

SELECT

SUM(Number\_of\_Casualties) as Fatal\_Casualties

FROM Road\_Accident\_Data

WHERE Accident\_Yr = 2022 and Accident\_Severity = 'Fatal'



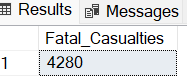
**-PY Fatal Casualties**

SELECT

SUM(Number\_of\_Casualties) as Fatal\_Casualties

FROM Road\_Accident\_Data

WHERE Accident\_Yr = 2021 and Accident\_Severity = 'Fatal'



**-YoY pct change in Fatal Casualties**.

SELECT

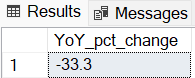
ROUND(

100 \*(

CAST((SELECT SUM(Number\_of\_Casualties) FROM Road\_Accident\_Data WHERE Accident\_Yr = 2022 and Accident\_Severity = 'Fatal') AS FLOAT)-

CAST((SELECT SUM(Number\_of\_Casualties) FROM Road\_Accident\_Data WHERE Accident\_Yr = 2021 and Accident\_Severity = 'Fatal') AS FLOAT))/

CAST((SELECT SUM(Number\_of\_Casualties) FROM Road\_Accident\_Data WHERE Accident\_Yr = 2021 and Accident\_Severity = 'Fatal') AS FLOAT), 1) YoY\_pct\_change



**-CY Slight Casualties**

SELECT

SUM(Number\_of\_Casualties) as CY\_Slight\_Casualties

FROM Road\_Accident\_Data

WHERE Accident\_Yr = 2022 and Accident\_Severity = 'Slight'

**-PY Slight Casualties**

SELECT

SUM(Number\_of\_Casualties) as PY\_Slight\_Casualties

FROM Road\_Accident\_Data

WHERE Accident\_Yr = 2021 and Accident\_Severity = 'Slight'

**-YoY pct change in Slight Casualties.**

SELECT

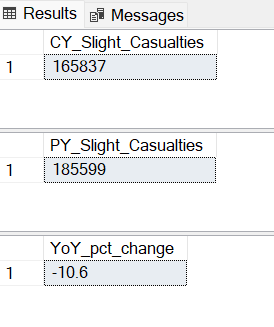
ROUND(

100 \*(

CAST((SELECT SUM(Number\_of\_Casualties) FROM Road\_Accident\_Data WHERE Accident\_Yr = 2022 and Accident\_Severity = 'Slight') AS FLOAT)-

CAST((SELECT SUM(Number\_of\_Casualties) FROM Road\_Accident\_Data WHERE Accident\_Yr = 2021 and Accident\_Severity = 'Slight') AS FLOAT))/

CAST((SELECT SUM(Number\_of\_Casualties) FROM Road\_Accident\_Data WHERE Accident\_Yr = 2021 and Accident\_Severity = 'Slight') AS FLOAT), 1) YoY\_pct\_change



**-CY Serious Casualties**

SELECT

SUM(Number\_of\_Casualties) as CY\_Serious\_Casualties

FROM Road\_Accident\_Data

WHERE Accident\_Yr = 2022 and Accident\_Severity = 'Serious'

**-PY Serious Casualties**

SELECT

SUM(Number\_of\_Casualties) as PY\_Serious\_Casualties

FROM Road\_Accident\_Data

WHERE Accident\_Yr = 2021 and Accident\_Severity = 'Serious'

**-YoY pct change in Serious Casualties.**

SELECT

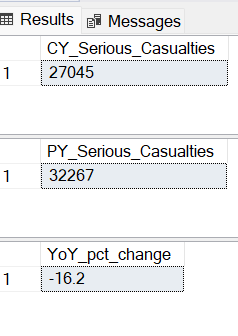
ROUND(

100 \*(

CAST((SELECT SUM(Number\_of\_Casualties) FROM Road\_Accident\_Data WHERE Accident\_Yr = 2022 and Accident\_Severity = 'Serious') AS FLOAT)-

CAST((SELECT SUM(Number\_of\_Casualties) FROM Road\_Accident\_Data WHERE Accident\_Yr = 2021 and Accident\_Severity = 'Serious') AS FLOAT))/

CAST((SELECT SUM(Number\_of\_Casualties) FROM Road\_Accident\_Data WHERE Accident\_Yr = 2021 and Accident\_Severity = 'Serious') AS FLOAT), 1) YoY\_pct\_change



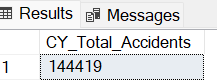
**-CY Accidents**

SELECT

COUNT(Accident\_Index) as CY\_Total\_Accidents

FROM Road\_Accident\_Data

WHERE Accident\_Yr = 2022

****

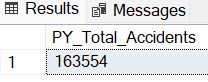
**-PY Accidents**

SELECT

COUNT(Accident\_Index) as PY\_Total\_Accidents

FROM Road\_Accident\_Data

WHERE Accident\_Yr = 2021

****

**-YoY Change**

SELECT

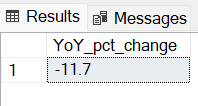
ROUND(

100 \*(

CAST((SELECT COUNT(Accident\_Index) FROM Road\_Accident\_Data WHERE Accident\_Yr = 2022) AS FLOAT)-

CAST((SELECT COUNT(Accident\_Index) FROM Road\_Accident\_Data WHERE Accident\_Yr = 2021) AS FLOAT))/

CAST((SELECT COUNT(Accident\_Index) FROM Road\_Accident\_Data WHERE Accident\_Yr = 2021) AS FLOAT), 1) YoY\_pct\_change



**2.SECONDARY KPI’S**

**-CY Casualties by Vehicle type**

SELECT

Vehicle\_Type,

SUM(Number\_of\_Casualties)

FROM Road\_Accident\_Data

GROUP BY Vehicle\_type

ALTER TABLE Road\_Accident\_Data

ADD Vehicle\_type\_group VARCHAR(20)

SELECT

Vehicle\_Type,

(CASE

WHEN Vehicle\_Type = 'Agricultural Vehicle' THEN 'Agriculture'

WHEN Vehicle\_Type IN ('Car', 'Taxi/Private hire car') THEN 'Car'

WHEN Vehicle\_Type IN ('Bus or coach (17 or more pass seats)', 'Minibus (8 - 16 passenger seats)') THEN 'Bus'

WHEN Vehicle\_Type IN ('Goods over 3.5t. and under 7.5t', 'Goods 7.5 tonnes mgw and over', 'Van / Goods 3.5 tonnes mgw or under') THEN 'Van'

WHEN Vehicle\_Type IN ('Motorcycle 50cc and under', 'Motorcycle over 500cc', 'Pedal cycle', 'Motorcycle over 125cc and up to 500cc', 'Motorcycle 125cc and under') THEN 'Bike'

ELSE 'Others'

END) AS Vehicle\_type\_grouping

FROM Road\_Accident\_Data

UPDATE Road\_Accident\_Data

SET Vehicle\_type\_group = (

(CASE

WHEN Vehicle\_Type = 'Agricultural Vehicle' THEN 'Agriculture'

WHEN Vehicle\_Type IN ('Car', 'Taxi/Private hire car') THEN 'Car'

WHEN Vehicle\_Type IN ('Bus or coach (17 or more pass seats)', 'Minibus (8 - 16 passenger seats)') THEN 'Bus'

WHEN Vehicle\_Type IN ('Goods over 3.5t. and under 7.5t', 'Goods 7.5 tonnes mgw and over', 'Van / Goods 3.5 tonnes mgw or under') THEN 'Van'

WHEN Vehicle\_Type IN ('Motorcycle 50cc and under', 'Motorcycle over 500cc', 'Pedal cycle', 'Motorcycle over 125cc and up to 500cc', 'Motorcycle 125cc and under') THEN 'Bike'

ELSE 'Others'

END)

)

SELECT

Vehicle\_type\_group,

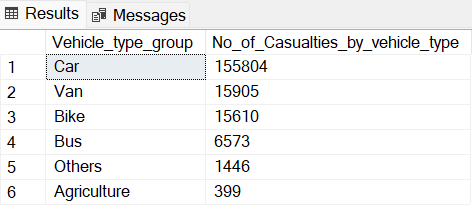
SUM(Number\_of\_Casualties) AS No\_of\_Casualties\_by\_vehicle\_type

FROM Road\_Accident\_Data

WHERE Accident\_Yr = 2022

GROUP BY Vehicle\_type\_group

ORDER BY 2 DESC



**POWER BI**

**-Monthly trend showing comparison of Casualties of CY and PY**

SELECT

Accident\_Date,

DATENAME(MONTH, Accident\_Date)

FROM Road\_Accident\_Data

ALTER TABLE Road\_Accident\_Data

ADD Month\_Name VARCHAR(20)

UPDATE Road\_Accident\_Data

SET Month\_Name = DATENAME(MONTH, Accident\_Date)

SELECT

MONTH(Accident\_Date) Month\_Number,

Month\_Name,

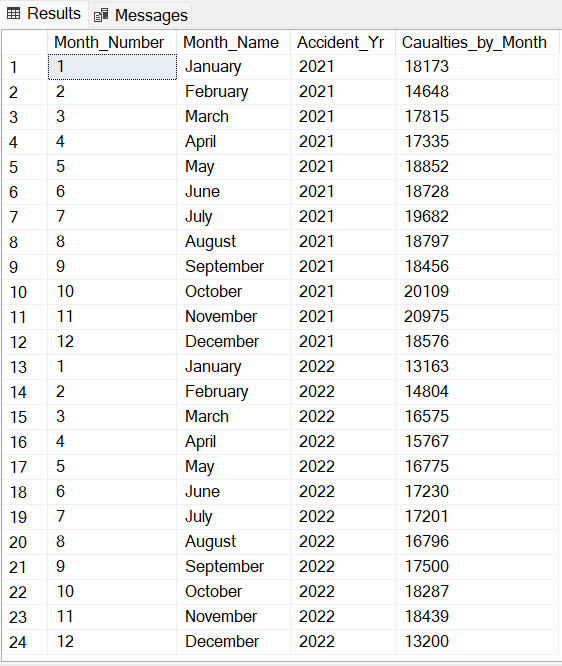
Accident\_Yr,

SUM(Number\_of\_Casualties) AS Caualties\_by\_Month

FROM Road\_Accident\_Data

GROUP BY MONTH(Accident\_Date),Accident\_Yr,Month\_Name

ORDER BY 3,1

****

**-Casualties by Road type for CY**

SELECT

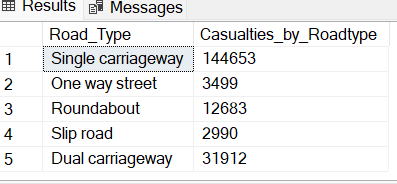
Road\_Type,

SUM(Number\_of\_Casualties) as Casualties\_by\_Roadtype

FROM Road\_Accident\_Data

WHERE Accident\_Yr = 2022

GROUP BY Road\_Type



**-Casualties by Area**

SELECT

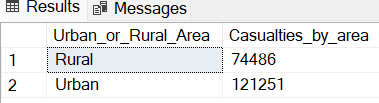
Urban\_or\_Rural\_Area,

SUM(Number\_of\_Casualties) as Casualties\_by\_area

FROM Road\_Accident\_Data

WHERE Accident\_Yr = 2022

GROUP BY Urban\_or\_Rural\_Area

****

**-Casualties by Day/Night**

SELECT

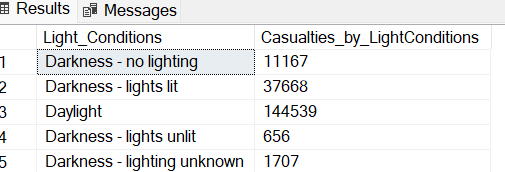
Light\_Conditions,

SUM(Number\_of\_Casualties) as Casualties\_by\_LightConditions

FROM Road\_Accident\_Data

WHERE Accident\_Yr = 2022

GROUP BY Light\_Conditions

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