YOGESH'S DATA VISUALIZATION PROJECT

KPI DASHBOARD FOR ROAD ACCIDENTS

A Case Study on Road Accident happend from 2021-2022

Duration: 10-15minutes

PROBLEM STATEMENT / PROJECT SCOPE

- Our client wants to develop a KPI Dashboard for road accidents happened from 2021 to 2022
- **Primary KPIs**:

1. Maximum casualties by Vehicle type
2. Total casualties and percentage of total with respect to accident severity.

- **Secondary KPIs**:

1. Total casualties with respect to Vehicle Type
2. Monthly Trend showing comparison of casualties for current and previous years
3. Maximum casualties by road type
4. Distribution of total casualties by road surface
5. Relation between casualties by area and light conditions

SOLUTION APPROACH

- There is one table provided which has 3.7 lakhs rows and 21 columns in it
- Microsoft Excel was the tool used for creating the visualization/dashboard
- The data was imported, analysed and transformed as per necessity
- Pivot table was used to create different KPIs for the problem statement
- KEY SKILLS

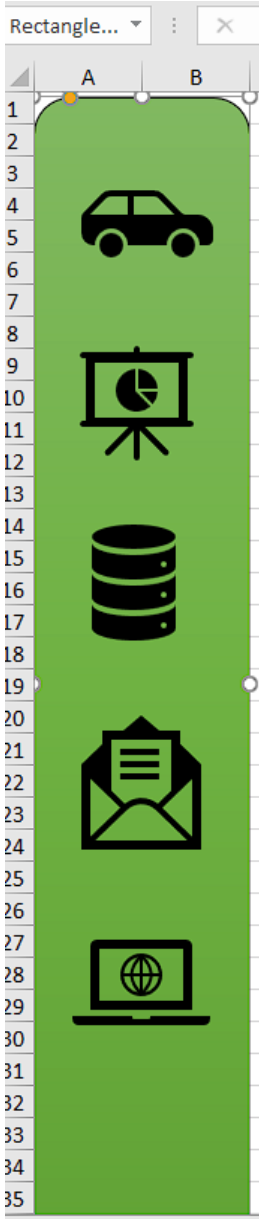
1. **Pivot Table**
2. **Pivot charts**
3. **Slicers**
4. **Formulae**
5. **Calculations**

DATA CLEANING/TRANSFORMATION

S17 | 30

	O	P	Q	R	S	T	U	V	W
1	Number_of_Vehicles	Police_Force	Road_Surface_Conditions	Road_Type	Speed_limit	Time	Urban_or_Rural_Area	Weather_Conditions	Vehicle_Type
2	2	Metropolitan Police	Dry	One way street	30	15:11	Urban	Fine no high winds	Car
3	2	Metropolitan Police	Wet or damp	Single carriageway	30	10:59	Urban	Fine no high winds	Taxi/Private hire car
4	2	Metropolitan Police	Dry	Single carriageway	30	14:19	Urban	Fine no high winds	Taxi/Private hire car
5	2	Metropolitan Police	Frost or ice	Single carriageway	30	8:10	Urban	Other	Motorcycle over 500cc
6	2	Metropolitan Police	Dry	Single carriageway	30	17:25	Urban	Fine no high winds	Car
7	2	Metropolitan Police	Dry	Single carriageway	30	11:48	Urban	Fine no high winds	Car
8	2	Metropolitan Police	Dry	Single carriageway	30	13:58	Urban	Fine no high winds	Motorcycle over 500cc
9	1	Metropolitan Police	Dry	Dual carriageway	30	13:18	Urban	Fine no high winds	Car
10	1	Metropolitan Police	Dry	Single carriageway	30	12:15	Urban	Fine no high winds	Van / Goods 3.5 tonnes mgw or under
11	1	Metropolitan Police	Wet or damp	Single carriageway	30	9:52	Urban	Other	Car
12	2	Metropolitan Police	Dry	Single carriageway	30	0:09	Urban	Fine no high winds	Car
13	1	Metropolitan Police	Dry	Single carriageway	30	17:49	Urban	Fine no high winds	Car
14	2	Metropolitan Police	Wet or damp	Single carriageway	30	14:00	Urban	Raining no high winds	Car
15	2	Metropolitan Police	Wet or damp	Single carriageway	30	8:15	Urban	Raining no high winds	Car
16	2	Metropolitan Police	Dry	Single carriageway	30	12:15	Urban	Fine no high winds	Car
17	2	Metropolitan Police	Dry	Single carriageway	30	22:05	Urban	Fine no high winds	Car
18	2	Metropolitan Police	Dry	Single carriageway	30	17:30	Urban	Fine no high winds	Van / Goods 3.5 tonnes mgw or under
19	1	Metropolitan Police	Dry	Single carriageway	30	17:05	Urban	Fine no high winds	Car
20	2	Metropolitan Police	Wet or damp	Single carriageway	30	14:27	Urban	Fine no high winds	Car
21	1	Metropolitan Police	Dry	Single carriageway	30	0:28	Urban	Fine no high winds	Car
22	1	Metropolitan Police	Wet or damp	Single carriageway	30	23:15	Urban	Raining no high winds	Car
23	1	Metropolitan Police	Wet or damp	Single carriageway	30	23:15	Urban	Raining no high winds	Car
24	2	Metropolitan Police	Dry	Single carriageway	30	14:20	Urban	Fine no high winds	Car
25	2	Metropolitan Police	Snow	Single carriageway	30	13:25	Urban	Other	Car
26	2	Metropolitan Police	Dry	Single carriageway	30	22:30	Urban	Fine no high winds	Car
27	1	Metropolitan Police	Dry	Single carriageway	30	13:50	Urban	Fine no high winds	Car
28	1	Metropolitan Police	Dry	Single carriageway	30	8:20	Urban	Fine no high winds	Car
29	2	Metropolitan Police	Dry	Single carriageway	20	12:03	Urban	Fine no high winds	Car
30	2	Metropolitan Police	Dry	Single carriageway	30	15:50	Urban	Fine no high winds	Car
31	2	Metropolitan Police	Wet or damp	Single carriageway	30	1:01	Urban	Fine no high winds	Car
32	1	Metropolitan Police	Wet or damp	One way street	30	7:45	Urban	Raining no high winds	Car
33	2	Metropolitan Police	Dry	Single carriageway	30	12:30	Urban	Fine no high winds	Car
34	2	Metropolitan Police	Dry	Dual carriageway	30	10:08	Urban	Fine no high winds	Car
35	2	Metropolitan Police	Wet or damp	Single carriageway	30	16:19	Urban	Fine no high winds	Car

KPIS MADE USING PIVOT TABLE



Primary KPI

Sum of Number_of_Casualties
417883

Primary KPI

Row Labels	Sum of Number_of_Casualties
Fatal	7135
Serious	59312
Slight	351436
Grand Total	**417883**

Secondary KPI

Row Labels	Sum of Number_of_Casualties
Agricultural vehicle	1032
Cars	333485
Bus	12798
Bike	33672
vans	33472
others	3424
Grand Total	**417883**

Road Type

Row Labels	Sum of Number_of_Casualties
(blank)	1.9K
Slip road	4.7K
One way street	7.4K
Roundabout	26.8K
Dual carriageway	67.4K
Single carriageway	309.7K
Grand Total	**417883**

Monthly Trend

Year	2021

Row Labels	Sum of Number_of_Casualties
Jan	18173
Feb	14648
Mar	17815
Apr	17335
May	18852
Jun	18728
Jul	19682
Aug	18797
Sep	18456
Oct	20109
Nov	20975
Dec	18576
Grand Total	**222146**

Road Surface

Row Labels	Sum of Number_of_Casualties
Dry	279445
(blank)	396
Wet	115261
snow/ice	22781
Grand Total	**417883**

Year	2022

Row Labels	Sum of Number_of_Casualties
Jan	13163
Feb	14804
Mar	16575
Apr	15767
May	16775
Jun	17230
Jul	17201
Aug	16796
Sep	17500
Oct	18287
Nov	18439
Dec	13200
Grand Total	**195737**

Urban/Rural

Row Labels	Sum of Number_of_Casualties
Rural	162.0K
Urban	255.9K
Grand Total	**417883**

Light Conditions

Row Labels	Sum of Number_of_Casualties
Daylight	304963
Dark	112920
Grand Total	**417883**

SOLUTION APPROACH

- A few measures were created to calculate the KPIs as shown below:

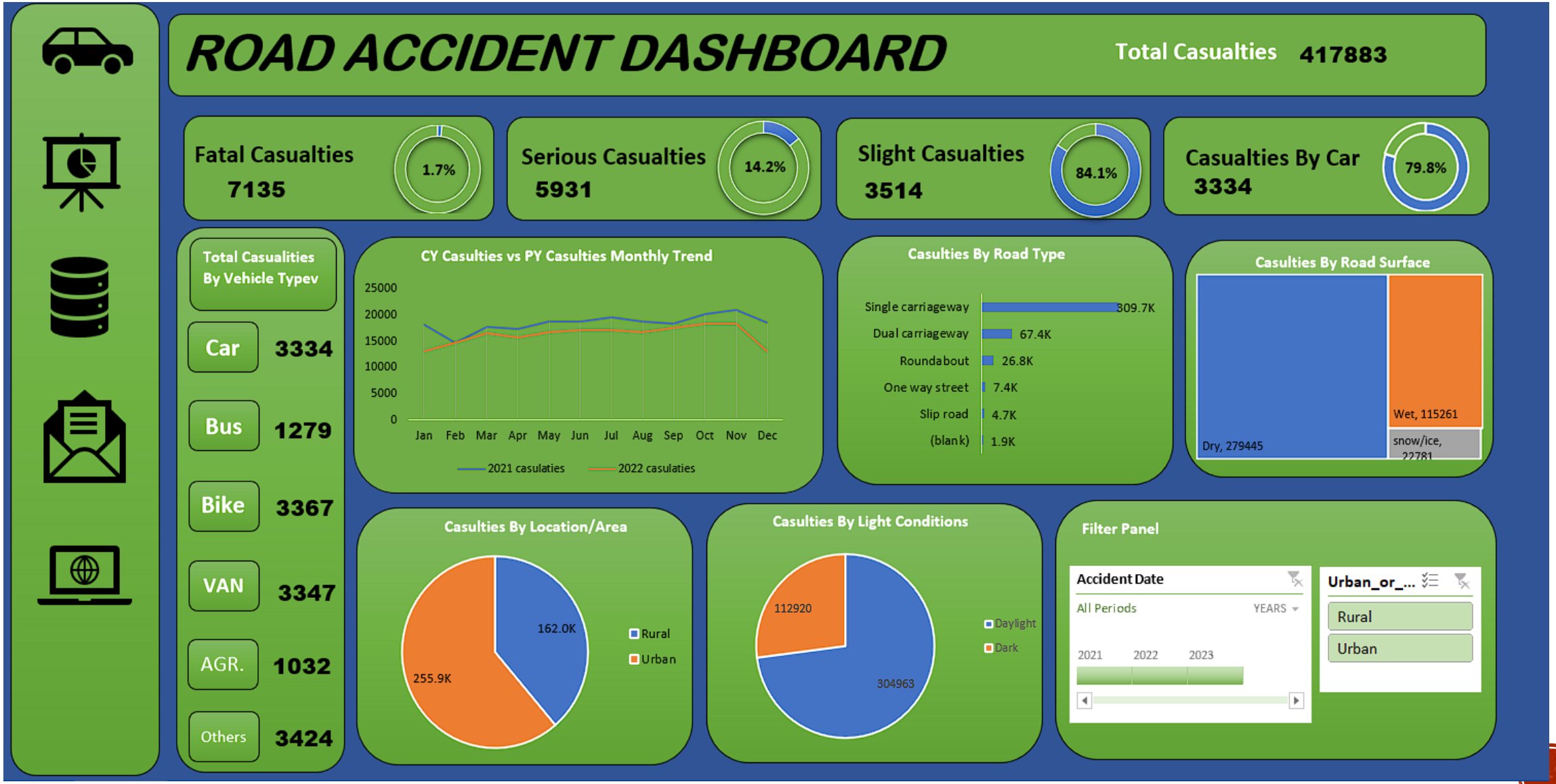
Fatal severity % = fatal severity /(fatal severity + serious severity + slight severity)

Serious severity% = serious severity /(fatal severity + serious severity + slight severity)

Slight severity% = slight severity /(fatal severity + serious severity + slight severity)

Total casualties = fatal severity + serious severity + slight severity

DASHBOARD


ROAD ACCIDENT DASHBOARD
Total Casualties 417883
Fatal Casualties
7135
1.7%
Serious Casualties
5931
14.2%
Slight Casualties
3514
84.1%
Casualties By Car
3334
79.8%
Total Casualities By Vehicle Typev
Car 3334
Bus 1279
Bike 3367
VAN 3347
AGR. 1032
Others 3424
CY Casulties vs PY Casulties Monthly Trend
25000
20000
15000
10000
5000
0
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
2021 casulaties
2022 casulaties
Casulties By Road Type
Single carriageway 309.7K
Dual carriageway 67.4K
Roundabout 26.8K
One way street 7.4K
Slip road 4.7K
(blank) 1.9K
Casulties By Road Surface
Wet, 115261
Dry, 279445
snow/ice, 22781
Casulties By Location/Area
162.0K
255.9K
Rural
Urban
Casulties By Light Conditions
112920
304963
Daylight
Dark
Filter Panel
Accident Date
All Periods
YEARS
2021 2022 2023
Urban_or_...
Rural
Urban

FEATURES OF THE DASHBOARD

- The following 5 visuals were provided:
  - **CY and PY Monthly Trends**=the line charts shows the casualties trend between the months of previous and current year showing that **most casualties happened between October and November**
  - **Casualties by road type**=This bar charts shows us that **single carriageway leads to most casualties**
  - **Casualties by road surface**=This tree map shows that **dry road type has the most casualties**
  - **Casualties by location**= Pie chart shows that **urban areas has the most casualties**
  - **Casualties by light conditions** = Pie chart shows that **dark conditions has the most casualties**

FEATURES OF THE DASHBOARD

- A bunch of Slicers were placed in the right to show the values of important KPIs
- The following filters were provided to slicers :
  - Month-year
  - location
- The theme of the dashboard is just randomly chosen
- The visuals are interactive in nature

PROBLEM OUTCOMES

- The following are some important insights derived from the dashboard:
  - Most casualties happened by car type is **cars (3334).**
  - We found out that **single carriageway leads to the most casualties**.
  - **Dry roads** were where most casualties has taken place.
  - **Urban areas** is where most of the casualties happens.
  - **Night time** is when most of the casualties take place.

CONCLUSION

- A Road accident dashboard was built for Stakeholders depicting its various KPIs visually
- Relevant filters and interactions was provided in the dashboard
- This dashboard can be used for both high-level and in-depth analysis of KPIs across various dimensions
- The dashboard may not look good and design is not great as I prefer them making in power BI , but this is a Excel project so I have to create this one on excel

THANK YOU!