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Introduction

This project aims to develop a Power BI Dashboard for generating insights about road accident data in the United Kingdom.

Dashboard Requirements

- Primary KPIs: Total Casualties and Total Accident values for the Current Year and YoY Growth
- Primary KPIs: Total Casualties by Accident Severity for Current Year and YoY Growth
- Secondary KPIs: Total Casualties with respect to Vehicle Type for Current Year
- Monthly Trend showing a comparison of Casualties for the Current Year and the Previous Year
- Casualties by Road Type for Current Year
- Current Year Casualties by Area/Location & Day/Night
- Total Casualties and Total Accidents by Location

Installation / Usage

1. Install Power BI Desktop from the Official Power BI Download Site
2. Download data files from the link given in the Introduction
3. Clone/download this repository to your local machine
4. Open the Dashboard report file (Road Accidents Dashboard. pbix) in Power BI Desktop, to access the dashboard's interactivity.

DAX Formulas Used in Measures

1. Total Casualties for Current Year and Year-on-Year Growth
 - (a) Current Year to Date Casualties -- CY Casualties Measure: ```CY Casualties = TOTALYTD (SUM (Data [Number_of_Casualties]), 'Calendar'[Date]) ```
 - (b) Previous Year Casualties -- PY Casualties Measure: ```PY Casualties = CALCULATE (SUM (Data [Number_of_Casualties]), SAMEPERIODLASTYEAR('Calendar'[Date])) ```

- (c) Year-on-Year Growth of Casualties - YoY Casualties Measure: ``YoY Casualties = ([CY Casualties] - [PY Casualties])/ [PY Casualties] ``

2. Total Accidents for Current Year and Year on Year Growth

- (a) Current Year Accidents Count -- CY Accidents Count Measure: ``CY Accidents Count = TOTALYTD (COUNT (Data [Accident Index]), 'Calendar'[Date]) ``

- (b) Previous Year Accidents Count -- PY Accidents Count Measure: ``PY Accidents Count = CALCULATE (COUNT (Data [Accident Index]), SAMEPERIODLASTYEAR('Calendar'[Date])) ``

- (c) Year-on-Year Growth of Accidents - YoY Accidents Measure: ``YoY Accidents = ([CY Accidents Count]- [PY Accidents Count])/ [PY Accidents Count] ``

Accident Statistics

1. Overall Accident Summary:

Year	Number of accidents
2021	163554
2022	144419
Total	307973

2. Accident Severity

Category	Number of accidents
Slight	263280
Serious	40740
Fatal	3953

3. Accident counts by year and month in Rural and Urban Areas

Months	2021		2022	
	Rural Areas	Urban Areas	Rural Areas	Urban Areas
January	4925	8492	3626	6341
February	4144	6806	3896	7039
March	4391	8811	4118	8223
April	4555	8160	3956	7554
May	4873	8938	4266	8106
June	4943	8993	4317	8495
July	5277	9023	4476	8177
August	5256	8159	4537	7551
September	4830	8962	4380	8580

October	5260	9574	4593	8941
November	5456	10017	4671	8951
December	5106	8603	3589	6036

4. Accident counts by junction details.

The three topmost spots for accidents were as follows.

- ➔ Absence of junction within 20 meters
- ➔ T or staggered Junction
- ➔ Crossroads

Accident by junction detail	Number of accidents
Absence of junction within 20 meters	123094
T or staggered junction	96718
Crossroads	29948

5. Accident counts by Road Surface conditions.

The categories of roads are as follows.

- ➔ Dry
- ➔ Wet or Damp
- ➔ Frost or ice.
- ➔ Snow
- ➔ Flood over 3cm deep.

Dry roads, wet or Damp and Frost or ice take the first three positions.

Condition of Road	Number of accidents
Dry	208967
Wet or Damp	81796
Frost or ice	12078

6. Accident counts by Road type

The types of roads discussed are as follows.

- ➔ Single carriageway
- ➔ Dual carriageway
- ➔ Roundabout
- ➔ One way street
- ➔ Slip road.

Types of Roads	Number of accidents
Single carriageway	230612
Dual carriageway	45467
Roundabout	20929

7. Accident counts with the number of casualties.

Most of the accidents involved casualties of 1, the number of accidents 235093.

8. Police Stations with Most and Least Recorded Accidents

- ➔ Most: Metropolitan police with 46789 accidents
- ➔ Least: Avon and Somerset

9. Accident counts by Light Conditions

Most accidents occurred in the **Daylight**.

10. Relationship between Accident severity and Vehicle Speed:

- ➔ Most accidents occur at 30mph.
- ➔ Percentage decrease in accidents at 60mph