**Road Accident Analysis Report**

In this project, we have a road accident dataset of two years from 2021 to 2022 in the US region. As the project outcome, we would analyse this dataset and gain insights about road accidents with the help of various factors.

* **STEPS OF PROJECT:**
  1. Requirement Gathering
  2. Stakeholders in Project
  3. Data Overview
  4. Connecting data source to Power BI
  5. Data Cleaning
  6. Data processing
  7. Data Modelling
  8. Data Visualisation
  9. Insights

**REQUIREMENT GATHERING:**

1. Primary KPIs : Current year total casualties (Total CY Casualties) and year on year growth (YoY)

Current year total accidents (Total CY Accidents) and year on year growth (YoY)

Current Year total casualties by accident severity and year on year growth (YoY)

1. Secondary KPIs : Current year total casualties with respect to vehicle type
2. Current year vs previous year monthly trend showing comparison
3. Casualties by road type
4. Casualties by urban/rural comparison
5. Casualties by location
6. Casualties by light conditions

**STAKEHOLDERS OF PROJECT:**

* Ministry of Transport
* Police Force
* Road Transport Department
* Emergency services Department
* Traffic management authorities
* Public
* Media

**DATA OVERVIEW:**

In the dataset, we have all the data required for our analysis. We have weather conditions, no. of casualties, date, time, year, light conditions, road type, road surface, location, etc. We carefully review the data and find any abnormality or errors which could cause us difficulty in analysing data or incorrect analysis.

**DATA CLEANING:**

We found that in the accident severity column some values for fatal were misspelled as fetal. So we were getting error. We correct this by transform data option and in power query we change the value to fatal.

**DATA PREPROCESSING:**

In data preprocessing, we added a new table called Calendar. We used various DAX commands like TOTALYTD, SAMEPERIODLASTYEAR, etc. all called the time intelligence functions. We created date, year and month columns in the new table.

**DATA MODELLING:**

In data modelling, we establish relations between different tables. We created a one to many relation between Calendar\_Date and Data[Accident\_date]. This helps us to use the Calendar dates instead of accident dates as they are unique.

**DATA VISUALISATION:**

This is an important step involving data analysis and dashboard creation. We made various measures like CY Casualties, CY accidents, PY Casualties, PY Accidents, YoY Casualties and YoY Accidents using DAX commands. Then we made cards for total CY casualties and accidents and CY accident severity cards. We also made a multi row card for casualties by vehicle type. Then we made two doughnut charts showing casualties by urban/ rural area and by day/night. Also made an area chart showing monthly trend of CY casualties vs PY casualties. Next made a stacked bar chart for casualties by road type. Lastly added a map chart to show casualties by location. Also added slicers/filters based on weather conditions and road surface.

**FINAL INSIGHTS:**

After analysing the dashboard, we see that in the year 2022, casualties as well as accidents were lower as compared to 2021. Cars are the vehicle which have most no. of casualties. Single carriageway road type causes more than 70% casualties. Also urban areas have more no. of casualties than rural, but rural casualties are not that low maybe due to lack of proper road transport. Surprisingly, casualties and accidents happen more often during day light rather than night time.

These were some deep insights we could get using this dashboard. Hopefully, this will decrease accidents and increase proper road transport for safety of all.