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TASK 1 – DATA VISUALIZATION – SOLUTIONS:

Dashboard implementation – using a tool of your choice (suggested Tableau or Power BI Desktop):

1. Plan your dashboard
    a. Briefly describe the focus of analysis – focus of the dashboard.
    b. Identify individual visualisations needed to tell the story – define their messages (what are they supposed to show to the user) – remember about the 7-/+2 rule (do not use more than 7 visualisations)
2. Implement
    a. Create dashboard – a collection of visualisations
        i. Arrange elements to tell the story – follow the top-left-corner to bottom-right-corner rule
    b. Tweak the visualisations – apply proper formatting, apply proper color schemes, add additional information (labels, titles, etc.)
3. Overview the results (*)

As the final solution, please upload a screenshot of your dashboard and the report. In the final report provide a concise description of your implementation in accordance with the following points:

1.1 PLAN

1.1 A FOCUS – DEFINE YOUR GOALS

Please specify the user and the general goal of the dashboard.

Specific Objectives:

1. ***Total Number of Collisions by Crash Dates:*** *Analyze the trend of collisions over the past years.*
2. ***Injuries and Fatalities****: Examine the rates and numbers of injuries and fatalities among motorists, pedestrians, and cyclists.*
3. ***Geographical Distribution of Injuries****: Compare the number of injuries across different boroughs in New York City.*
4. ***Collisions by Vehicle Types****: Understand which types of vehicles are most frequently involved in collisions.*
5. ***Yearly Collisions Overview:*** *Provide a summary of total collisions by year, highlighting both the total number and the ratio of collisions.*

1.1 B PLAN

Please state the specific story you want to tell with the data, identify needed individual visualisations, specify message and type of each visualisation.

The dashboard will illustrate the temporal and spatial trends in traffic collisions, highlight the human impact in terms of injuries and fatalities, and identify which vehicle types are most involved in collisions. The goal is to provide a clear, and actionable view of traffic safety in NYC.

Total Collisions Over Time: *Shows the trend of total collisions by crash date.*

- ***Message****: To highlight whether collisions are increasing, decreasing, or remaining stable over the years.*

Injuries and Fatalities*: Compares total motorists injured, total pedestrians injured, total cyclists injured, and total injured persons.*

- ***Message****: To illustrate the distribution and magnitude of injuries and fatalities among different groups.*

Injuries by Borough*: Displays the number of injuries (motorists, pedestrians, cyclists) across different boroughs.*

- ***Message****: To identify which boroughs have the highest rates of injuries.*

Collisions by Vehicle Type: *Shows the distribution of collisions by different vehicle types.*

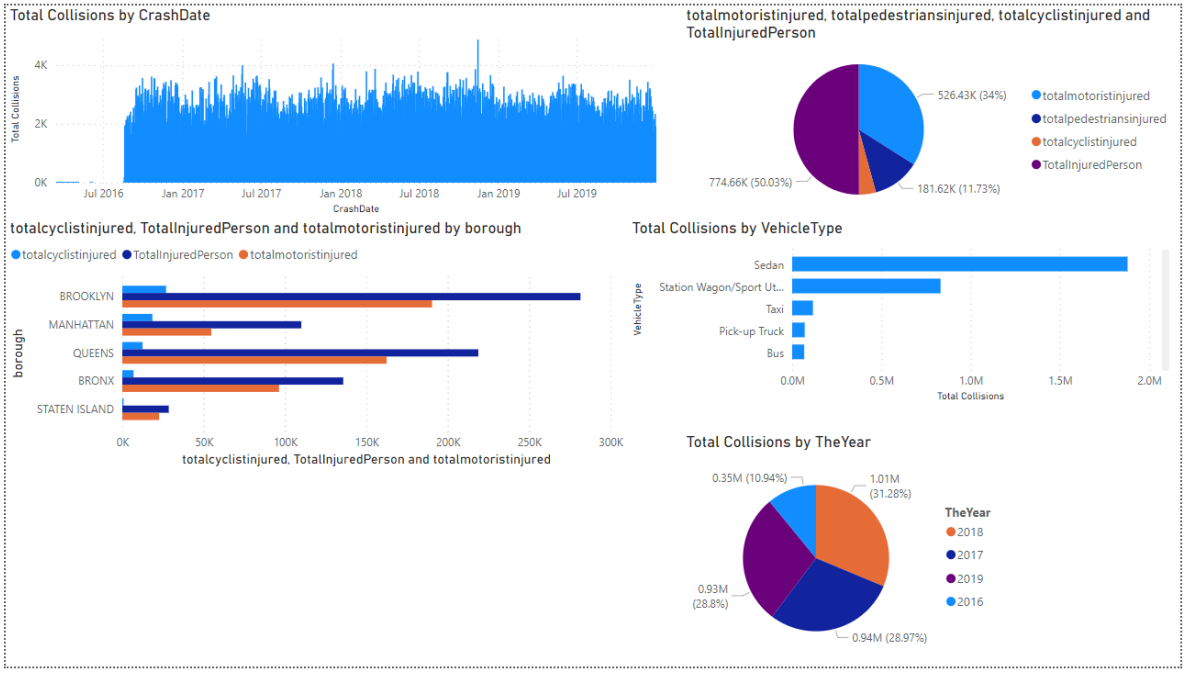
- ***Message****: To understand which types of vehicles are most frequently involved in collisions*

Total Collisions by Year with Ratio: *Provides an overview of the total number of collisions each year and the proportion compared to other years.*

- ***Message****: To give a quick summary of yearly collision data, emphasizing changes and trends over time.*

1.2 IMPLEMENTATION

Please prepare screenshots of each visualisation and screenshot of the entire dashboard.



1.3 SHORT STUDY (*)

The line chart shows a clear trend in traffic collisions over time, with spikes in certain years possibly due to increased traffic or other factors. The bar chart highlights that motorists have the highest injury rates, followed by pedestrians and cyclists, suggesting the need for better safety measures for vulnerable road users. The heat map reveals that Manhattan and Brooklyn have higher injury rates, important for resource allocation and safety campaigns. The stacked bar chart indicates which vehicle types, like passenger cars and trucks, are most involved in collisions, aiding in policymaking. The donut chart provides a yearly summary of collisions, showing significant changes and prompting further investigation into causes.

GENERAL CONCLUSIONS:

The dashboard provides clear insights into traffic collisions in NYC, showing trends, human impact, and vehicle involvement. Challenges included ensuring data accuracy and clear formatting. Using the top-left-corner to bottom-right-corner layout rule helped guide users through the visualizations logically. Integrating data from SQL Server Analysis Services (SSAS) into Power BI allowed for dynamic and interactive visualizations. This complete view helps identify areas needing safety improvements, supporting better decision-making for policymakers.