ROAD ACCIDENT ANALYSIS PROJECT REPORT

1. Introduction

The "Road Accident Analysis" project aims to analyze and compare road accidents and casualties that occurred in England between the years 2022 and 2021. The analysis will focus on various factors such as accident severity, road type, area, light condition, and vehicle type involved in the accidents. This report is based on a dummy dataset of locations in England, and the project employs various data analysis and visualization tools, including Tableau, Microsoft Power BI, Microsoft Excel, SQL (Microsoft SQL Server), and Python with pandas and plotly libraries.

2. Project Overview

The primary goal of this project is to gain insights into road accidents and their impact on casualties during the two-year period. By examining the data using different tools and techniques, we intend to identify trends, patterns, and relationships between different variables related to road accidents.

3. Data Description

The dataset used in this analysis contains 19 columns and 307,973 rows of data, representing various road accident incidents in England. It is essential to note that this is a dummy dataset created for illustrative purposes, and any resemblance to real locations or events is purely coincidental. There are no duplicate entries in the dataset, and the number of missing values is minimal.

4. Data Analysis Insights

4.1. Total Accidents and Casualties Trend:

The analysis of the dummy data reveals that the total number of accidents and casualties decreased in 2022 compared to 2021. This reduction suggests a potential improvement in road safety measures during the study period.

4.2. Seasonal Variation of Casualties:

According to the data analysis, the rate of casualties was highest between March and October, with a gradual decrease in casualties from November onwards in both years. This finding highlights the importance of implementing additional safety measures during the peak months.

4.3. Impact of Vehicle Type on Casualties:

In 2022, the number of serious casualties increased by 1.67%, and slight casualties by 7.55% only in the bus category. Overall, casualties increased in 2022 solely in the bus category by 5.59%, while all other vehicle types experienced a decrease in casualties.

4.4. Casualties by Road Type:

Based on the analysis, the "Single Carriage Road" reported the highest number of casualties, indicating that this type of road may require special attention regarding safety measures.

4.5. Severity of Casualties:

Fatal casualties were the most prevalent among all levels of severity, highlighting the need for targeted interventions to reduce the number of fatal accidents.

4.6. Impact of Weather and Road Surface Conditions:

The data analysis says that dry road surfaces between April and August showed the highest number of casualties. Additionally, fine weather conditions were associated with the highest percentage (84.68%) of casualties, and dry road surfaces accounted for 67.49% of all casualties.

4.7. Casualties in Urban Areas:

Based on the data analysis, urban areas experienced the highest number of casualties compared to other areas, emphasizing the need for improved safety measures in densely populated regions.

4.8. Vehicle Type Involved in Accidents:

According to the data analysis, the "car" category was involved in the highest number of accidents, with a total of 333,485 occurrences, suggesting the need for targeted initiatives to enhance car safety.

4.9. Casualties by Light Conditions:

Daytime accounted for the highest number of casualties, comprising 73% of the total casualties based on the data analysis. This observation emphasizes the significance of visibility and safety measures during the day.

5. Conclusion

The "Road Accident Analysis" project, based on a dummy dataset of locations in England, successfully explores and compares road accidents and casualties between year 2022 and 2021. The insights gained from the data analysis highlight crucial areas where road safety measures could be improved. By focusing on factors such as accident severity, road type, area, light condition, and vehicle type, authorities can target interventions effectively to reduce the number of accidents and casualties on the roads.

The utilization of various data analysis and visualization tools, including Tableau, Microsoft Power BI, Microsoft Excel, SQL (Microsoft SQL Server), and Python with pandas and plotly libraries, allows for comprehensive exploration and validation of the dummy data. The findings of this analysis can serve as a foundation for evidence-based policymaking and initiatives to enhance road safety in the future.

Please note that the data used in this report is purely dummy and meant for illustrative purposes only. The analysis and conclusions drawn from real datasets may differ significantly from those presented here.

Dataset link:

https://docs.google.com/spreadsheets/d/1X44x9gfwqwOCa0LrLVYytPi7grC7N4ezzpAkIlrawPc/edit?usp=sharing

Tableau Dashboard:

https://public.tableau.com/views/Roadaccidentdashboard_16894032229740/Roadaccidentdashboard?:language=en-US&:display_count=n&:origin=viz_share_link

Github:

https://github.com/bhawani99/Road-accident.git