UK Road Accident Analysis

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AIM

Preform EDA Analysis and Build a Machine Learning Model to Predict the accident Severity and create a dynamic dashboard

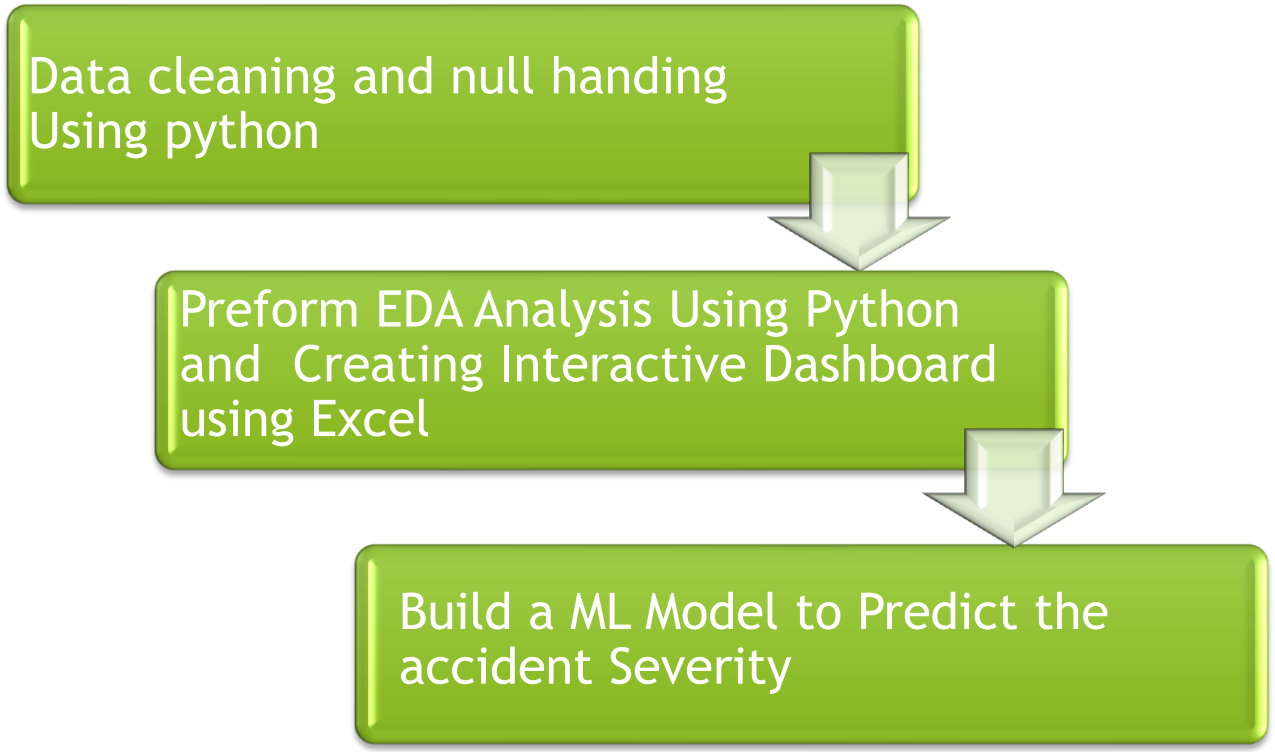
Brief Introduction About the project

- identify high-risk areas such as intersections, road segments, or specific regions with a higher concentration of accidents
- Examining accident data across different seasons can reveal patterns and trends related to weather conditions, road surface conditions, and their impact on accident frequency and severity
- Exploring the relationship between various factors, such as speed limits, road types, weather conditions, and accident severity
- Studying vehicle types accident outcomes can help identify specific vehicle-related factors that contribute to accidents
- Analyzing accident data from urban and rural areas separately can reveal differences in accident patterns, contributing factors, and severity
- Build the Machine Learning Accident severity prediction Model Based on Various factor such as Weather condition , road type , vehicle type and region

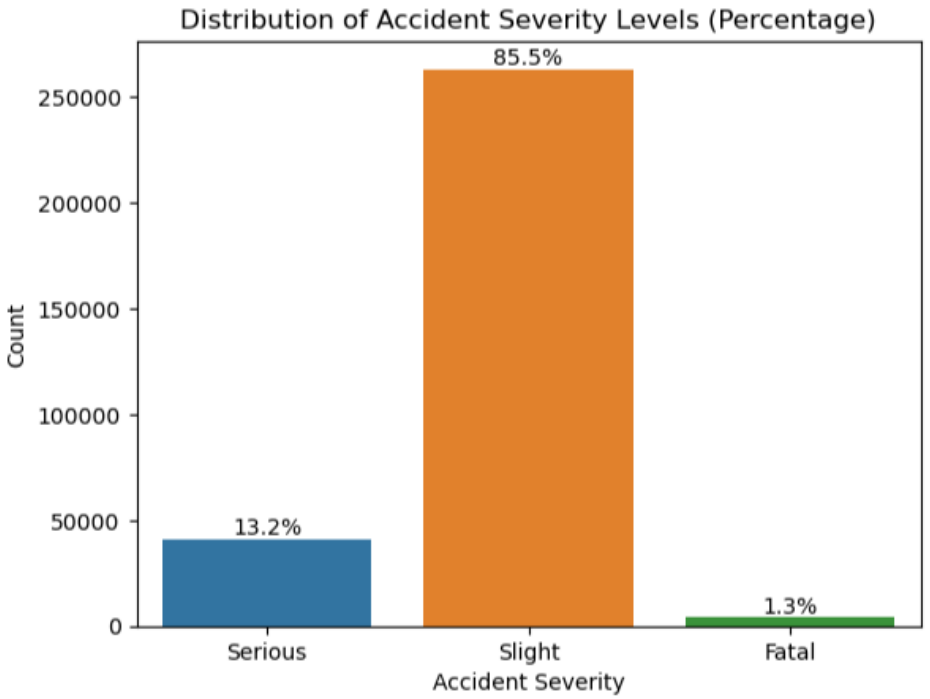
Problem Statement

- Main aim is to analyze the data of Uk road accident to extract the valuable insights that can help to control accident rate
- These insights are helpful to impalement right road safety precaution on right place

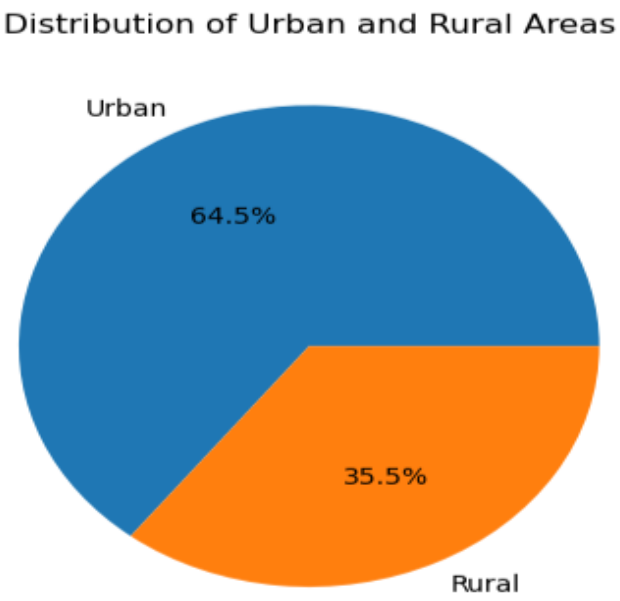
OUR APPROACH FOR THE PROJECT



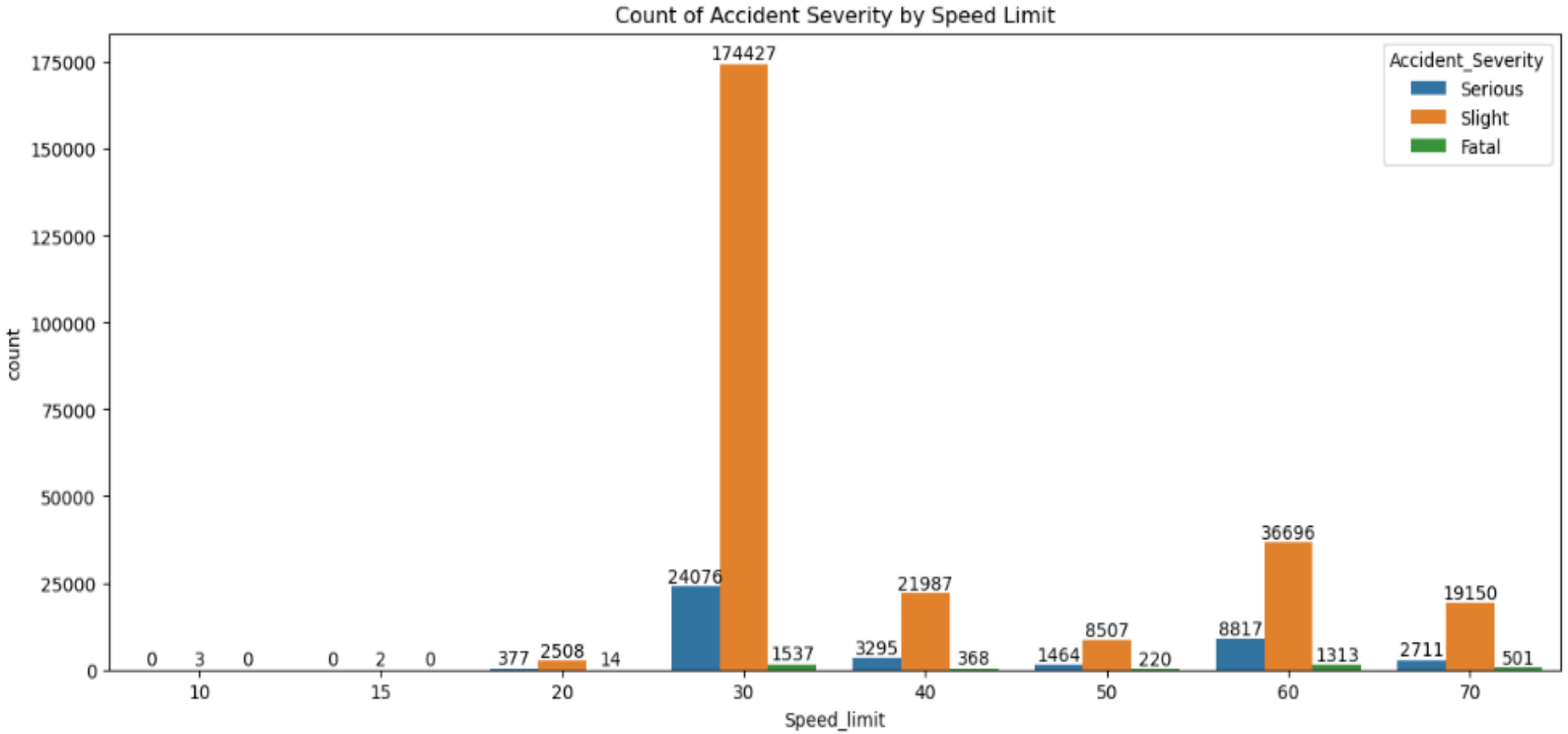
Distribution of Accident Severity Levels (Percentage)



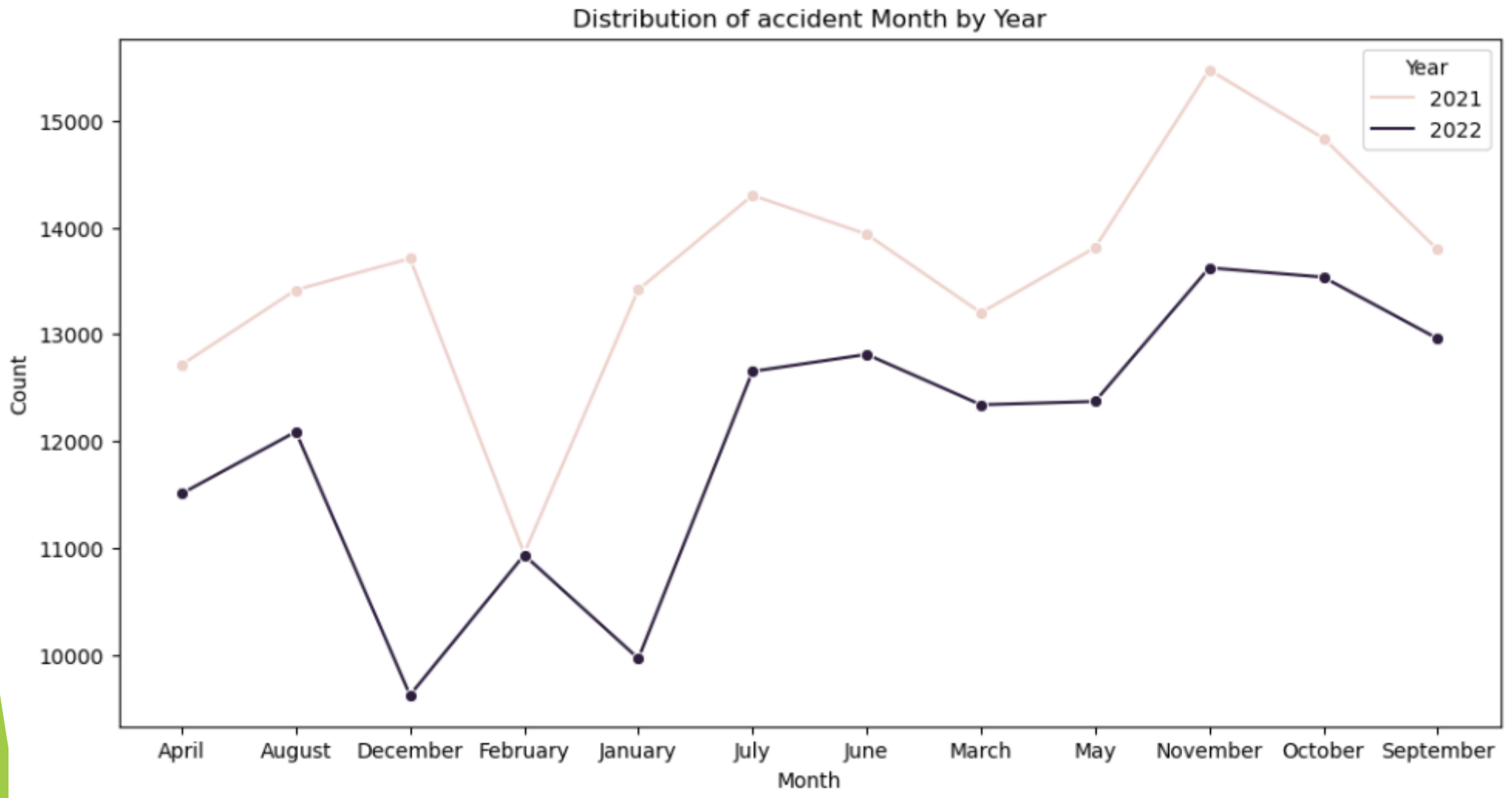
Number of accident according to region(percentage)



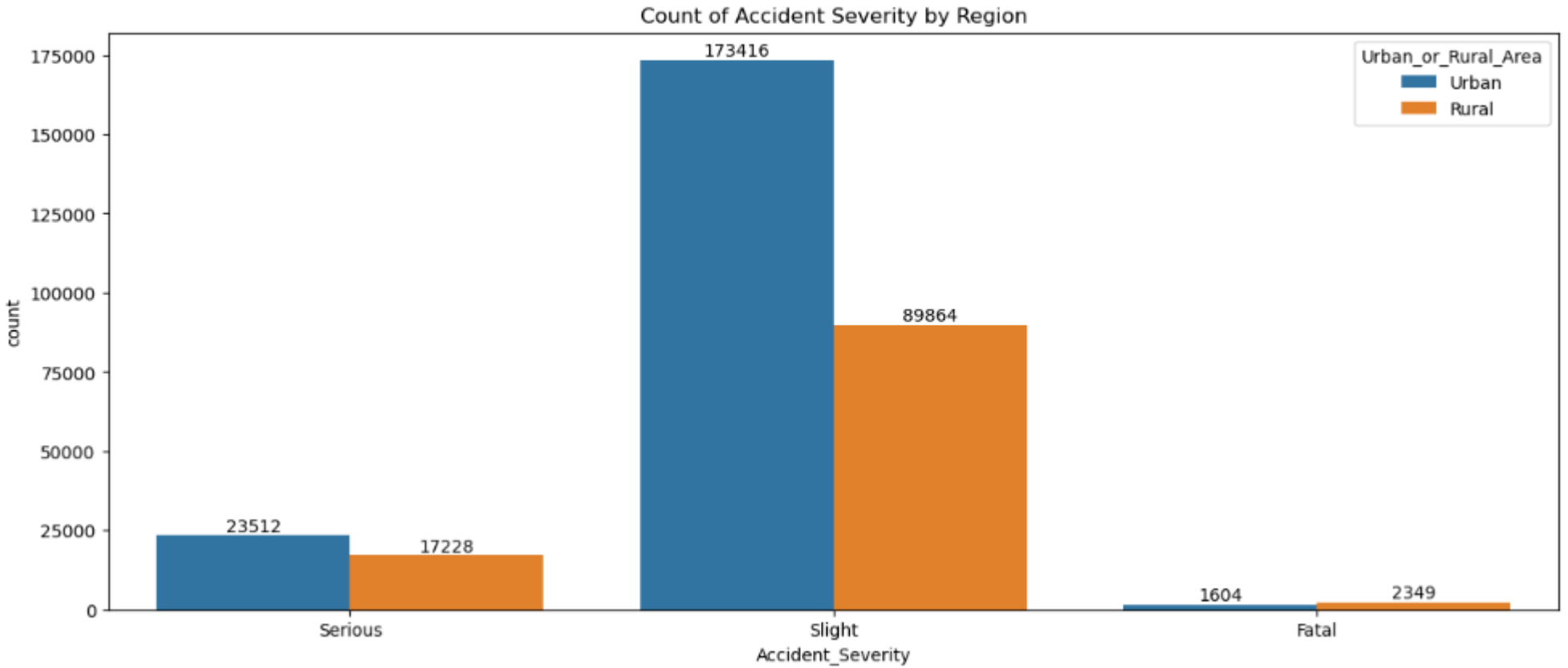
Number of accident severity according to speed limit



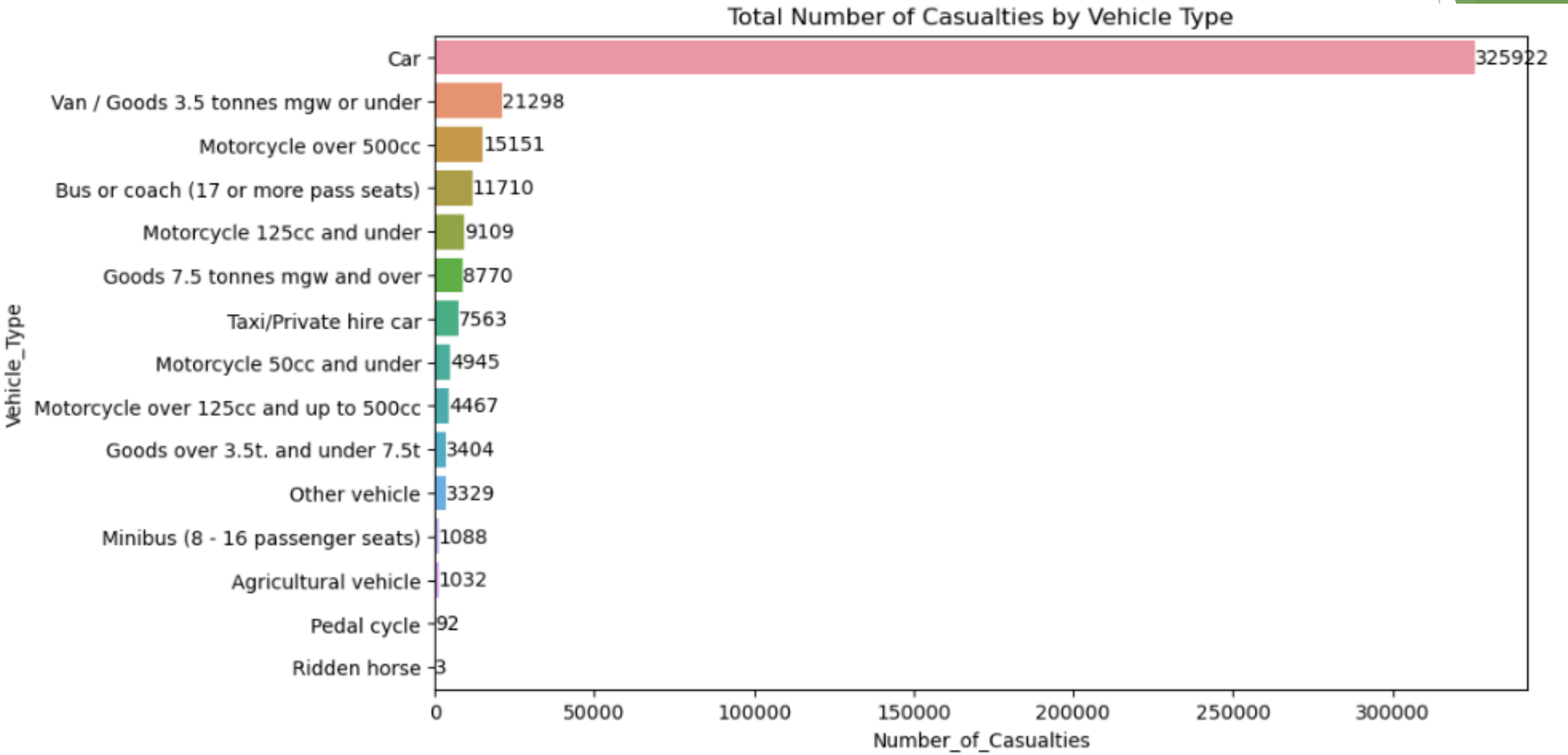
Number of accidents over different years



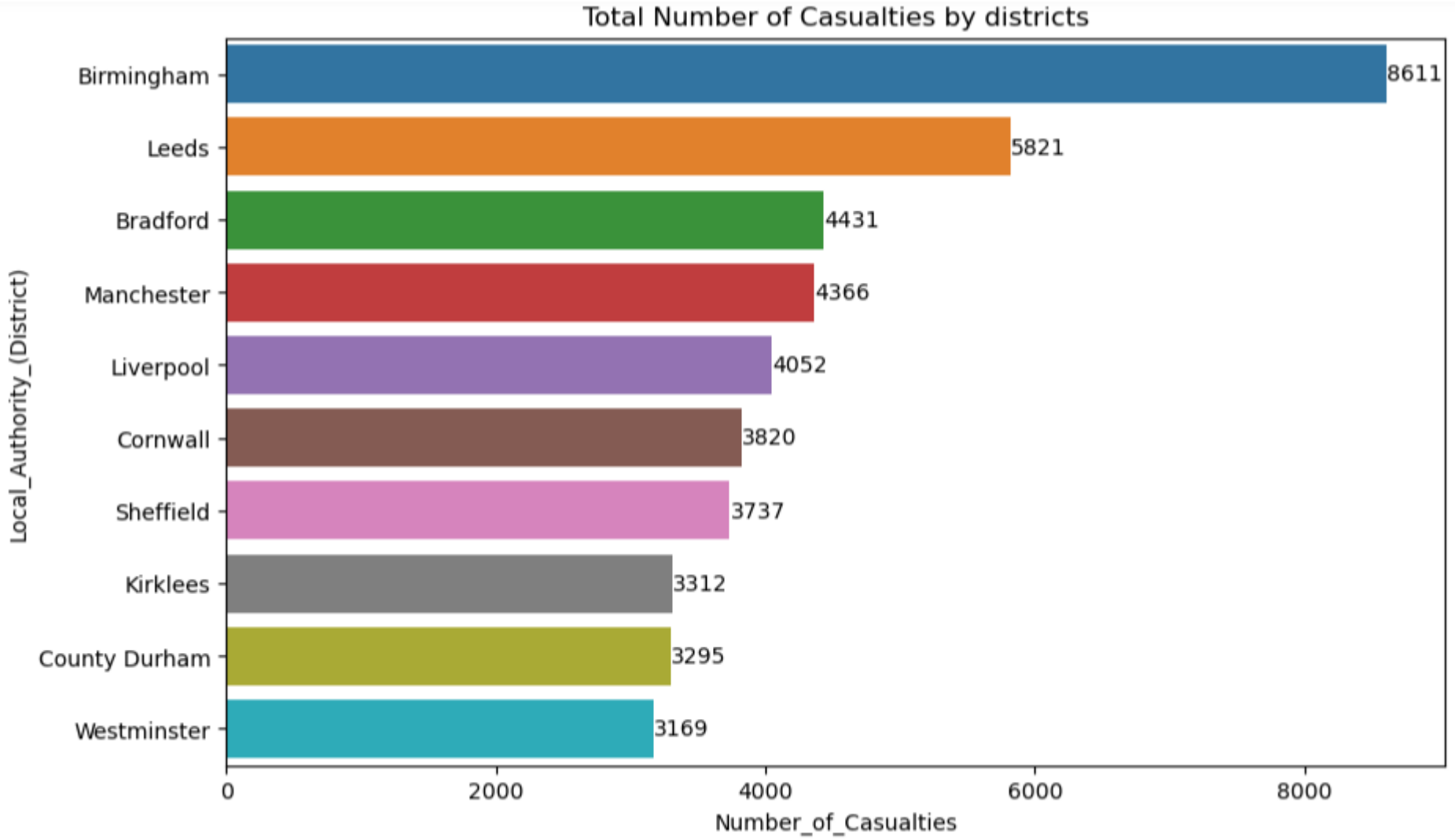
Number of Accident Severity by Region



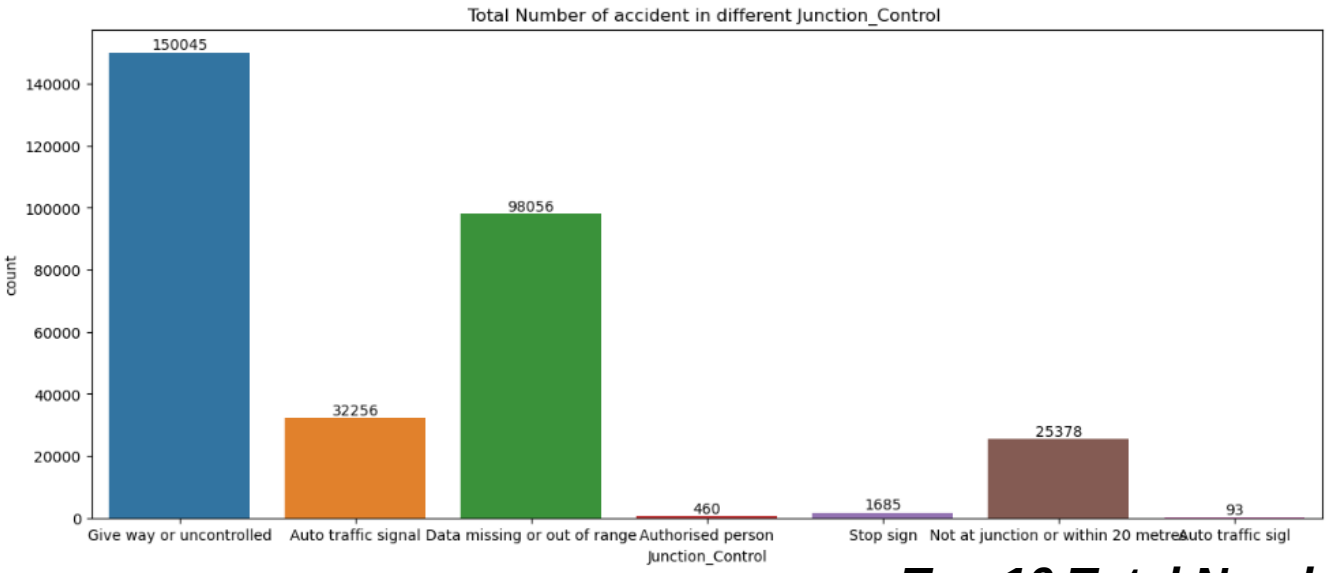
Total Number of Casualties by Vehicle Type



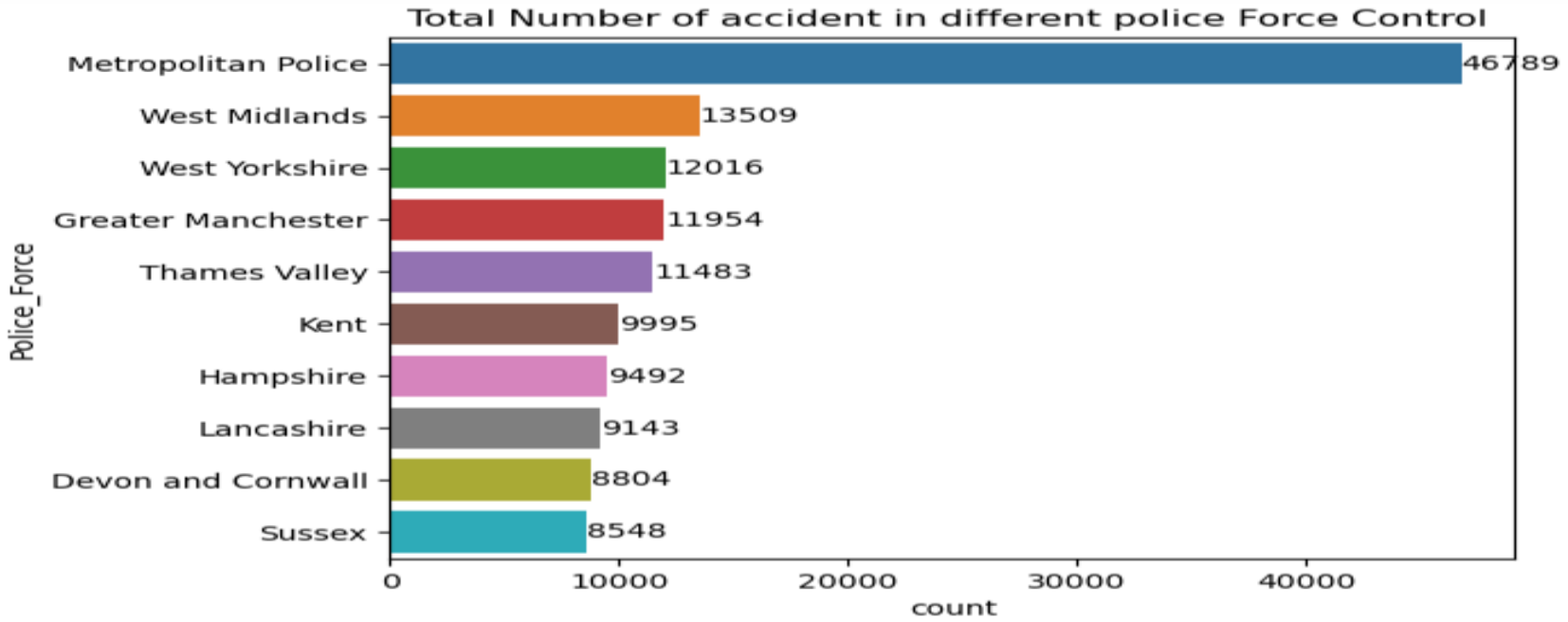
Number of Casualties vary across different local authorities (districts)



Total Number of accident in different Junction Control



Top 10 Total Number of accident in different police Force Control



Road Accident Dashboard

Total Casualties 18456

Fatal Casulties
331
1.8%

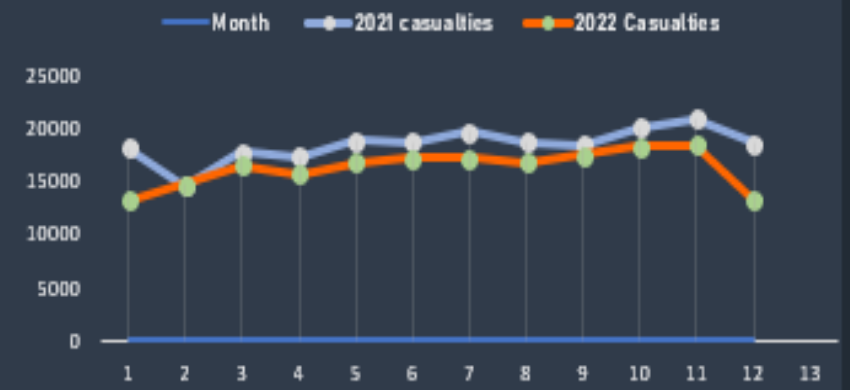
Serrious Casualties
2909
15.8%

Slight Casualties
15216
82.4%

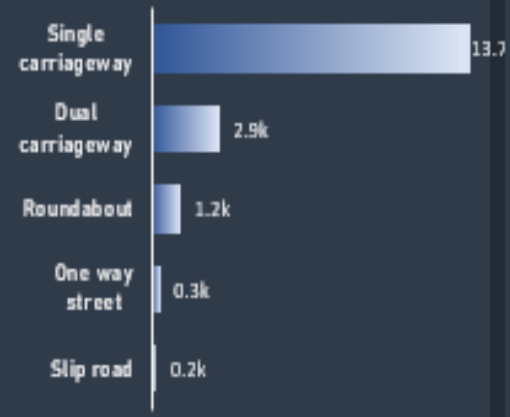
Casualties by Car
14788
80.1%

Total Casualties by Vehicels
14788
1460
493
1525
48
142

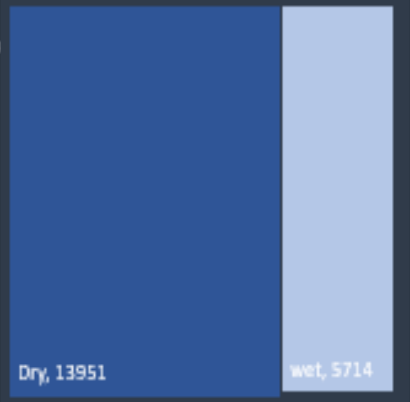
Current year casualties vs Previous year casualties



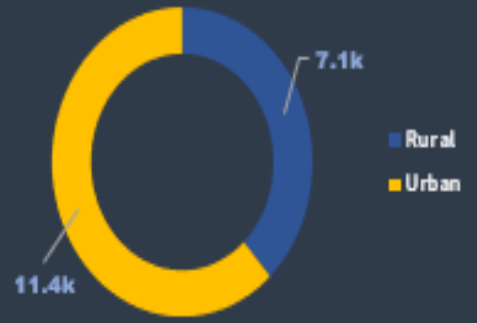
Casualties By Road Type



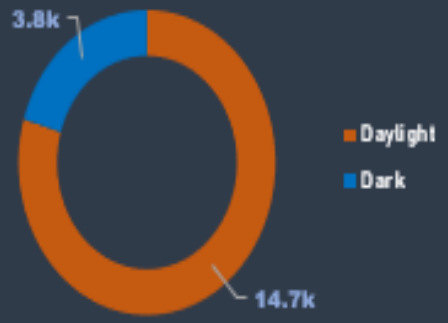
Casualties By Road Surface



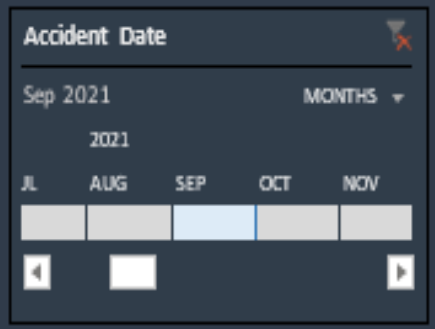
Casualties By Location/Area



Casualties By Light Condition



Filters



Urban_or_Rur...

Rural

Urban

Insights

- Number of Slight cases is very high approx. 85.5% and Fatal approx. 1.3%
- Most number Fatal ,serious and slight cases are happened when speed limit is 30 and 60 KMPH
- Urban Area is the greater Count of accident as compare to rural
- Most of The Fatal Type of cases are happened in rural areas
- In the vehicle type Car is the highest accident rate in count and Number_of_Casualties it's approx. 25K
- Dry type road condition is the highest accident rate approx. 21 K
- And the Most of the accident are occur in the daylight time approx. 23K
- Top 3 district in the accident rate are Birmingham ,Leeds and Bradford