Road Accident Analysis

Contents

Problem Statement

Road traffic accidents are a serious public safety issue, resulting in injuries, deaths, and economic losses. Even with various efforts to enhance road safety, it remains difficult to understand the patterns and trends in these accidents, which is essential for policymakers and urban planners.

This project aims to analyze a dataset of road accidents to identify trends, patterns, and contributing factors. The analysis will focus on important variables such as accident severity, time of occurrence, environmental conditions, and road characteristics.
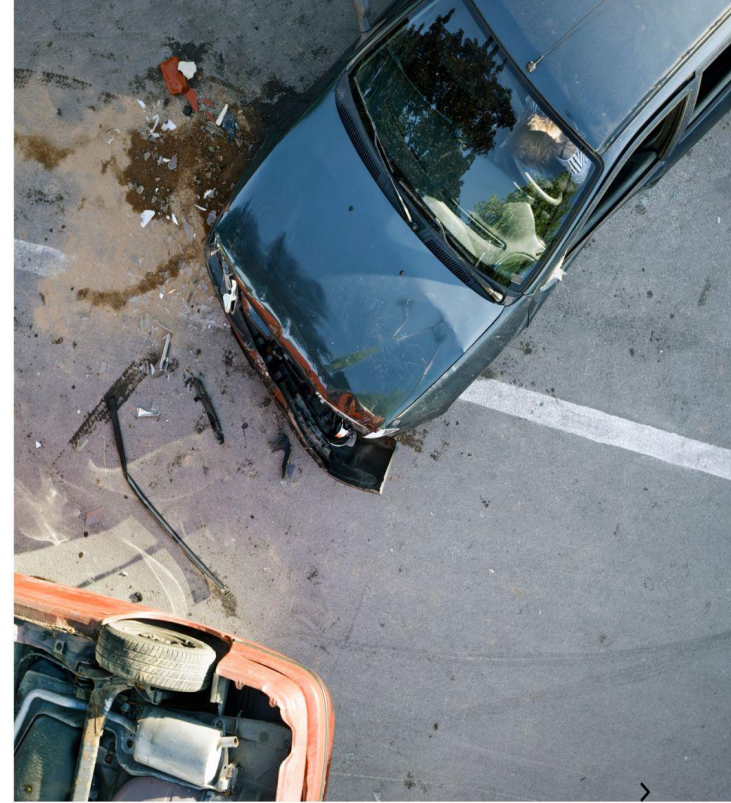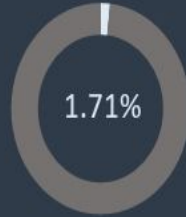
Methodology

- **Data sources**
1. SQL
2. AWS
3. Data Scraping
4. Local data sources
- **Data wrangling**
1. Data understanding
2. Data cleaning
3. Data merging and joining
4. Data manipulation
- **Data analysis**
1. Finding the trends and patterns
- **Data visualization**

KPI's (Key Performance Indicator)
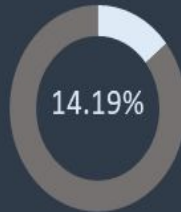
Fatal Casualties
7135
1.71%

Cars Casualties
33672
8.06%

Serious Casualties
59312
14.19%

Slight Casualties
351436
84.10%

Key Insights

- **Total Casualties**: **417,883** across all vehicle types.
- **Majority of Casualties**: The "Others" category has the highest count at **333,485** casualties.
- **Motorcycles**: **33,472** casualties indicate a significant risk associated with motorcycle use.
- **Cars**: Contribute **33,672** casualties, making them the second most involved vehicle type.
- **Vans and Buses**: **12,798** casualties for vans and **3,424** for buses show relatively lower involvement in accidents.
- **Agricultural Vehicles**: Report the fewest casualties at **1,032**.

Total Casualties by Vehicle

33672

12798

3424

33472
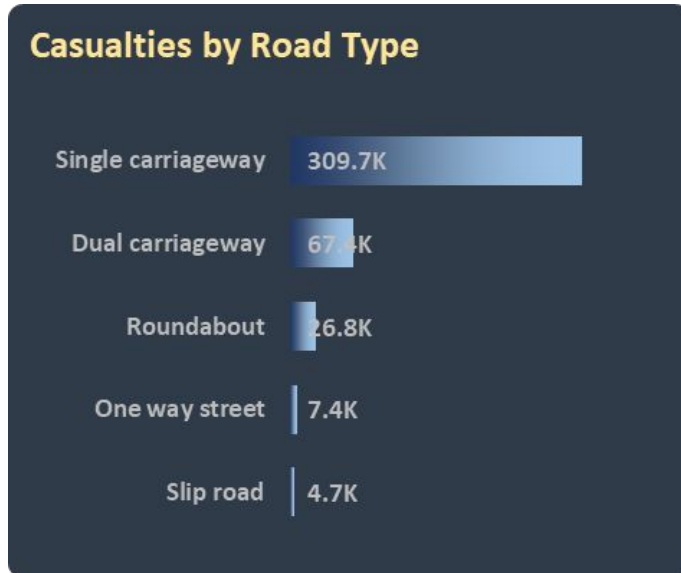
1032

333485

Recommended Analysis
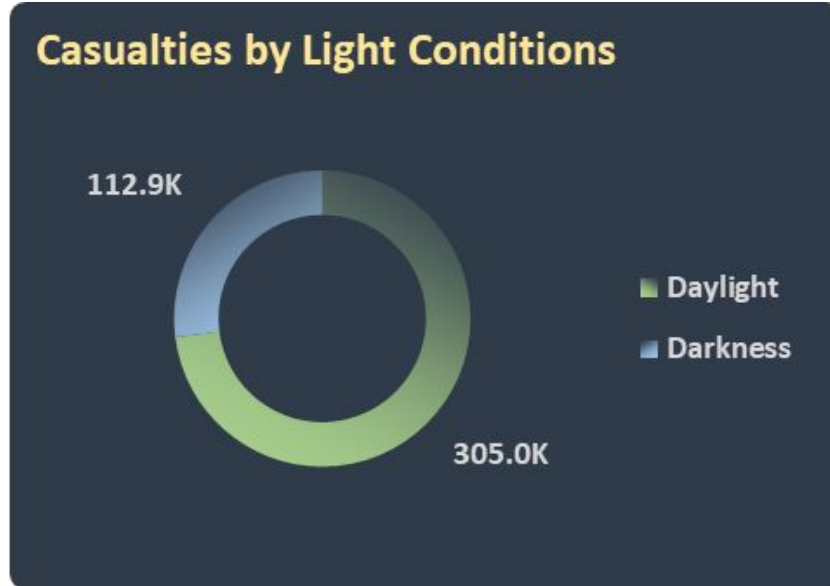
Q1. Which road type has the highest number of casualties in road traffic accidents?

Casualties by Road Type

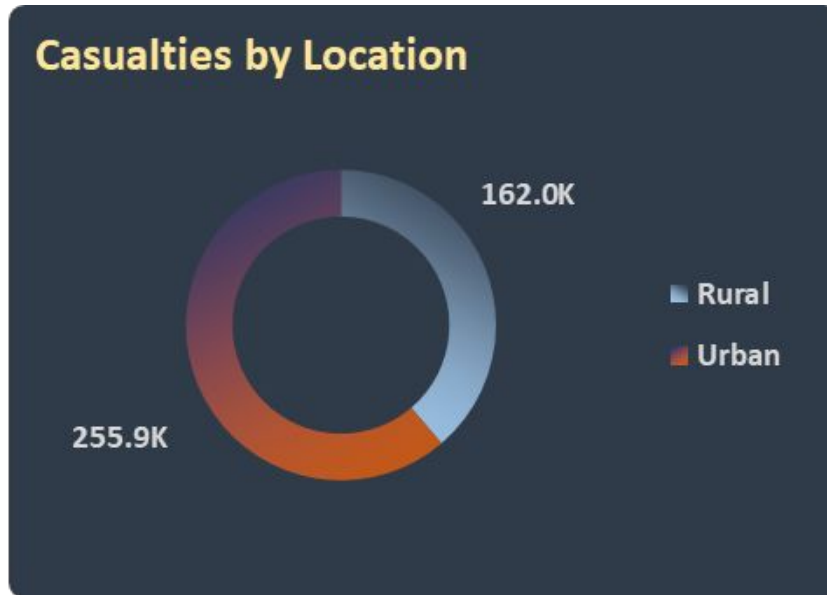| Road Type	Casualties
Single carriageway	309.7K
Dual carriageway	67.4K
Roundabout	26.8K
One way street	7.4K
Slip road	4.7K

Recommended Analysis

Q2. What are the total casualties reported during daylight conditions?
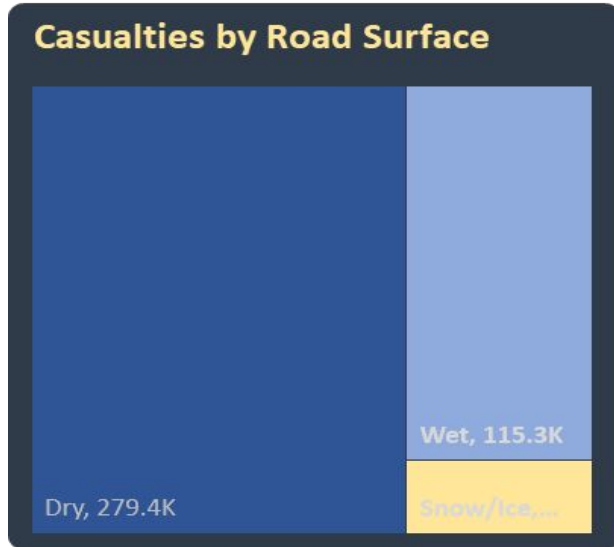
Recommended Analysis

Q3. What is the total number of casualties reported in urban areas?

Recommended Analysis

Q4. What is the total number of casualties reported on dry road surfaces?

Casualties on **dry road surfaces** total **279,400**, on **wet surfaces** total **115,300**, and on **snow/ice** conditions total **22,800**, highlighting varying risks associated with different road conditions.
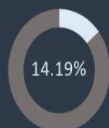
Road Accident Dashboard

Total Casualties **417883**

Fatal Casualties	Serious Casualties	Slight Casualties	Cars Casualties
7135 1.71%	**59312** 14.19%	**351436** 84.10%	**33672** 8.06%

Total Casualties by Vehicle

- 🚗 **33672**
- 🚚 **12798**
- 🚌 **3424**
- 🚲 **33472**
- 🚜 **1032**
- 🚫 **333485**

CY Casualties vs PY Casualties

● 2021 Casualties ● 2022 Casualties

(Line chart with values from 0 to 25000, months Jan through Dec)

Casualties by Road Type

- Single carriageway: 309.7K
- Dual carriageway: 67.K
- Roundabout: 26.8K
- One way street: 7.4K
- Slip road: 4.7K
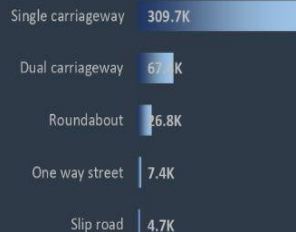
Casualties by Road Surface

Dry, 279.4K | Wet, 115.3K | Snow/Ice...

Casualties by Location

162.0K
- Rural
- Urban
255.9K

Casualties by Light Conditions

112.9K
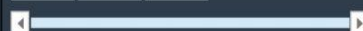- Daylight
- Darkness
305.0K

Filter Panel

Accident Date

All Periods   YEARS ▼

2021   2022   2023

Urban_or_Ru...
- Rural
- Urban

Conclusion

The analysis of road accident data shows that there were **417,883** total casualties, with notable differences across various factors:

- **Vehicle Type**: The "Others" category leads with **333,485** casualties, indicating a need for targeted safety measures.
- **Road Surface Conditions**: Most casualties occur on **dry surfaces** (**279,400**), followed by **wet** (**115,300**) and **snow/ice** conditions (**22,800**), highlighting risks even in optimal conditions.
- **Light Conditions**: Casualties during **daylight** (**305,000**) far exceed those in **darkness** (**112,900**), emphasizing the role of visibility.
- **Geographical Location**: **Urban areas** account for **255,860** casualties, significantly more than **rural areas** (**162,020**), suggesting the need for improved safety measures in cities.

thanks!