# ROAD ACCIDENT INSIGHTS: A COMPREHENSIVE ANALYSIS USING TABLEAU

**INTRODUCTION:**

Road accidents are a significant concern worldwide, impacting lives and economies. Understanding the trends, causes, and locations of these incidents is crucial for improving road safety and reducing accident rates. Leveraging Tableau's powerful data visualization capabilities, this project provides an in-depth analysis of road accident data to uncover critical insights.

The dashboard offers interactive visualizations showcasing accident trends over time, high-risk locations, contributing factors, and demographic details of those involved. This analysis aims to support policymakers, law enforcement, and safety organizations in making informed decisions to enhance road safety and save lives.

By turning raw data into actionable insights, this project highlights the potential of data-driven strategies to address real-world challenges effectively.

**OBJECTIVE:**

To build a comprehensive and interactive dashboard to understand the Road Accidents happened in the recent years.
To retrieve the insights, we perform various charts and develop them to a dashboard to get the overall picture on how the case has been improved over years.

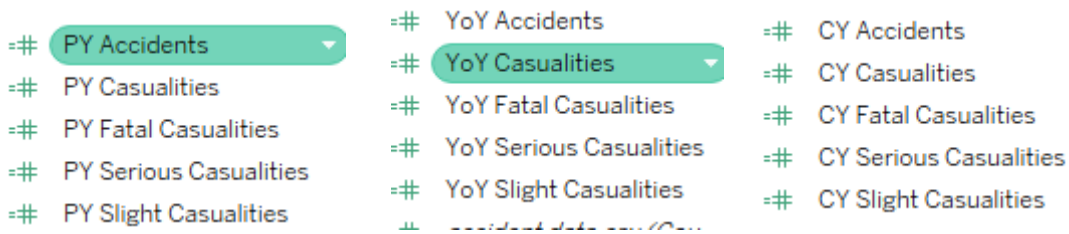
**KPI:**

We frame a list of KPI's to understand the key insights of the dataset. These are the necessary measure values which are required to derive better data driven insights.

Total Accidents
Total Casualties
Fatal Casualties
Serious Casualties
Slight Casualties

**REQUIREMENTS:**

To achieve the above KPI's we need to build our parameters as per the requirement. Inorder to show the variance over year we follow Current Year – CY and Previous Year – PY parameters and YoY – Year on Year increase in the values.



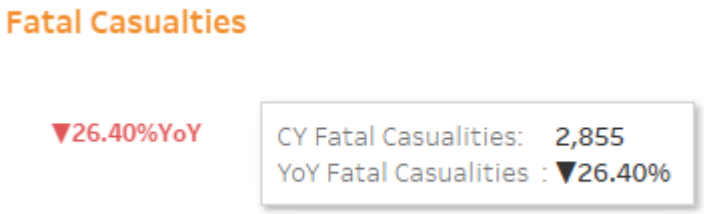
**Total Accidents:**

- Create a New sheet and display the total number of accidents.

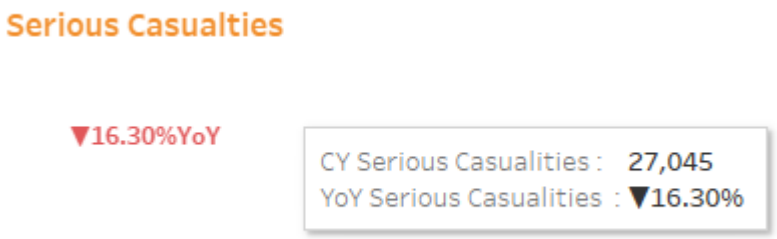

- We have insights on the current year and previous year total number of accidents with the year on year increase percentile.

**Total Casualties**


**Fatal Casualties**




**Serious Casualties**




**Slight Casualties**

## Slight Casualties

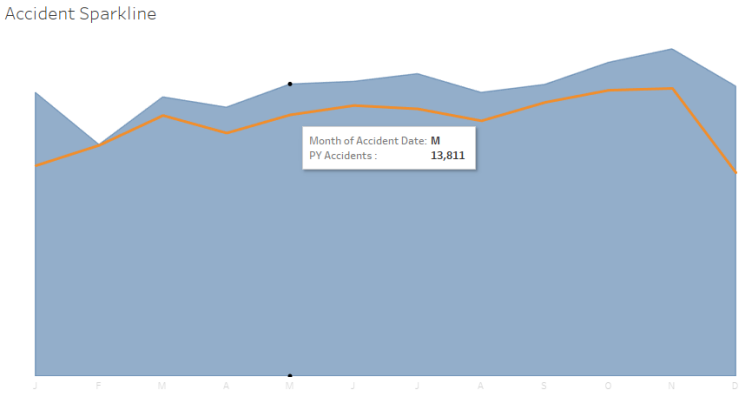
▼10.82%YoY

CY Slight Casualities : 1,65,837
YoY Slight Casualities : ▼10.82%

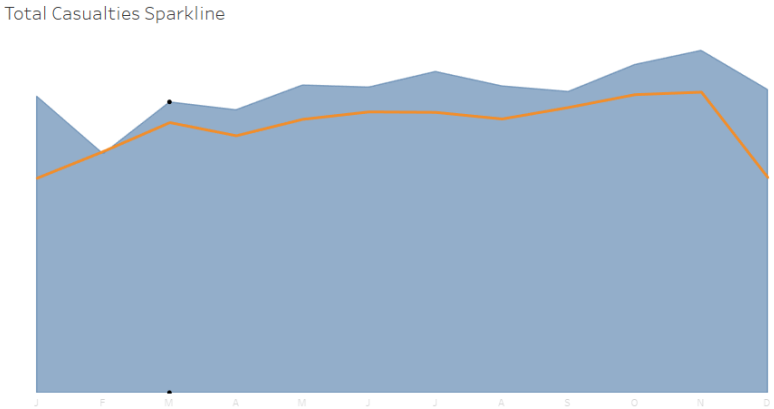
**SPARKLINES:**

- The use of Sparkline is to understand the trend of the values over a period. For all the above KPI's we'd build Sparkline to retrieve better insights.
- Total Accidents Sparkline
- Total Casualties Sparkline
- Fatal Casualties Sparkline
- Serious Casualties Sparkline
- Slight Casualties Sparkline

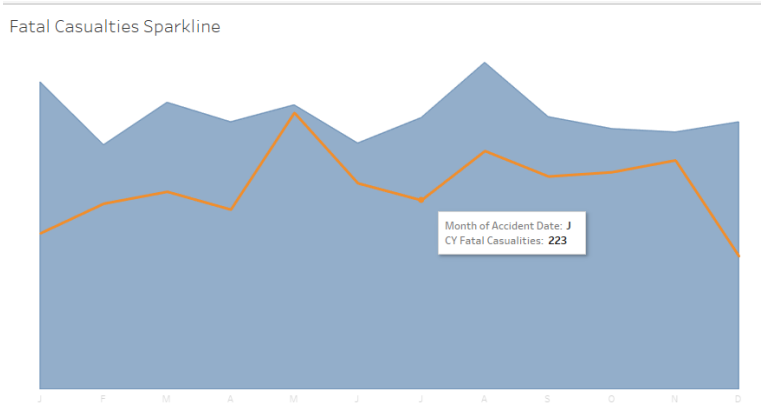
**TOTAL ACCIDENTS SPARKLINE:**



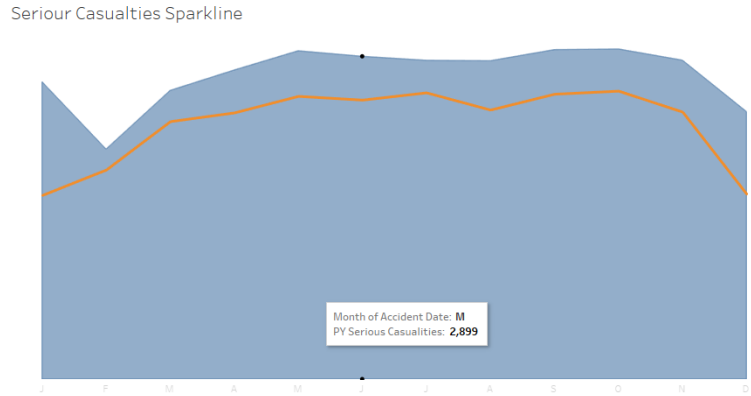

**TOTAL CASUALTIES SPARKLINE:**



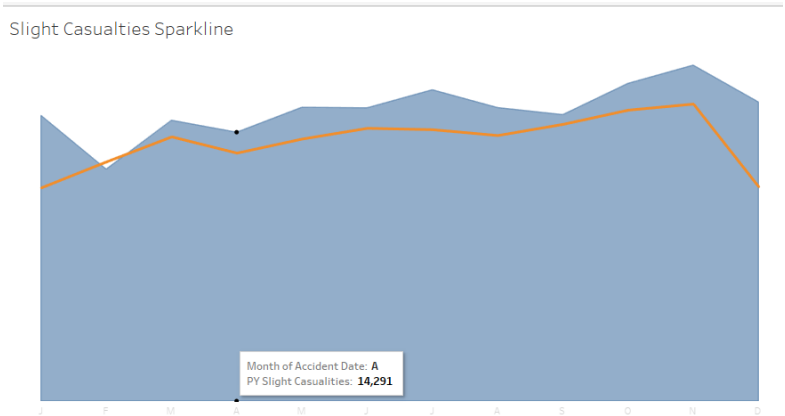
**FATAL CASUALTIES SPARKLINE:**




**SERIOUS CASUALTIES SPARKLINE:**




**SLIGHT CASUALTIES SPARKLINE:**




**DASHBOARD:**

A dashboard in Tableau is a consolidated view of multiple visualizations, charts, and other elements (like filters or images) displayed on a single canvas. Dashboards allow users to interact with their data in real-time and gain actionable insights from various perspectives simultaneously.

**Key Features of Tableau Dashboards:**

**Interactivity:** Dashboards allow for filters, tooltips, and actions that users can interact with to explore data dynamically.

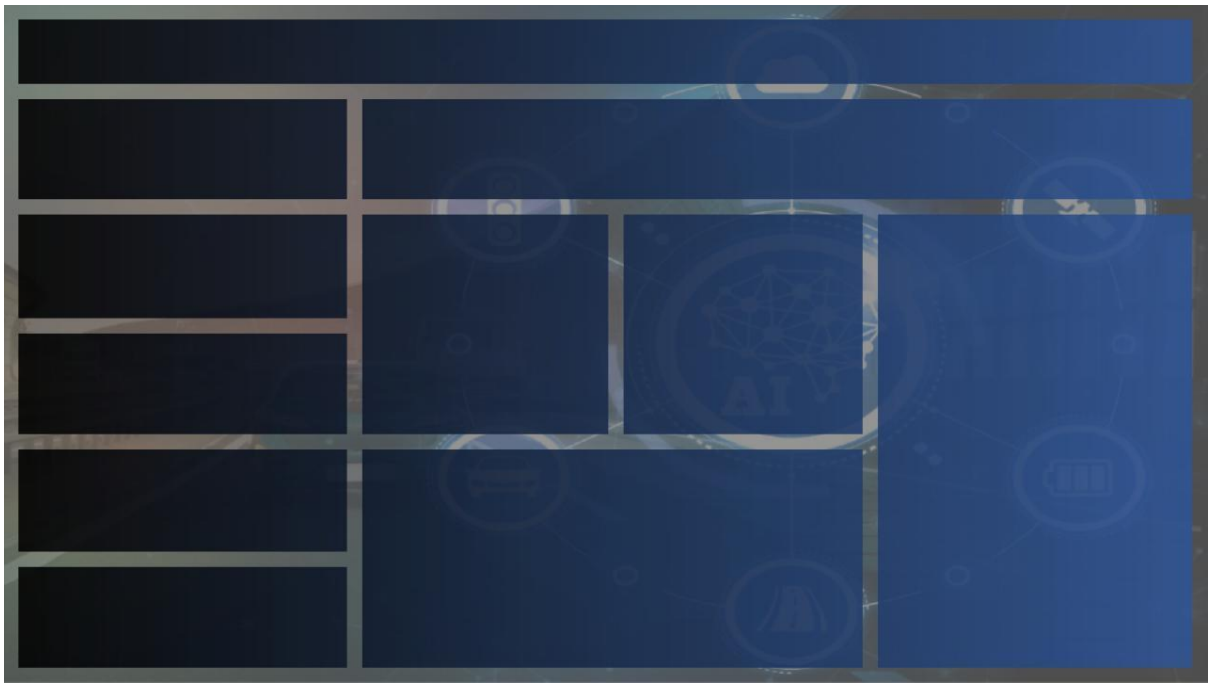
**Integration of Views:** You can combine multiple worksheets into one cohesive view for storytelling or comprehensive analysis.

**Customization:** Dashboards can be customized to align with specific reporting needs, including layouts, themes, and devices (mobile, desktop).

**Data-Driven Insights:** They bring together data from different sources to present a unified view for better decision-making.

**Developing Dashboard:**

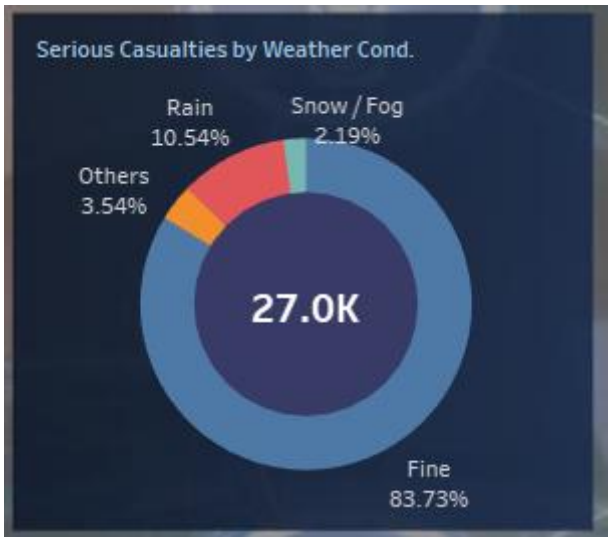
- A dashboard is created with required panel size.
- To align the metrics in a structured way, I've used a collage template that is created using Power point as shown below.



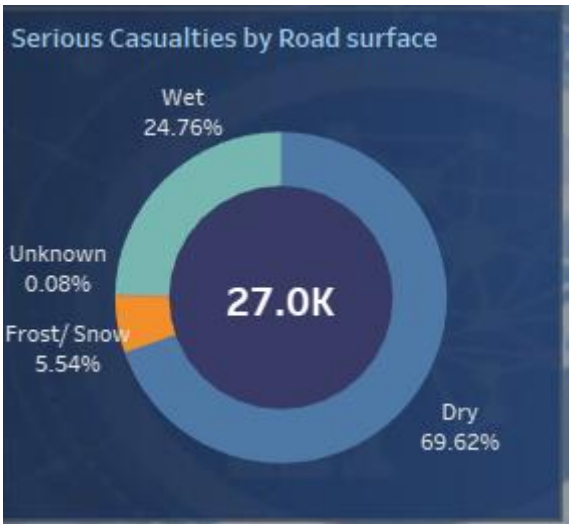
- All the derived KPIs should be inserted in this template using horizontal and vertical windows.
- Apart from KPIs and Sparkline, I've added additional analysis reports on Serious Casualties by various factors.

**Serious Casualties by Vehicle Type:**

**Serious Casualties by Weather condition:**

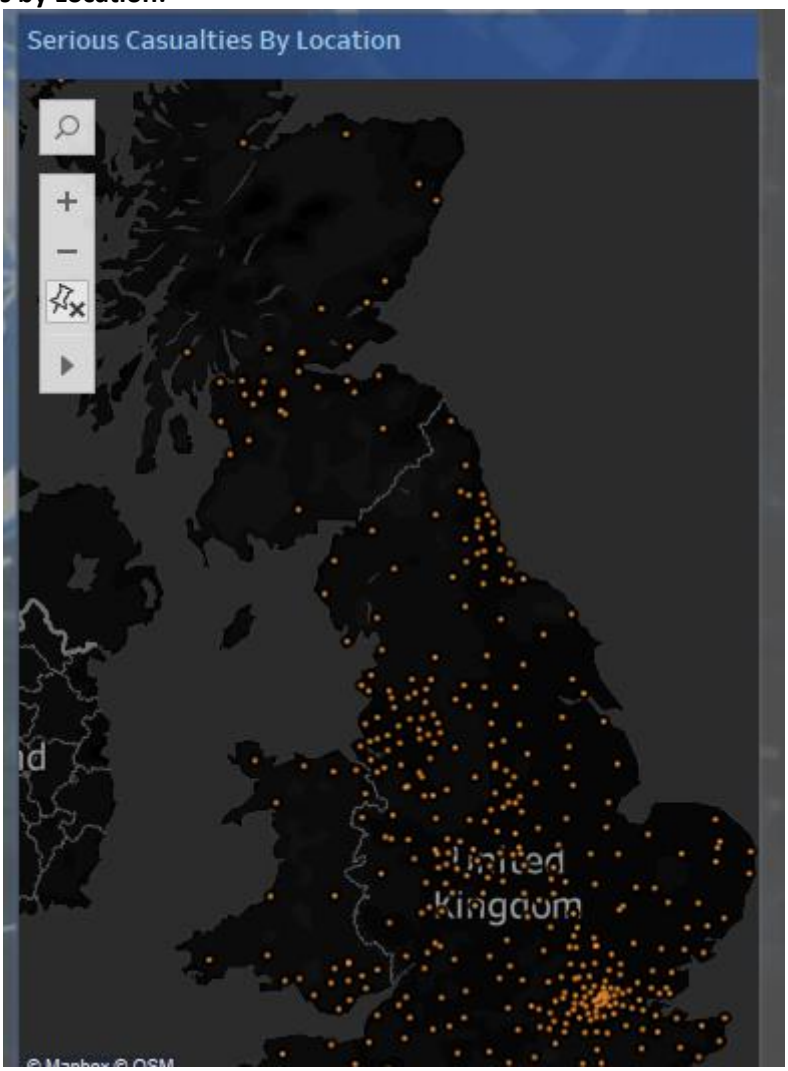



**Serious Casualties by Road surface:**

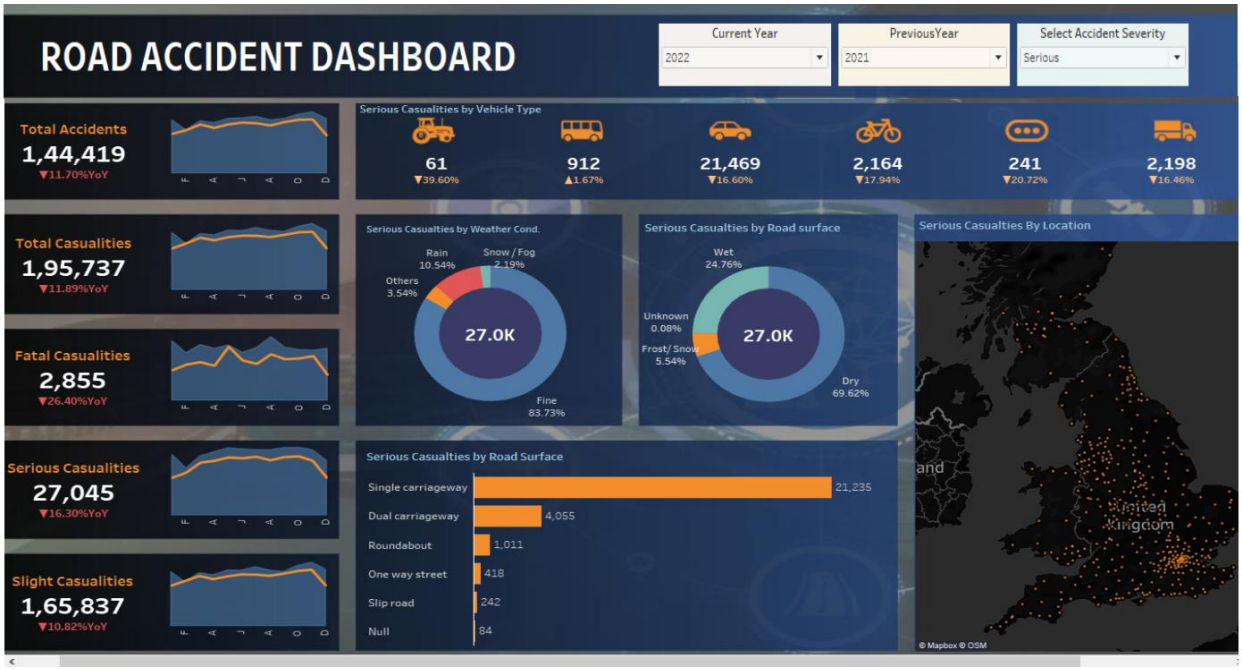



**Serious Casualties by Road Type:**

**Serious Casualties by Location:**




**Overall Dashboard:**



- The above developed dashboard gives us various insights on the Total number of accidents, casualties, fatal and serious casualties recorded.
- They also contribute on how the majority of the accidents have happened.
- To reduce the accidents, we need to focus on the major causes and eliminate such situations.
- The Year on Year numbers are gradually decreasing proving that the number of casualties are less and people are more cautious comparatively. Not to stop here, but the ultimate aim is to bring the accidents in 0 as every life is precious.

**Summary**

This Tableau dashboard project provides a comprehensive analysis of road accidents to identify trends, contributing factors, and key insights aimed at improving road safety. The interactive visualizations focus on the total accidents, casualties (fatal, serious, and slight), and their year-on-year variances, offering a clear understanding of accident trends over time.

**Key Highlights:**

**KPI Metrics:** Total accidents, casualties, and their breakdown by severity are tracked using CY (Current Year), PY (Previous Year), and YoY (Year-on-Year) parameters.

**Sparklines for Trends:** Visualizing trends for key metrics helps identify accident patterns over a specific time period.

**Detailed Analysis:** Casualties are analyzed by vehicle type, weather condition, road surface, road type, and location to uncover root causes.

**Dashboard Design:** A structured template was used to align KPIs, sparklines, and additional insights for a visually appealing layout.

**Insights:** The analysis highlights major contributing factors to accidents, offering actionable insights to reduce these incidents.

**Progress:** Year-on-year reductions in casualties reflect improved road safety measures and increased public awareness.

**Goal:** The ultimate aim of this project is to achieve zero accidents by addressing key causes and fostering safer practices.

This project demonstrates the power of data visualization in addressing critical real-world challenges like road safety, enabling policymakers to take informed, data-driven actions.