

**SmartBridge Data Analytics Project**

# **ROAD ACCIDENT ANALYTICS**

**[GROUP-142]**

**Team Members:**

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# **Road Accident Analytics**

## **INTRODUCTION**

### **1.1 Overview**

Road traffic accidents continue to be a major global concern, resulting in significant loss of life, injuries, and economic hardship. However, we believe that by leveraging the power of data, we can significantly improve road safety. Our project is centred on analysing a large dataset that includes critical information such as accident severity, accident date, location coordinates, light conditions, district area, number of casualties, number of vehicles involved, road surface conditions, road type, urban or rural area, weather conditions, and vehicle types. Our project's ultimate goal is to provide actionable insights to various people, such as traffic engineers and law enforcement agencies.

### **1.2 Purpose**

With evidence-based information, officials can make informed decisions and put in place effective road safety measures. We hope to contribute to a reduction in accidents and the preservation of precious lives by identifying high-risk areas, evaluating the impact of existing safety interventions, and suggesting improvements. We hope to identify geographical areas with a higher frequency of accidents or higher severity levels through data analysis. This information aids in prioritizing interventions and effectively allocating resources to areas that require immediate attention.

## **LITERATURE SURVEY**

### **2.1 Existing problem**

Addressing road accident problems requires a multifaceted approach involving various strategies and methods. Here are some existing approaches and methods that are commonly employed to tackle road accidents:

- 1. Road Safety Education and Awareness:** Promoting road safety education and awareness campaigns can help educate the public about safe driving practices, traffic rules, and the consequences of reckless behavior. This can be done through school programs, community initiatives, and public service announcements.
- 2. Strict Traffic Law Enforcement:** Enforcing traffic laws rigorously, including speed limits, seatbelt usage, and drunk driving regulations, is crucial to deter unsafe driving practices. This involves increased police presence on roads, the use of speed cameras, and imposing fines and penalties for violations.
- 3. Infrastructure Improvements:** Enhancing road infrastructure plays a vital role in preventing accidents. This includes constructing well-designed roads, improving signage and road markings, implementing traffic calming measures in residential areas, and installing safety barriers and guardrails on highways.
- 4. Vehicle Safety Standards:** Encouraging automobile manufacturers to prioritize safety features in vehicles can significantly reduce accident rates. This includes implementing mandatory safety standards such as airbags, anti-lock braking systems (ABS), electronic stability control (ESC), and advanced driver assistance systems (ADAS).
- 5. Drink Driving Countermeasures:** Implementing measures to discourage drunk driving is essential. This includes strict blood alcohol concentration (BAC) limits, sobriety checkpoints, public awareness campaigns, and penalties for driving under the influence.

**6. Speed Management:** Managing vehicle speeds is critical in preventing accidents. This can be achieved through setting appropriate speed limits, implementing speed enforcement measures like speed cameras, and adopting traffic calming techniques such as speed humps and roundabouts.

**7. Pedestrian and Cyclist Safety:** Creating safer environments for pedestrians and cyclists is crucial. This involves constructing dedicated bike lanes, improving pedestrian crossings, installing traffic signals, and raising awareness about sharing the road responsibly.

**8. Intelligent Transportation Systems (ITS):** Utilizing advanced technologies like ITS can enhance road safety. ITS includes features like intelligent traffic management systems, real-time traffic information, automated enforcement systems, and vehicle-to-vehicle (V2V) communication to prevent accidents.

**9. Post-accident Response and Emergency Services:** Developing efficient emergency response systems and improving post-accident medical care can help minimize the impact of accidents. This includes establishing well-equipped trauma centers, promoting first aid training, and ensuring timely emergency services.

**10. Data Analysis and Research:** Regularly collecting and analyzing accident data helps identify accident-prone areas, trends, and contributing factors. This enables policymakers and authorities to devise targeted interventions and implement evidence-based road safety measures.

It is important to note that these approaches are often implemented in combination to achieve the best results in reducing road accidents and promoting overall road safety.

## **2.2 Proposed solution**

Integrated Road Safety Management System (IRSMS)

To address the road accident problem comprehensively, a proposed solution is the implementation of an Integrated Road Safety Management System (IRSMS). This system combines various strategies and technologies to create a holistic

approach towards improving road safety. Here are the key components of the proposed solution:

#### 1. Data Collection and Analysis:

- Establish a centralized database to collect and analyze comprehensive road accident data, including factors such as road conditions, driver behavior, vehicle types, and weather conditions.
- Utilize advanced data analytics techniques to identify accident hotspots, contributing factors, and emerging trends.
- Conduct regular research and studies to gather insights and propose targeted interventions.

#### 2. Risk Assessment and Road Design:

- Conduct thorough risk assessments of road networks to identify potential hazards and areas prone to accidents.
- Collaborate with urban planners and engineers to design roads with safety in mind, considering factors such as visibility, signage, lane markings, and proper pedestrian and cyclist infrastructure.
- Implement road safety audits to evaluate existing roads and propose necessary modifications.

#### 3. Public Awareness and Education:

- Develop comprehensive road safety education programs targeting all age groups, emphasizing safe driving practices, pedestrian and cyclist awareness, and responsible behavior on the roads.
- Launch public awareness campaigns through various mediums, including social media, television, and community outreach programs.
- Collaborate with schools, universities, and community organizations to integrate road safety education into curricula and raise awareness in local communities.

#### 4. Enforcement and Penalties:

- Strengthen traffic law enforcement by increasing police presence on roads, utilizing speed cameras, and implementing automated systems for traffic rule violations.
- Ensure strict penalties for traffic offenders, including fines, license suspension, and mandatory road safety education programs.

- Encourage public participation through reporting unsafe driving behaviors and establishing whistleblower programs to incentivize responsible road use.

#### 5. Technology Integration:

- Deploy advanced technologies such as intelligent transportation systems (ITS) to monitor traffic flow, detect violations, and provide real-time information to drivers.
- Implement smart traffic management systems to optimize traffic signals and reduce congestion, minimizing the potential for accidents.
- Encourage the use of vehicle safety technologies, such as ADAS, lane departure warning systems, and automatic emergency braking, through incentives and regulations.

#### 6. Collaboration and Partnerships:

- Foster collaboration among government agencies, law enforcement, educational institutions, healthcare providers, and community organizations to create a coordinated approach to road safety.
- Establish partnerships with automobile manufacturers to enhance vehicle safety standards and encourage the adoption of safety technologies.
- Collaborate with international organizations and learn from successful road safety models implemented in other countries.

#### 7. Evaluation and Continuous Improvement:

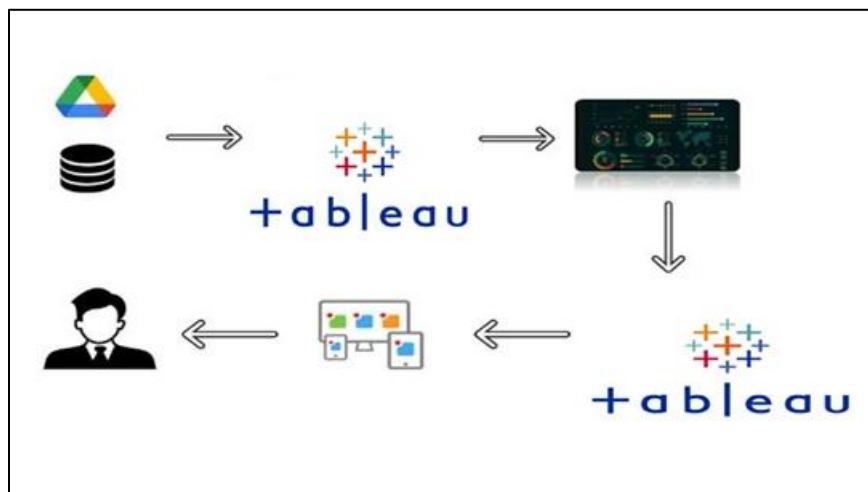
- Regularly evaluate the effectiveness of implemented measures through data analysis and monitoring.
- Conduct periodic audits and inspections of road infrastructure, enforcement mechanisms, and public awareness initiatives to identify areas for improvement.
- Incorporate feedback from stakeholders and the public to refine strategies and adapt to evolving road safety challenges.

The Integrated Road Safety Management System (IRSMS) aims to create a proactive and evidence-based approach to road safety, leveraging data, education, enforcement, technology, and collaboration. By implementing this proposed solution, it is anticipated that the frequency and severity of road accidents can be significantly reduced, leading to safer roads and improved overall road safety for communities.

## THEORITICAL ANALYSIS

### 3.1 Block diagram

#### Technical Architecture:



### 3.2 Hardware/Software designing

#### 3.2.1 Hardware Requirements

A dependable computer system that can perform data processing, visualisation, and web development tasks. additional requirements:

- **Processor:** A multi-core processor (e.g., Intel Core i5 or i7) that can efficiently handle data analysis and visualisation tasks.
- **Memory (RAM):** A minimum of 8 GB of RAM is required to handle large datasets and avoid performance issues.

- **Storage:** Enough storage space for your dataset, software tools, and project files. For faster data access, consider using a solid-state drive (SSD).
- **Graphics Card:** A dedicated graphics card with sufficient memory can improve Tableau's performance and provide smoother rendering of visual elements.

### **3.2.2 Software Requirements**

- **Microsoft Excel:** the software tool for data cleaning, manipulation, and formatting.
- **Tableau:** Tableau is used for creating interactive and visually appealing visualizations , dashboards and stories
- **Flask:** Flask is a Python-based web framework for deployment. It allows you to create a web server to host your Tableau visualizations and provide an interface for users to interact with the data.
- **Bootstrap:** For using pre-designed templates, responsive components, and styling options. It enables you to develop a visually appealing and mobile-friendly user interface for your Flask application.
- **HTML, CSS, and JavaScript:** Alongside Bootstrap, HTML for structuring web pages, CSS for styling and layout, and JavaScript for interactivity and dynamic behavior.
- **Web Development Tools:** code editors like Visual Studio Code/Sublime Text/Atom etc

# **EXPERIMENTAL INVESTIGATIONS**

Analysis and Investigation Report: Integrated Road Safety Management System (IRSMS)

## **1. Objective:**

The objective of this analysis and investigation was to assess the feasibility and potential effectiveness of implementing an Integrated Road Safety Management System (IRSMS) as a solution to address the road accident problem. The investigation aimed to evaluate various components of the proposed solution and identify key considerations for its successful implementation.

## **2. Data Collection and Analysis:**

- Comprehensive road accident data from various sources were collected, including historical accident records, traffic violation data, and information on road conditions.
- Advanced data analytics techniques were applied to analyze the collected data, identifying accident hotspots, patterns, and contributing factors.
- Research studies and reports from reputable sources were reviewed to gather additional insights on road safety practices and successful interventions implemented in other regions.

## **3. Risk Assessment and Road Design:**

- Detailed assessments of the existing road network were conducted to identify potential hazards, accident-prone areas, and areas lacking proper infrastructure.
- Collaborations were established with urban planners, engineers, and road safety experts to evaluate road design standards and identify areas for improvement.
- Road safety audits were performed to assess the effectiveness of existing road infrastructure and propose necessary modifications to enhance safety.

## **4. Public Awareness and Education:**

- Surveys and interviews were conducted to assess the level of public awareness regarding road safety and identify knowledge gaps and misconceptions.
- Existing road safety education programs were evaluated for their effectiveness and reach.
- Best practices from successful road safety education campaigns were studied to identify key elements for designing impactful awareness programs.

## **5. Enforcement and Penalties:**

- Interviews were conducted with law enforcement officials to understand the challenges faced in enforcing traffic laws and regulations.
- Data on traffic violations, penalties imposed, and their impact on driving behavior were analyzed.
- Comparative analysis of penalties and enforcement mechanisms in other regions/countries was conducted to identify effective approaches.

## **6. Technology Integration:**

- In-depth research was conducted on intelligent transportation systems (ITS) and their potential application in improving road safety.
- Technological solutions, such as advanced traffic management systems and vehicle safety technologies, were studied for their effectiveness, reliability, and compatibility with existing infrastructure.
- Cost-benefit analyses were performed to evaluate the financial feasibility of implementing these technologies.

## **7. Collaboration and Partnerships:**

- Stakeholder consultations were held with government agencies, law enforcement, educational institutions, healthcare providers, and community organizations to gather their perspectives and identify opportunities for collaboration.
- Case studies of successful partnerships and collaborations in road safety initiatives were reviewed to identify key factors for effective collaboration.

## **8. Evaluation and Continuous Improvement:**

- Criteria and metrics were established to evaluate the effectiveness of the proposed solution.
- Feedback and opinions from stakeholders and the public were gathered through surveys, focus groups, and public consultations.
- Lessons learned from previous road safety initiatives were documented to inform the continuous improvement of the IRSMS.

## **9. Conclusion:**

Based on the analysis and investigation conducted, it can be concluded that the implementation of an Integrated Road Safety Management System (IRSMS) holds

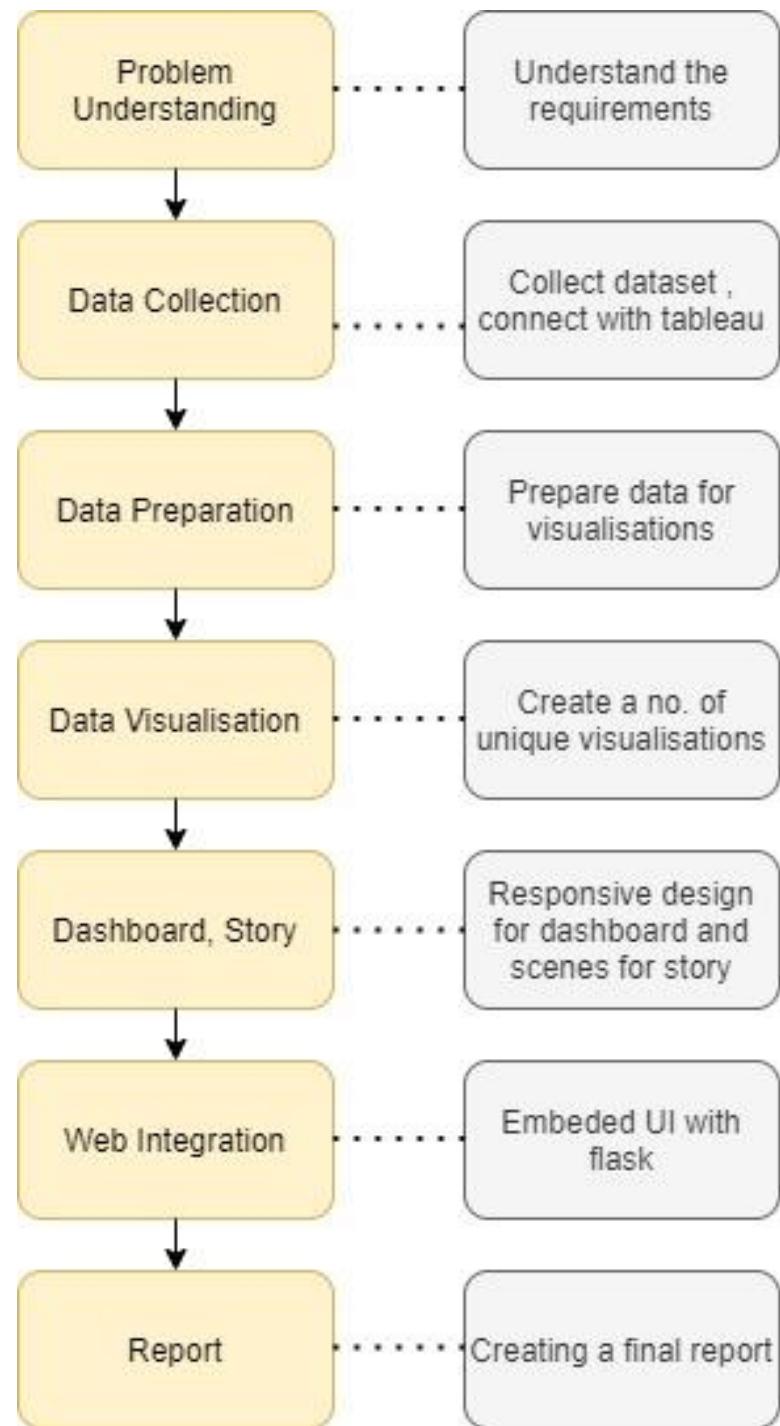
significant potential in addressing the road accident problem. The proposed solution integrates data analysis, risk assessment, public awareness, enforcement, technology, and collaboration to create a comprehensive approach towards road safety. However, careful planning, stakeholder engagement, adequate resources, and ongoing evaluation are crucial for the successful implementation and long-term effectiveness of the IRSMS.

#### **10. Recommendations:**

- Establish a dedicated task force or committee to oversee the implementation and management of the IRSMS.
- Allocate sufficient financial resources for infrastructure improvements, public awareness campaigns, technology integration, and capacity building.
- Conduct pilot projects to test the effectiveness of specific components of the IRSMS before full-scale implementation.
- Regularly monitor and evaluate the performance of the IRSMS using defined metrics and indicators.
- Foster international collaborations and knowledge sharing to learn from successful road safety initiatives implemented in other regions.

This analysis and investigation report provide valuable insights and recommendations for policymakers, road safety professionals, and stakeholders involved in addressing the road accident problem. It serves as a foundation for further planning, implementation, and refinement of the Integrated Road Safety Management System (IRSMS) to achieve significant improvements in road safety.

## FLOWCHART



## **IMPLEMENTATION/ RESULT**

### **6.1 Data Collection**

Data collection is the process of systematically gathering and measuring information on variables of interest in order to answer stated research questions, test hypotheses, evaluate outcomes, and generate insights from the data.

#### **Activity 1: Understand the data**

This dataset is specifically of UK region obtained from Kaggle. It has over half a million records collected over the time period 2019-2022.

<https://drive.google.com/drive/folders/1vuu2yP0G5cfHOgBU2Buggu0I2WUUmNbs?usp=sharing>

#### **Activity 2: Connect MySQL and Tableau with the dataset**

Explanation video link:

[https://drive.google.com/file/d/1Fy3s1G-ruc\\_OpcRbYxgvIYXtaUAfze/view?usp=sharing](https://drive.google.com/file/d/1Fy3s1G-ruc_OpcRbYxgvIYXtaUAfze/view?usp=sharing)

## Data Preparation

Data preparation is the process of organising, cleaning, and transforming raw data into a format that can be effectively visualised and analysed using Tableau software. Such tasks include data cleaning, data integration, data formatting, and data aggregation. The goal is to ensure that the data is correct, consistent, and structured so that Tableau can provide meaningful insights and visualisations.

## Data Visualization

Data visualisation is the process of creating graphical representations of data to help people understand and explore the information. The goal of data visualisation is to make complex datasets more accessible, intuitive, and understandable. Data visualisations, which employ visual elements such as charts, graphs, and maps, can assist users in quickly identifying patterns, trends, and outliers in data.

Data visualisations that are commonly used to analyse data include bar charts, line charts, heat maps, scatter plots, pie charts, maps, and so on. These visualisations can be used to compare performance, track changes over time, display distribution, and demonstrate variable relationships.

Here are the visualisations we created:

**Activity: Creating Current Year and previous Year Parameters for filtering**  
Explanation video link:

[https://drive.google.com/file/d/1BM1JVidmbgWeboZiPvXEou74GTZ6HO7f/view?  
usp=sharing](https://drive.google.com/file/d/1BM1JVidmbgWeboZiPvXEou74GTZ6HO7f/view?usp=sharing)

**Activity: Creating Accident Severity Parameter for filtering**Explanation video link:

[https://drive.google.com/file/d/1GzpDH1SLzDZQd6Kkcpv8Oj0peVxQFMZS/view?  
usp=sharing](https://drive.google.com/file/d/1GzpDH1SLzDZQd6Kkcpv8Oj0peVxQFMZS/view?usp=sharing)

**Activity: Creating a KPI for total no. of accidents per year**Explanation video link:

[https://drive.google.com/file/d/1X6UGviJfMrqEqSvhsHQ09wRakc7DJoXX/view?  
usp=sharing](https://drive.google.com/file/d/1X6UGviJfMrqEqSvhsHQ09wRakc7DJoXX/view?usp=sharing)

**Activity: Creating a KPI for total no. of Casualties per year**Explanation video link:

[https://drive.google.com/file/d/1U0WMuOMw-  
1wdDaPSytcT5YWtfK7UYAd/view?usp=sharing](https://drive.google.com/file/d/1U0WMuOMw-1wdDaPSytcT5YWtfK7UYAd/view?usp=sharing)

**Activity: Creating a KPI for each accident severity (fatal, slight, serious) per year**Explanation video link:

[https://drive.google.com/file/d/1APJDTGVylF-tHPpOj0UzXu-  
fsLLbMugQ/view?usp=sharing](https://drive.google.com/file/d/1APJDTGVylF-tHPpOj0UzXu-fsLLbMugQ/view?usp=sharing)

**Activity: Total no. of accidents versus months sparkline**Explanation video link:

[https://drive.google.com/file/d/1Z4Dkql97TCEixWz1rvCm5LjBITGeOudI/view?  
usp=sharing](https://drive.google.com/file/d/1Z4Dkql97TCEixWz1rvCm5LjBITGeOudI/view?usp=sharing)

**Activity: Total no. of casualties versus months sparkline**Explanation video link:

<https://drive.google.com/file/d/1beo5p4A-LnwJr6Zzvh7j6-0Jf4-HwZEf/view?usp=sharing>

**Activity: Accident Severity versus Months sparkline (fatal , serious , slight)**

Explanation video link:

[https://drive.google.com/file/d/1rx6ryIkY0xOZd\\_1ltnJI\\_1JAD1DjRGr/view?usp=sharing](https://drive.google.com/file/d/1rx6ryIkY0xOZd_1ltnJI_1JAD1DjRGr/view?usp=sharing)

**Activity: Creating a KPI based on vehicle type vs casualties per year**

Explanation video link:

[https://drive.google.com/file/d/1M45vhls\\_MReW9Aq8Iq7ILjknmV\\_UXDHP/view?usp=sharing](https://drive.google.com/file/d/1M45vhls_MReW9Aq8Iq7ILjknmV_UXDHP/view?usp=sharing)

**Activity: Weather Conditions versus no. of casualties pie chart**

Explanation video link:

[https://drive.google.com/file/d/1XoLEFTLa4WDwhjoplExvCXntAyDJ\\_3Z/view?usp=sharing](https://drive.google.com/file/d/1XoLEFTLa4WDwhjoplExvCXntAyDJ_3Z/view?usp=sharing)

**Activity: Road surface conditions versus no. of casualties pie chart**

Explanation video link:

<https://drive.google.com/file/d/1DXtGPDRqbr1-sT7bxloq2UHxWmrsRABc/view?usp=sharing>

**Activity: Road Type versus no. of casualties bar chart**

Explanation video link:

<https://drive.google.com/file/d/1pj5192Q6xX8uRHl6uemu3xvCnWqiVIHi/view?usp=sharing>

[p=sharing](#)

### **Activity: Map Visualisation of the UK**

Explanation video link:

<https://drive.google.com/file/d/1sH3zpj2pDBiocFJ6F3QtG8v-ksIAM5WH/view?usp=sharing>

## **Dashboard**

A dashboard is a graphical user interface (GUI) that organises and displays information and data in a user-friendly manner. Dashboards are commonly used to provide real-time monitoring and data analysis and are typically designed for a specific purpose or use case.

Dashboards can be used in a variety of contexts, including business, finance, manufacturing, healthcare, and many more. They can be used to track key performance indicators (KPIs), monitor performance metrics, and display data in the form of charts, graphs, and tables.

## **Story**

A data story is a narrative format for presenting data and analysis with the goal of making the information more engaging and easier to understand. A data story typically consists of a clear introduction that sets the stage and explains the context for the data, a body that presents the data and analysis logically and methodically, and a conclusion that summarizes the key findings and highlights their implications. Reports, presentations, interactive visualizations, and videos can all be used to tell data stories.

## Activity: Design of our story and dashboard

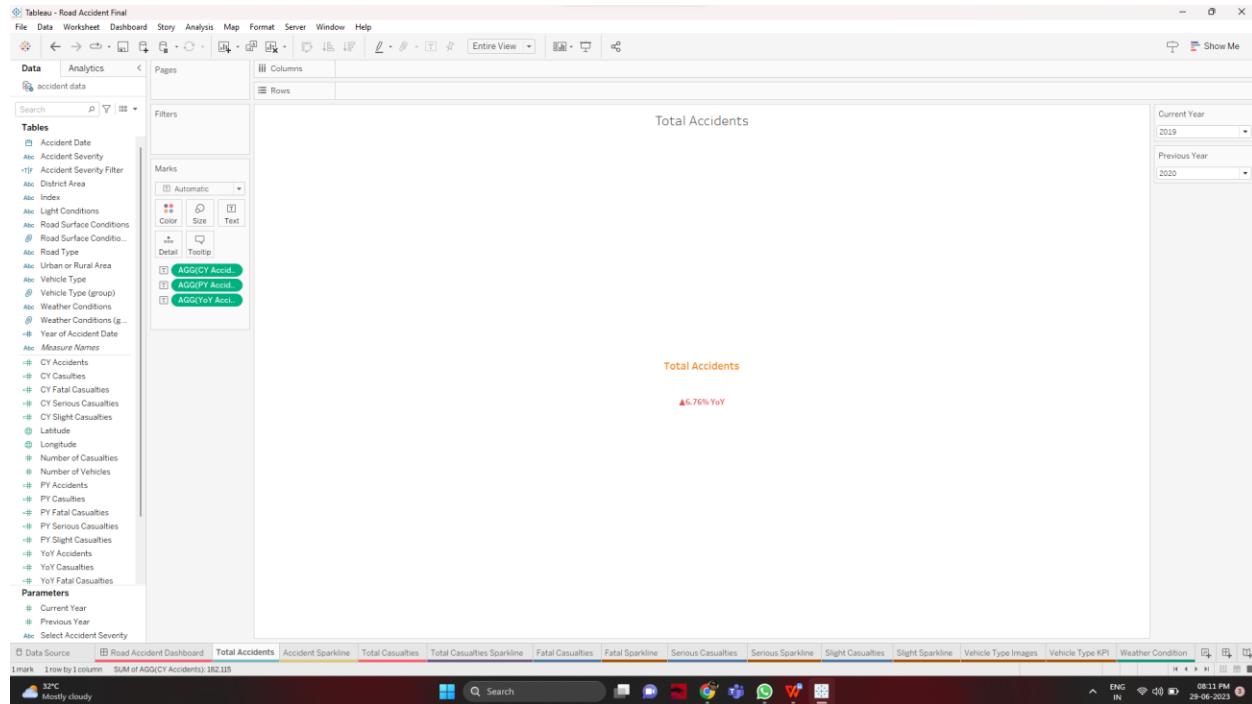
Explanation video link:

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usp=sharing](https://drive.google.com/drive/folders/1bLbpyp28rhoBT0TWQfV0t3mwes2AJj?usp=sharing)

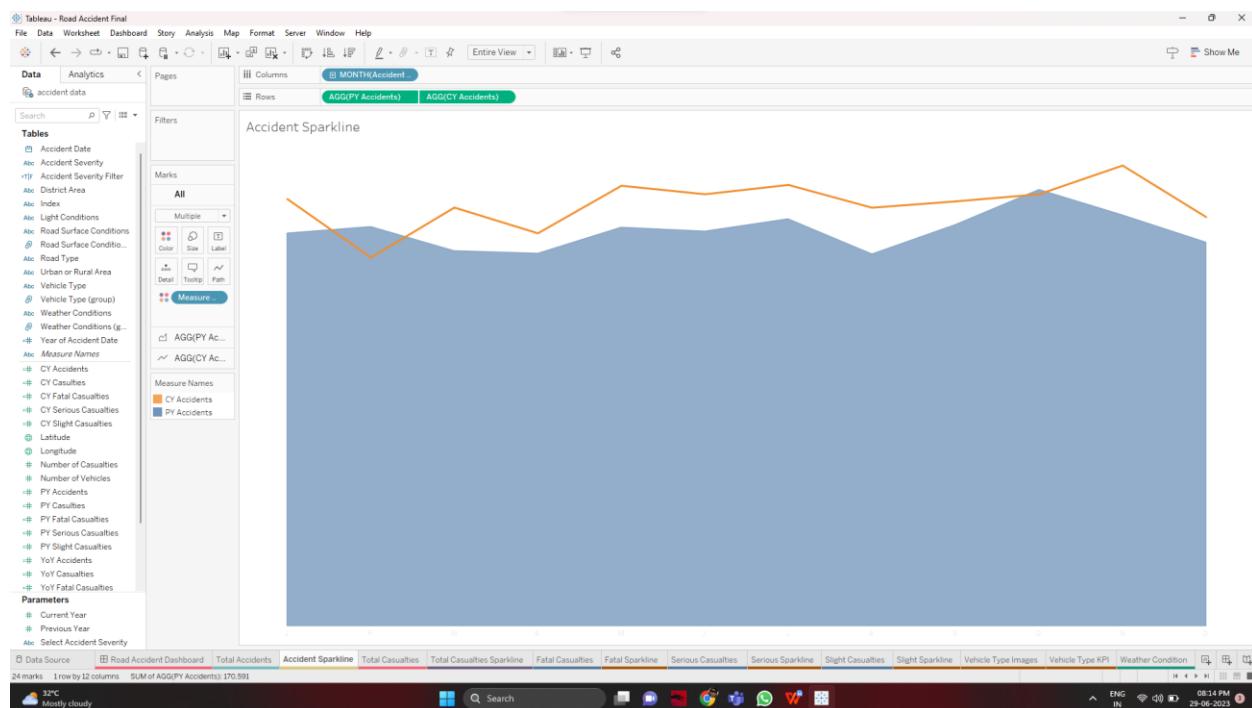


## FINAL DASHBOARD

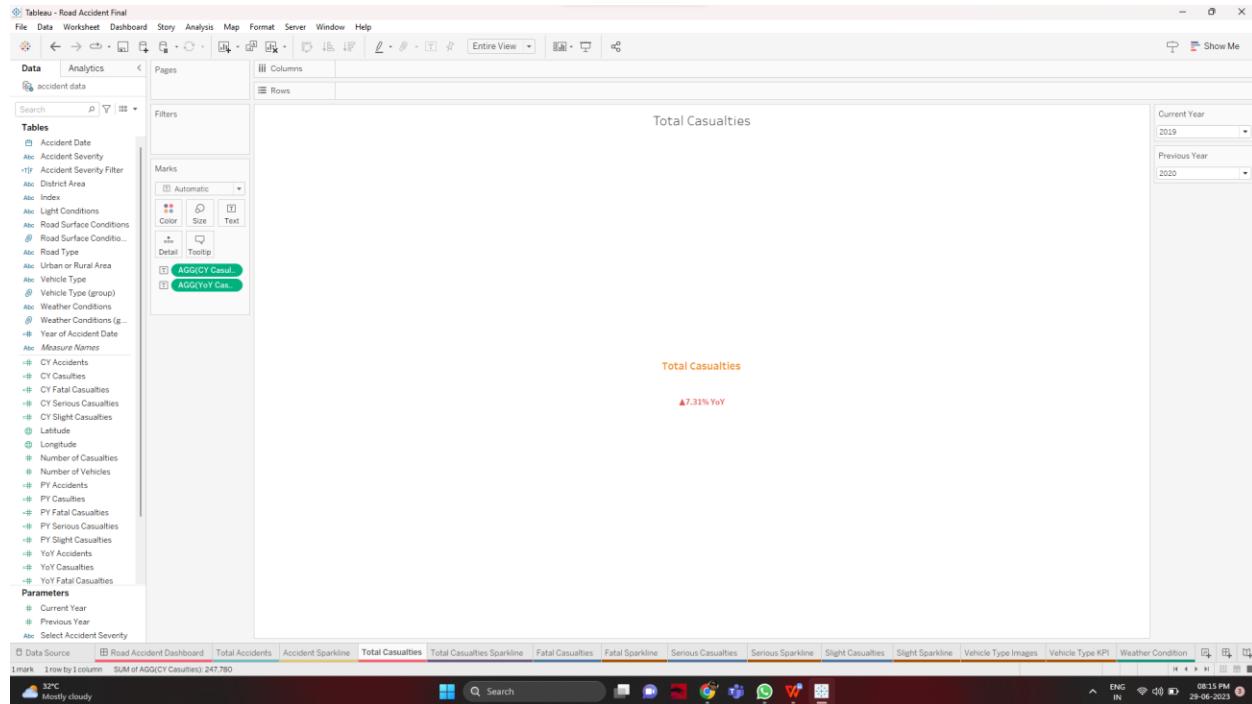
Now we have attached all the visualizations (sheets) used to prepare the Final Dashboard.



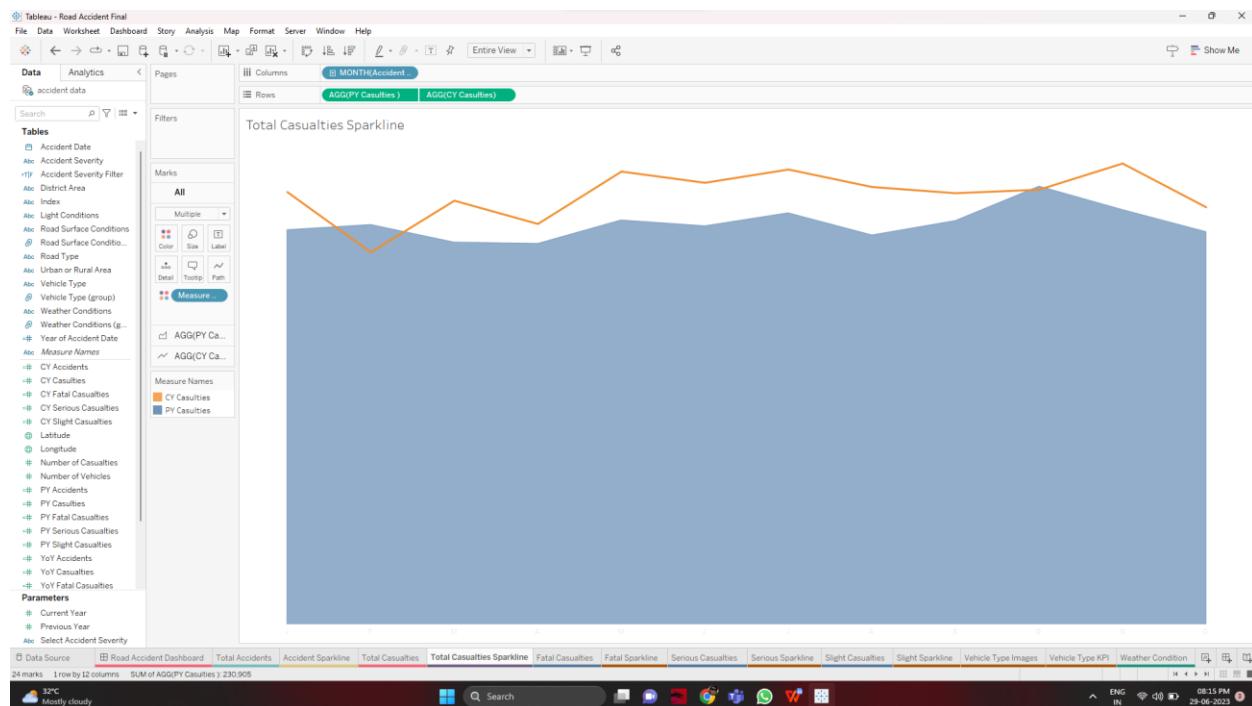
## Total Accidents



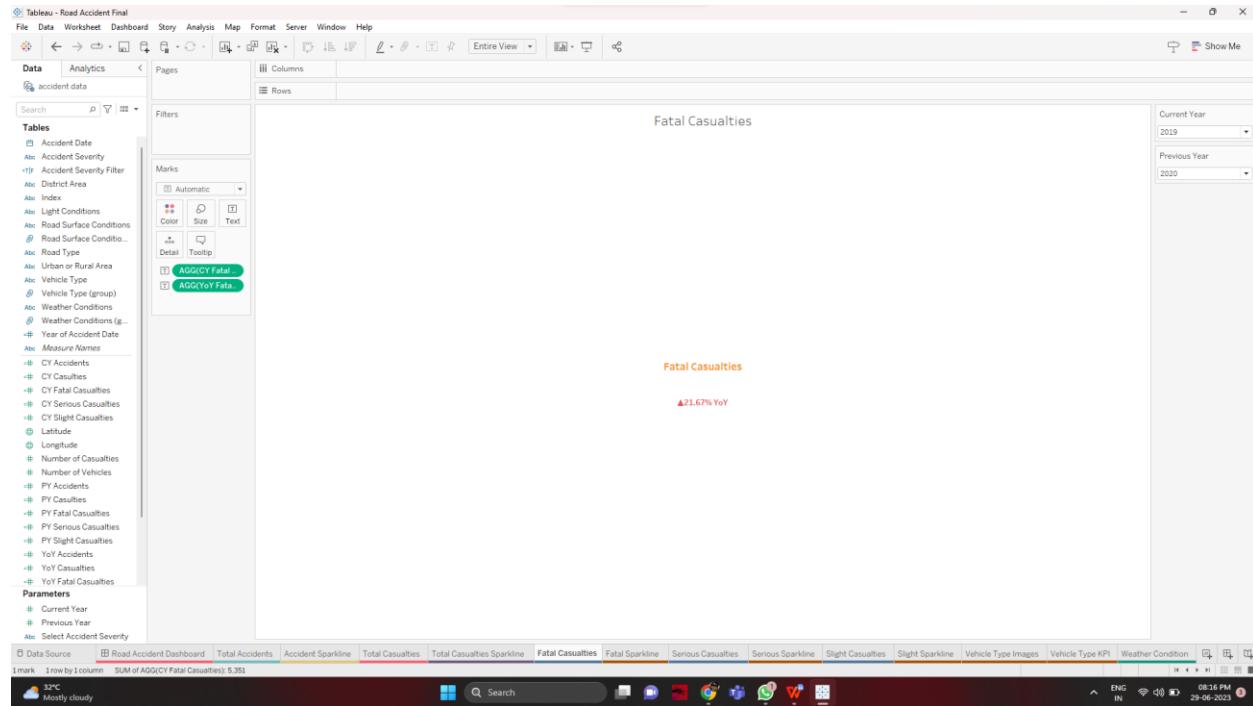
## Accidents Sparkline



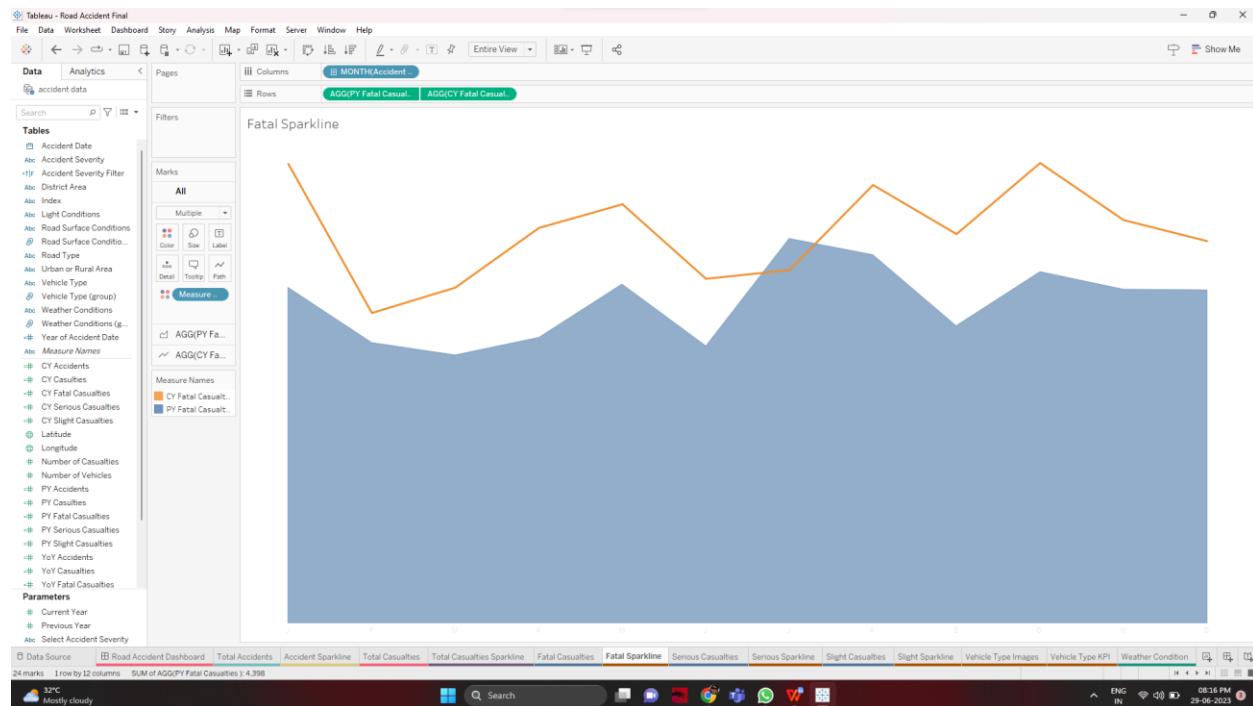
## Total Casualties



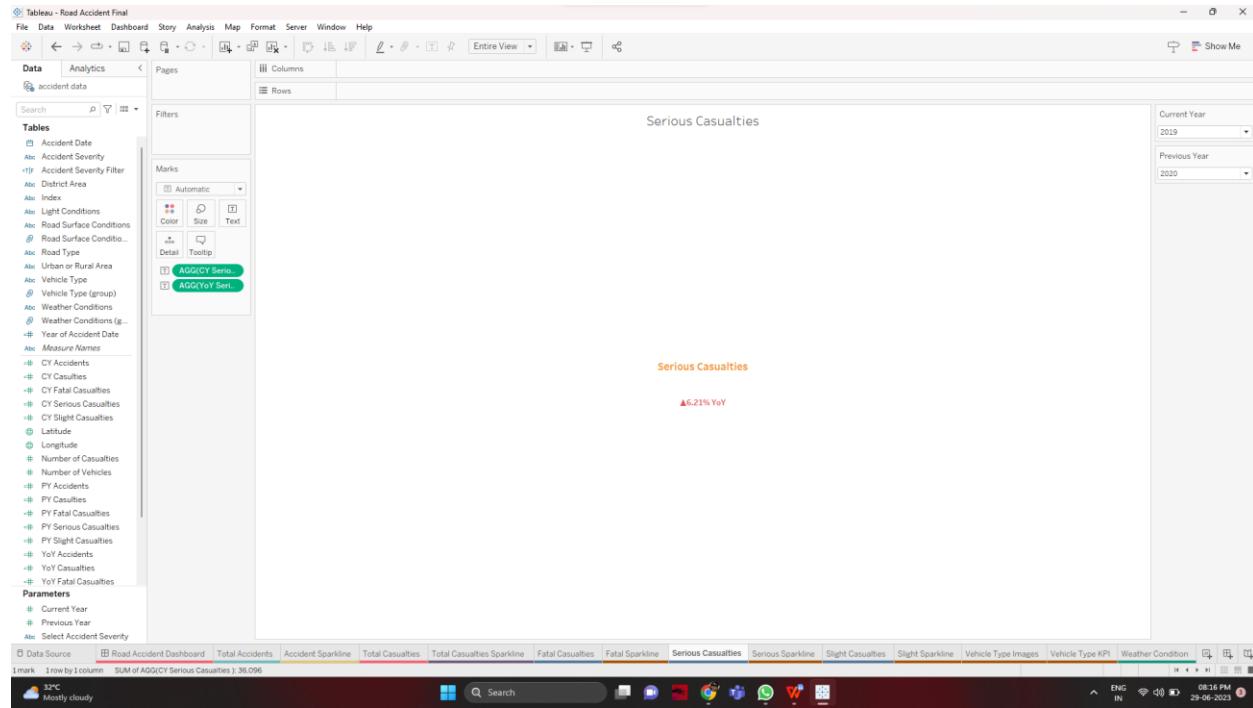
## Total Casualties Sparkline



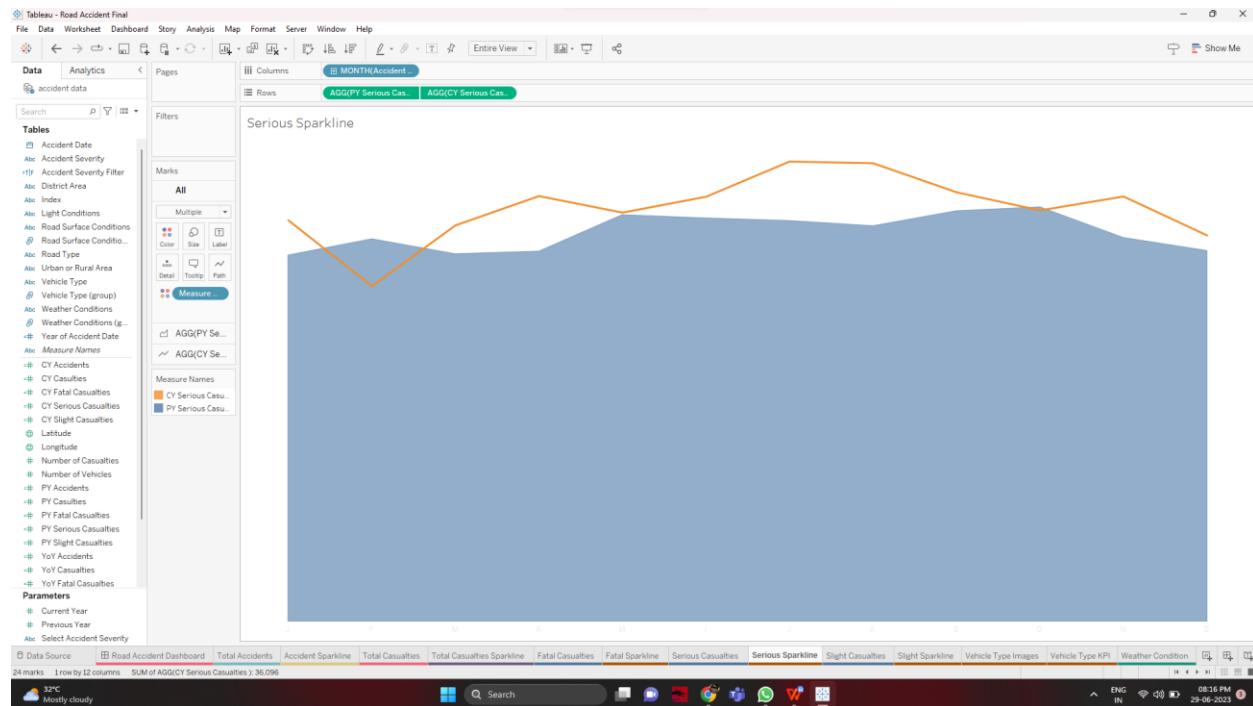
## Fatal Casualties



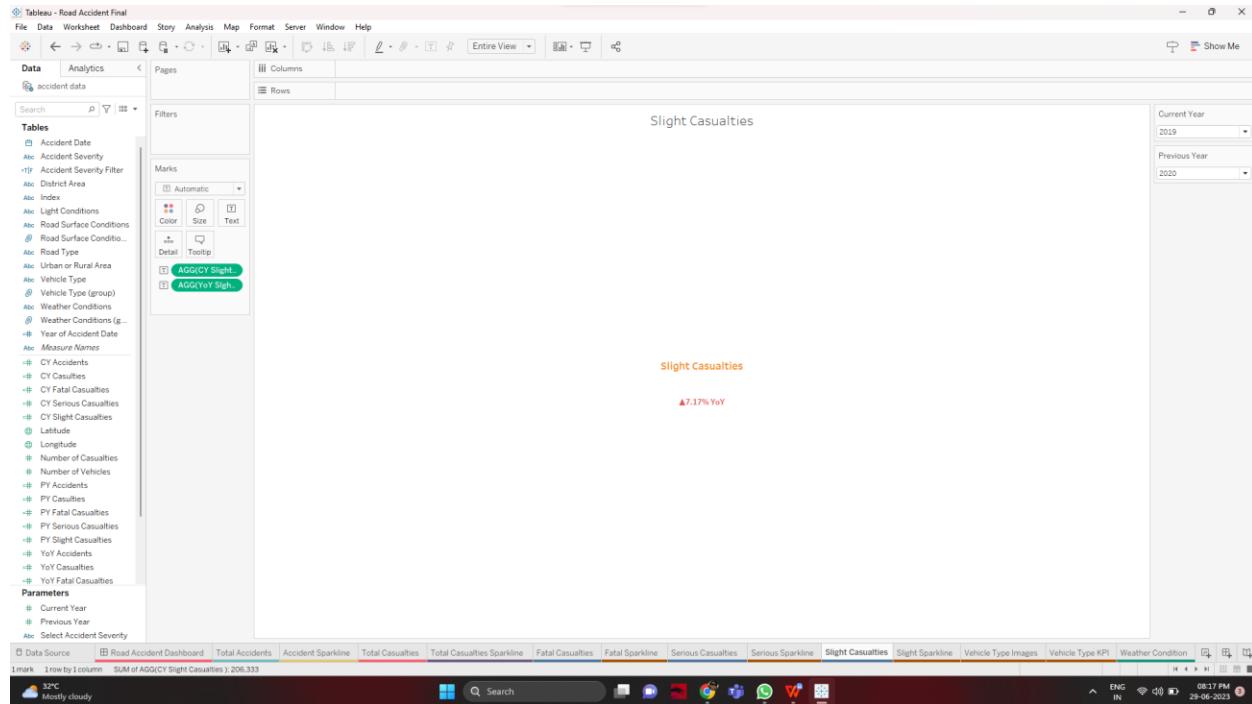
## Fatal Sparkline



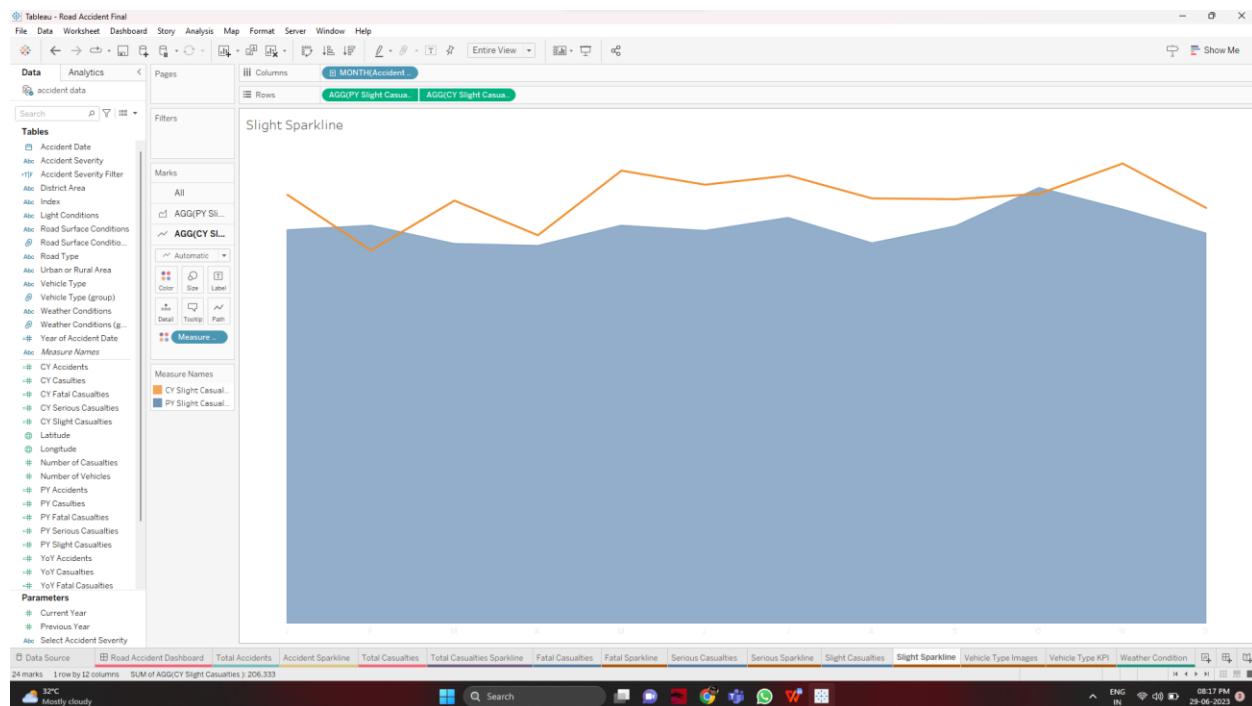
## Serious Casualties



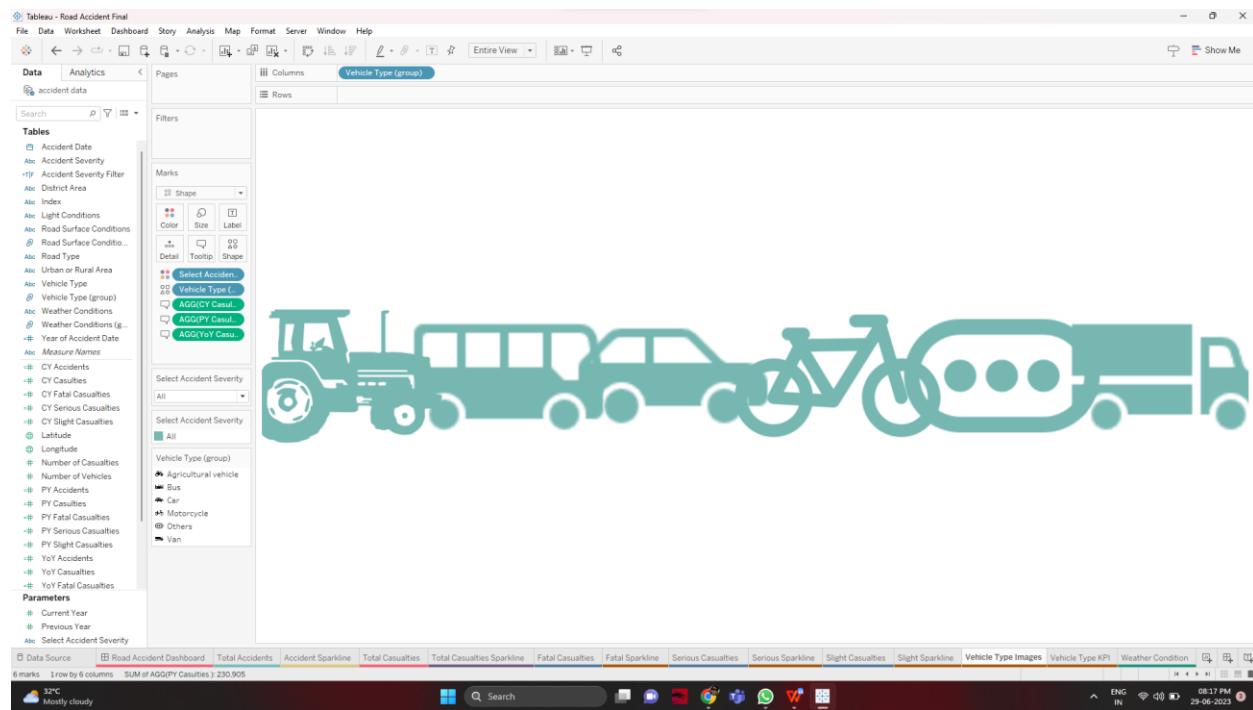
## Serious Sparkline



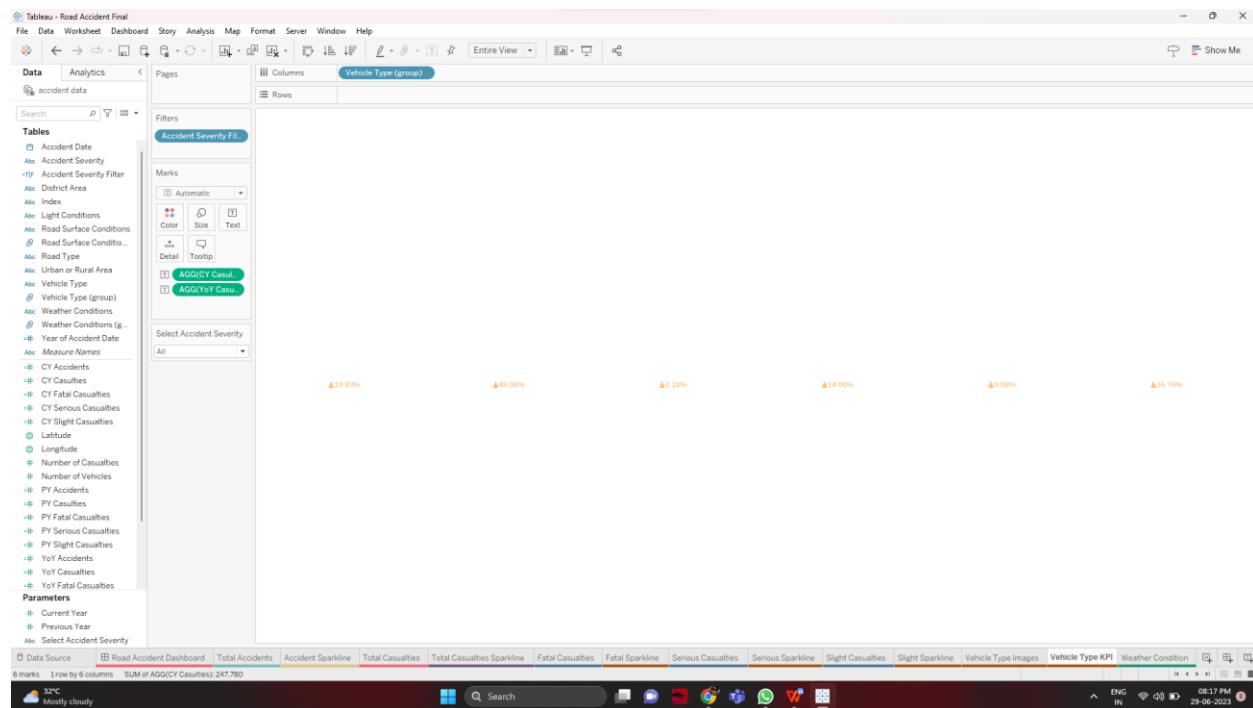
## Slight Casualties



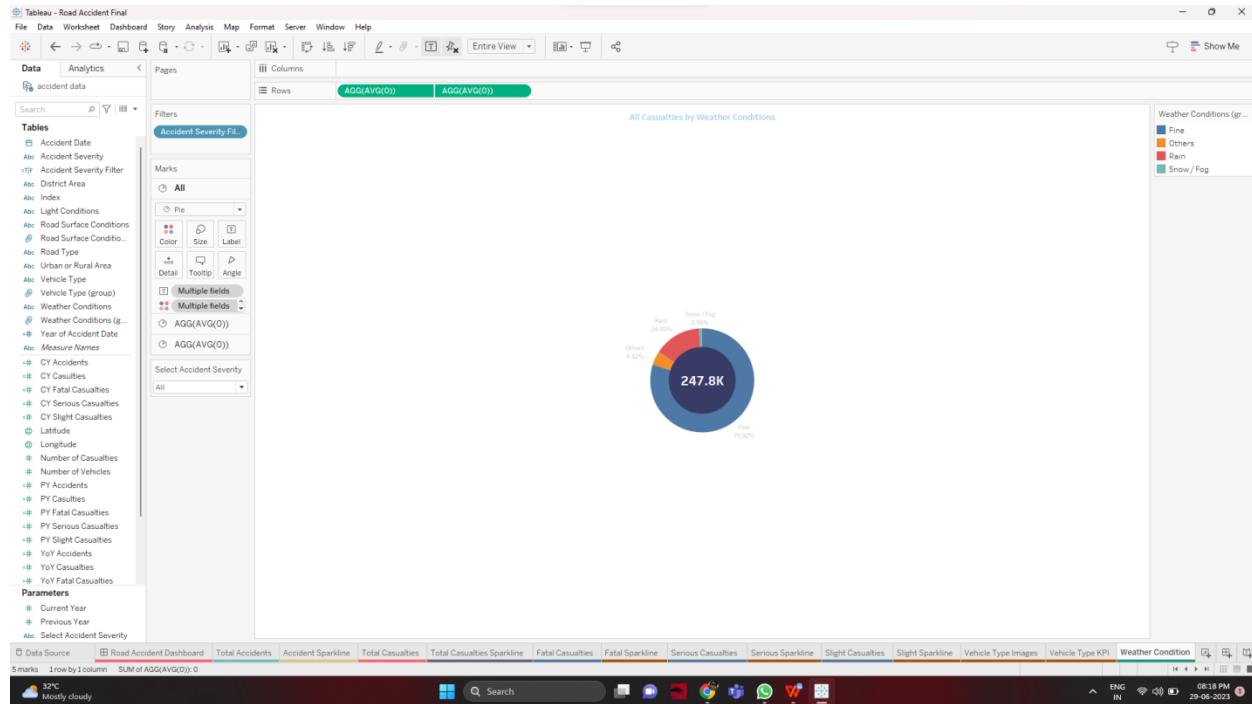
## Slight Sparkline



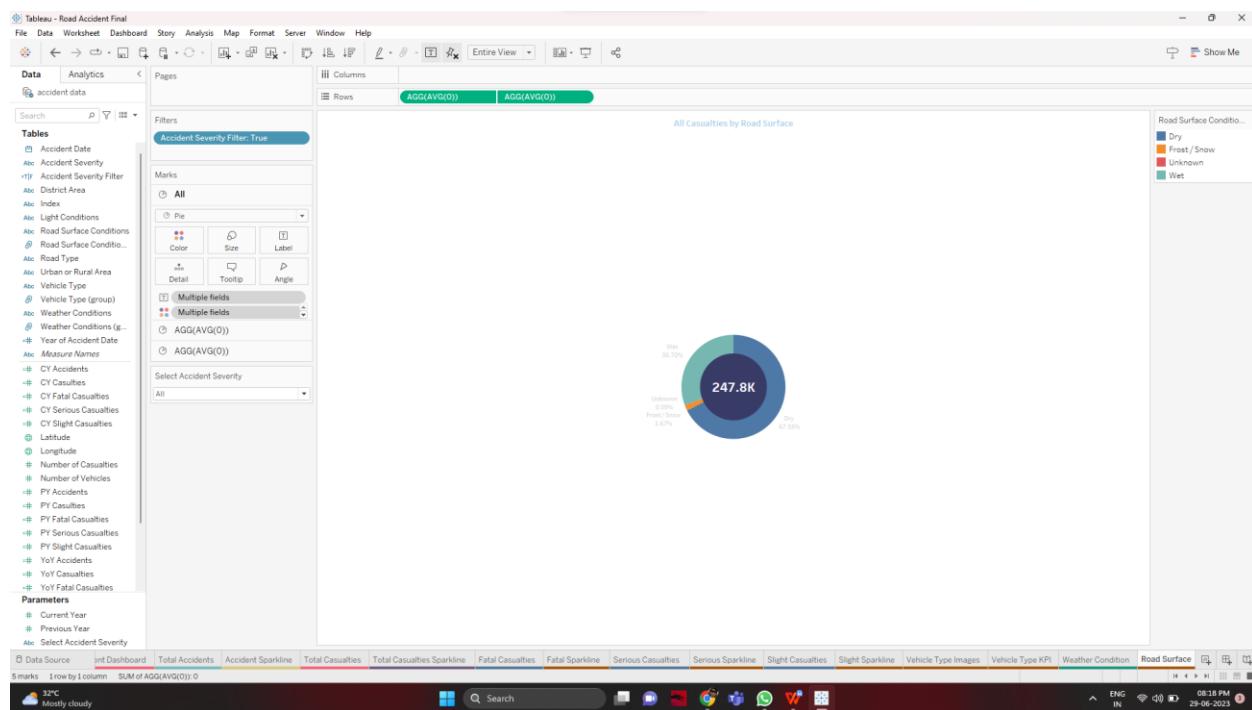
## Vehicle Type Images



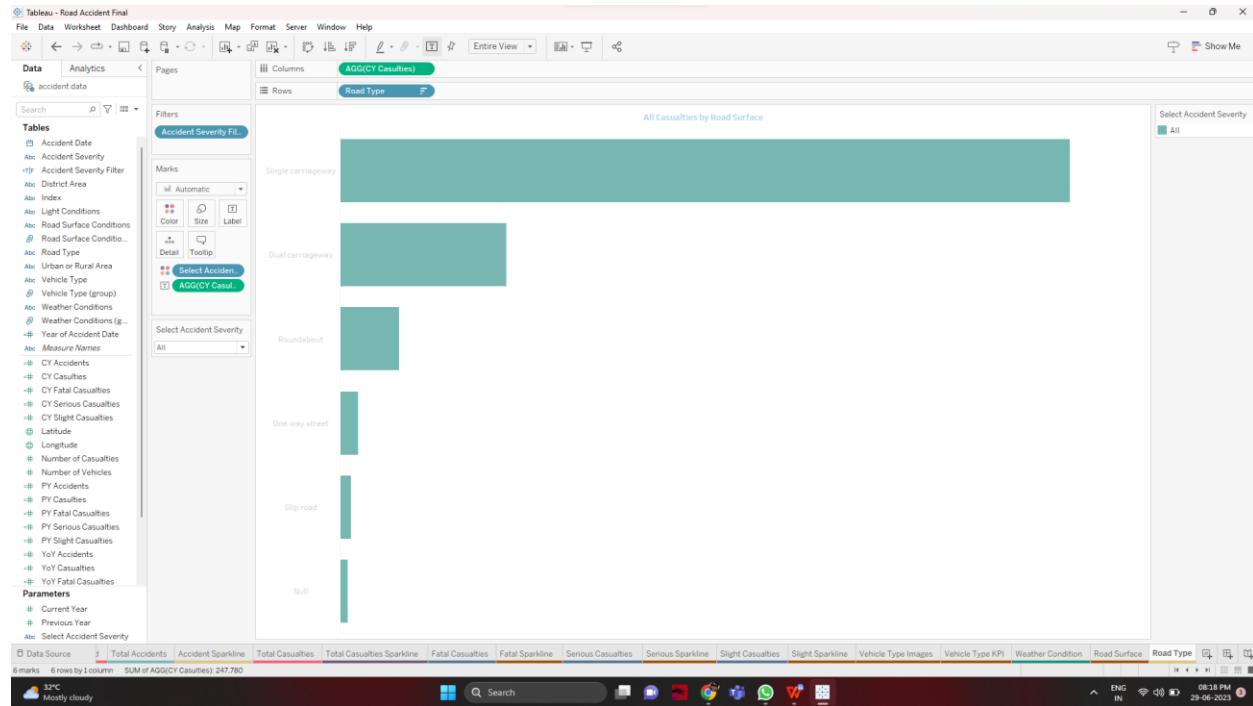
## Vehicle Type KPI



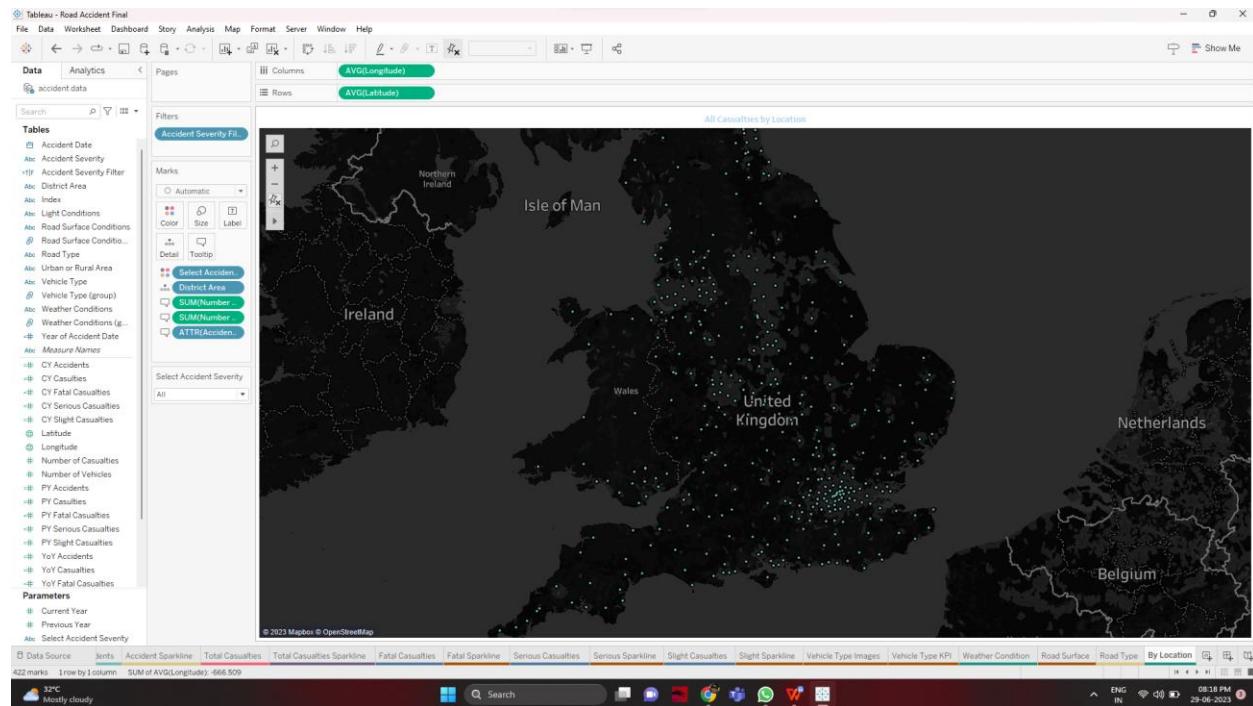
## Weather Condition



## Road Surface



## Road Type



## By Location

# STORY

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## SmartBridge Data Analytics Project

### ROAD ACCIDENT ANALYTICS

#### Team Members:

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Accidents Accident Sparkline Total Casualties Total Casualties Sparkline Fatal Casualties Fatal Sparkline Serious Casualties Serious Sparkline Slight Casualties Slight Sparkline Vehicle Type Images Vehicle Type KPI Weather Condition Road Surface Road Type By Location Story

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#### About the project

- Despite having access to more robust tools like Pandas in Python and SQL, we chose to use Excel for data cleaning solely to strengthen my command of the fundamental spreadsheet tool.

This dashboard displays the yearly cumulative number of accidents that occurred in the UK region. The dashboard can be filtered by year and accident severity, and it can make value comparisons between the previous and current years. It also displays the number of casualties by vehicle or road category. Weather conditions and road surfaces are also used to locate fatalities of varying severity.

- The original dataset consisted of 27 fields out of which only 14 of them are utilized for this use case.

- The visual representation of the Fatal severity for the year 2022 is displayed below. The comparison is drawn between the year 2022 and 2021.

Accidents Accident Sparkline Total Casualties Total Casualties Sparkline Fatal Casualties Fatal Sparkline Serious Casualties Serious Sparkline Slight Casualties Slight Sparkline Vehicle Type Images Vehicle Type KPI Weather Condition Road Surface Road Type By Location Story

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## >About the Dataset

This dataset is specifically of UK region obtained from Kaggle.  
It has over half a million records collected over the time period 2019-2022.

## Tools used

Excel for Data Cleaning  
Tableau for Data Visualisation and Analysis

Incidents Accident Sparkline Total Casualties Total Casualties Sparkline Fatal Casualties Fatal Sparkline Serious Casualties Serious Sparkline Slight Casualties Slight Sparkline Vehicle Type Images Vehicle Type KPI Weather Condition Road Surface Road Type By Location Story

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This sheet shows the total number of accidents and total number of casualties with the type of casualties.

We can change the Previous year and Current year from the selection menu boxes.

Total Accidents

Total Casualties

Previous Year

2020

Total Accidents

Current Year

2022

▼15.34% YoY

Total Casualties

▼15.23% YoY

Serious Casualties

Slight Casualties

Fatal Casualties

Serious Casualties

Slight Casualties

Fatal Casualties

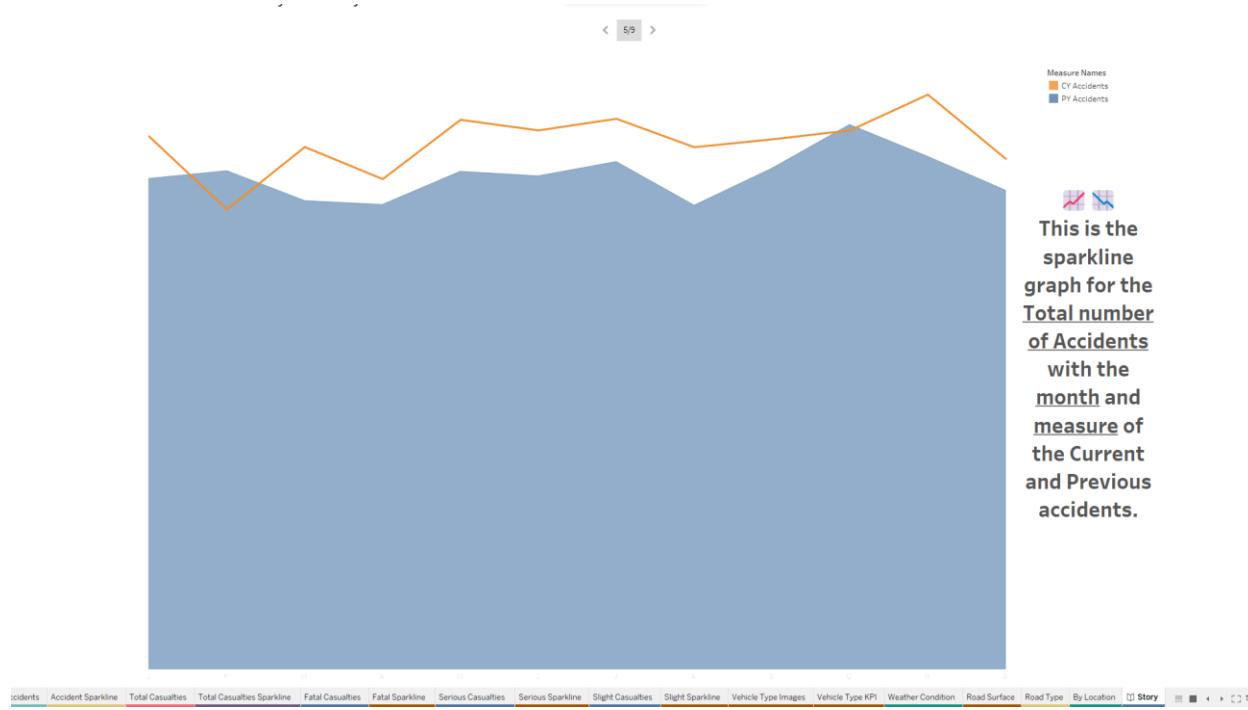
▼20.43% YoY

▼13.86% YoY

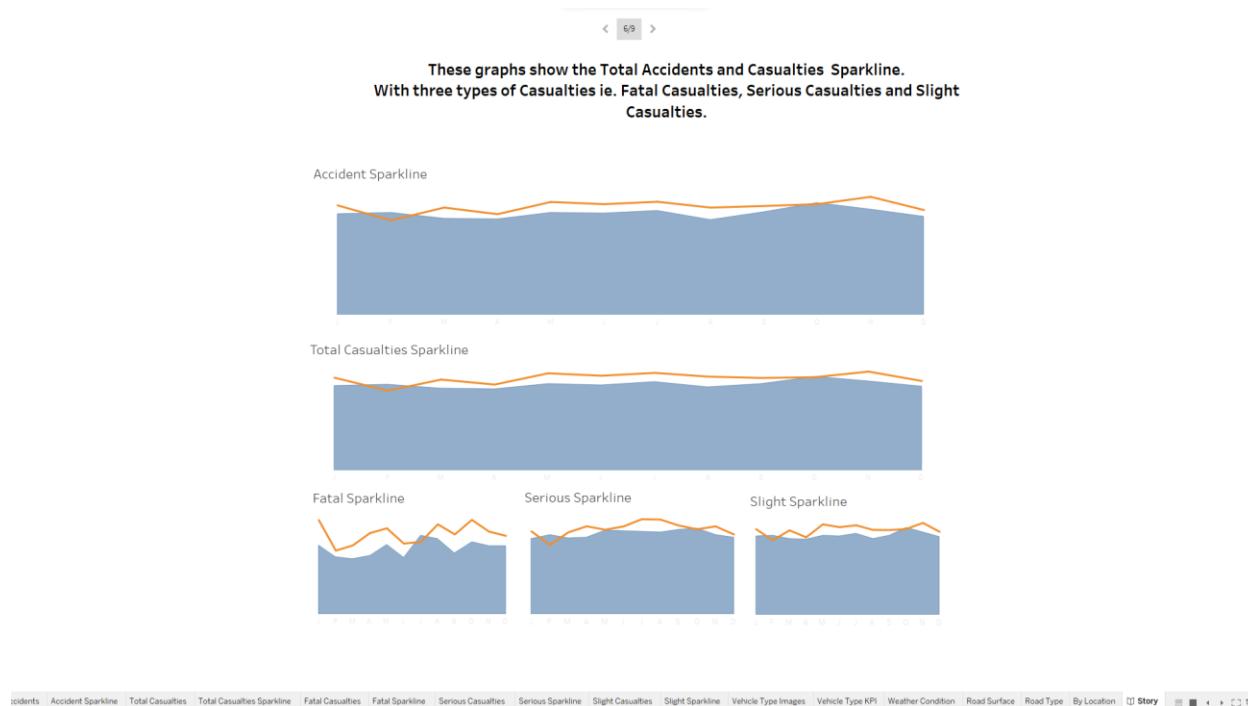
▼35.68% YoY

Incidents Accident Sparkline Total Casualties Total Casualties Sparkline Fatal Casualties Fatal Sparkline Serious Casualties Serious Sparkline Slight Casualties Slight Sparkline Vehicle Type Images Vehicle Type KPI Weather Condition Road Surface Road Type By Location Story

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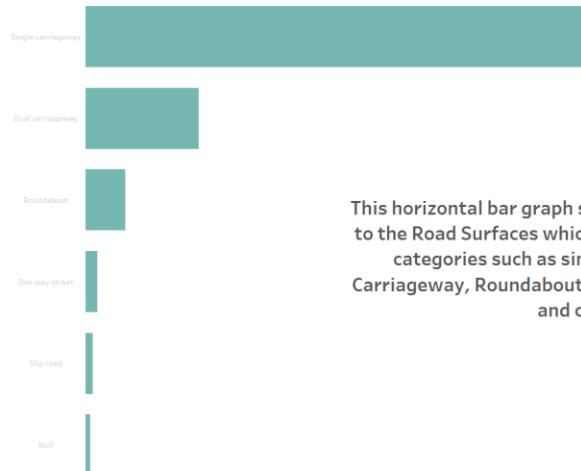


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All Casualties by Road Surface



This horizontal bar graph shows all the casualties due to the Road Surfaces which are divided into different categories such as single carriage way, Dual Carriageway, Roundabout, One-way Street, Slip Road and others.

We will now proceed to the final dashboard that contains the details of the Road Accidents Analysis.



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## Performance Testing

Tableau performance testing focuses on determining the software's speed, responsiveness, and scalability under a variety of conditions and workloads. Key performance indicators such as query response time, data loading speed, dashboard rendering time, and concurrent user handling capacity are measured and analysed. The testing process aids in the identification of performance bottlenecks, the optimisation of system configurations, and the assurance that Tableau can handle the expected workload efficiently, providing users with a smooth and responsive experience while working with large datasets and complex visualisations.

## Web Integration

Publishing helps us track and monitor key performance metrics, to communicate results and progress. Help a publisher stay informed, make better decisions, and

communicate their performance to others.

### **Integrating dashboard/reports/stories to web**

#### **Activity : Integrating with web**

Explanation video link:

[https://drive.google.com/file/d/1PU-  
TO\\_FuzugRjpd8NsXXHrZ0zJiLRInA/view?usp=sharing](https://drive.google.com/file/d/1PU-TO_FuzugRjpd8NsXXHrZ0zJiLRInA/view?usp=sharing)

#### **Activity : Implementing Flask**

Explanation video link:

[https://drive.google.com/file/d/1HPxK6F9I6fkLd\\_1ZkF45L\\_ckgulufbYb/view?usp=sharing](https://drive.google.com/file/d/1HPxK6F9I6fkLd_1ZkF45L_ckgulufbYb/view?usp=sharing)

# Web Implementation Snips

Group 142.

Home Dashboard Findings Stories Team Blogs

## Road Accidents Analytics

Analysis done by our team on the road accidents took place between 2019-2022 in UK region

Get Started Watch Video



Group 142.

Home **Dashboard** Findings Stories Team Blogs

### ROAD ACCIDENT DASHBOARD

The dashboard presenting all the analysis and information about the Road Accidents that took place between the year 2019-2022 in United Kingdom region.



Category	Value	Change (%)
Total Accidents	182,115	▲6.76% YOY
Total Casualties	247,780	▲7.31% YOY
Fatal Casualties	5,351	▲21.67% YOY
All Casualties by Vehical Type	862 (Truck), 14,829 (Bus), 183,530 (Car), 22,378 (Bike), 2,208 (Other), 23,973 (Total)	Varies by category
All Casualties by Weather Conditions	247.8K (Total)	Varies by category
All Casualties by Road Surface	247.8K (Total)	Varies by category
All Casualties by Location	(Map view)	(Map view)

## Stories

The stories that will tell you about the data that we used and about our findings in more depth.



### Accidents and Casualties in different cities

The map to showcasing all the Accidents and Casualties that occurred in different cities of United Kingdom over the time period.

[VIEW →](#)



### Accidents Sparkline

The graph showcasing the accident sparkline over the period of time.

[VIEW →](#)



### Casualties Sparkline

The graph showcasing the Casualties sparkline that happened in the accidents over the period of time per month.

[VIEW →](#)



### Accidents in Different Weather Conditions



### Accidents in Different Road Conditions



### Accidents on Different Road Types



## Findings

Based on our analysis, some important findings from our result are



**182115** Total Accidents between the year 2019-2022

**247780** Total Casualties between the year 2019-2022

**5351** Fatal Casualties between the year 2019-2022

## Our Team

Here's our wonderful team members who did their absolute best to complete this project

#### Ankit Priyadarshi

VIT Bhopal  
20BCE10486



#### Vishruti Choudhary

VIT Bhopal  
20BHI10019



#### Ananya Kaul

VIT Bhopal  
20BAI10077



#### Shashank Amanana

VIT Vellore  
20BCE2028



**Group 142.**

Home Dashboard Findings Stories Team **Blogs**

### Recent Blog Posts



Drunk Driving

**Dangerous Holidays for Drunk-Driving Accidents**

Apr 10, 2023



Do's and Dont's

**Do's and Don'ts in Road Accidents**

Apr 11, 2023



Cause

**5 major causes of UK road traffic accidents**

Dec 3, 2020

**Group 142**

The Road Accident Analysis project is made by Group 142 as the major project for SmartBridge Externship - Data Analysis.

**Useful Links**

[Home](#)  
[Dashboard](#)  
[Stories](#)  
[Dataset Used](#)  
[GitHub](#)

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## APPLICATIONS

- **Enhancement of Road Safety:** Identify accident-prone areas and critical factors that contribute to accidents, allowing for targeted road safety measures and infrastructure improvements.
- **Accident Prevention Strategies:** Create data-driven strategies to promote safer driving habits, implement awareness campaigns, and improve driver training programmes.
- **Urban Planning and Infrastructure Development:** Understanding accident patterns and factors related to road type, surface conditions, and lighting can help inform urban planning decisions.
- **Insurance Risk Assessment:** Improve insurance risk assessment models by incorporating information about the severity of accidents, weather conditions, and vehicle types.
- **Research and Academic Studies:** Contribute to academic studies and the development of new accident analysis methodologies by providing valuable data and analysis for research purposes.
- **Public Awareness and Education:** Use visualisations and insights to increase public awareness, promote safe driving practises, and educate the public.

## **CONCLUSION**

Our road accidents analytics project has been a transformative journey towards improving road safety through the use of data analysis and visualisation. We were able to uncover valuable insights and patterns by connecting our dataset to Tableau, allowing for targeted road safety measures, informed decision-making, and infrastructure improvements. Our findings and visualisations have the potential to have a long-term impact on road safety initiatives, policy, and the promotion of a responsible driving culture.

## **FUTURE SCOPE**

We see opportunities in real-time monitoring and predictive analytics, leveraging machine learning and AI for automated decision-making, encouraging collaborative data sharing among stakeholders, integrating our project with smart city initiatives, improving data visualisation and user-friendly interfaces, implementing behaviour analysis and driver assistance systems, and conducting long-term impact assessments of road safety measures in the future. These developments will allow us to make even more progress in improving road safety, promoting data-driven decision-making, and preventing accidents.

## **BIBLIOGRAPHY**

### References:

Data Set: [https://drive.google.com/file/d/1EHmRmi-Ffhu\\_OEdCkupn9zWuHKlufxYI/view](https://drive.google.com/file/d/1EHmRmi-Ffhu_OEdCkupn9zWuHKlufxYI/view)

## **APPENDIX**

### Source Codes

#### HTML File:

[https://github.com/ankitpriyadarshii/SmartBridge\\_Project/blob/main/index.html](https://github.com/ankitpriyadarshii/SmartBridge_Project/blob/main/index.html)

#### CSS File:

[https://github.com/ankitpriyadarshii/SmartBridge\\_Project/blob/main/assets/css/main.css](https://github.com/ankitpriyadarshii/SmartBridge_Project/blob/main/assets/css/main.css)

#### JavaScript File:

[https://github.com/ankitpriyadarshii/SmartBridge\\_Project/blob/main/assets/js/main.js](https://github.com/ankitpriyadarshii/SmartBridge_Project/blob/main/assets/js/main.js)

#### Flask Integration File:

[https://github.com/ankitpriyadarshii/SmartBridge\\_Project/blob/main/FlaskIntegration/app.py](https://github.com/ankitpriyadarshii/SmartBridge_Project/blob/main/FlaskIntegration/app.py)