Project Document

Project name:

Qlik Analysis Of Road Safety And Accident Patterns In India.

Define Problem/Problem Understanding:

A road accident is a common incident seen in India and the frequency of these accidents is increasing daily. Some of these are excessive growth in traffic congestion; poor quality of roads; Compromised observance to traffic laws and regulations. Inexcusable cases of reckless driving, speeding, and the almost unkotic behaviour towards traffic lights compound it. This is mainly because the said vulnerable groups are always on the receiving end and are mostly involved in such accidents. Measures that has been taken in increasing road safety education, enhancing the vigour in law implementation and the designs that has been made on the roads are some of the approaches that should be adopted in reducing this growing vice that makes traveling on roads most dangerous activity for many people.

Business Problem:

The business problem associated with the road accident data in India concerns the growing number of preventable accidents which are linked to factors like traffic congestion, road conditions, and violations of the traffic rules. Other factors include careless driving,anticipate speeding and signal infringement. The elderly and specific genders experience higher impacts, often leading to deaths, injuries, or displacement across the globe. This is an important indication that educating the public on safe driving, enforcing the laws rigorously, and improving the design of roads and infrastructure have not solved the problem and more radical measures are required to make our roads safer for our citizens.

Business Requirements:

These aspects include the demographic composition of users, frequency of accidents, and other related issues The intention is to make the findings of the analysis useful in the solutions that are to be offered later. It is important to understand that the primary goal of creating dynamic and visually appealing dashboards lies in their ability to facilitate strategy execution and drive operational enhancements. The knowledge gained from this analysis will be useful in decision making, improvement of safety measures and adherence to set regulations.

Literature Survey:

1. Factors Contributing to Road Accidents
    - Traffic Congestion
    - Poor Road Infrastructure
    - Non-Compliance with Traffic Laws
2. Impact of Reckless Driving and Speeding
3. Vulnerable Groups Affected by Road Accidents
    - Age and Gender Distribution of Casualties
    - High-Risk Demographics
4. Measures for Road Safety Improvement
    - Road Safety Education
    - Law Enforcement and Traffic Regulations
    - Road Design and Infrastructure Enhancements
5. Statistical Trends in Road Accidents (2019)
    - Controlled vs. Uncontrolled Accident Sites
    - Injury and Fatality Rates by Age and Gender
6. Global Comparisons and Best Practices in Road Safety

Social or Business Impact:

The incidences of road accidents, particularly in India, have various social and business consequences. On social front, it poses risk to lives especially that of the vulnerable in the society, and increases suffering and loss. Thus, traffic density collisions, roads poor condition, and people ignoring traffic rules contribute to the problem, whereas increased traffic speed and disregard for traffic signs increase the danger. To the businesses, this high rate of accidents was associated with high health costs, loss of production, and possible legal ramifications. Stronger provisions of law, better law enforcement, and better road construction and design can be that which minimizes these impacts towards making roads safer.

Downloading the Dataset:

I downloaded the dataset successfully from the link provided.
Link of dataset -https://www.kaggle.com/datasets/aryakittukrishnasai/road-accidents-in-india

Understand the data:

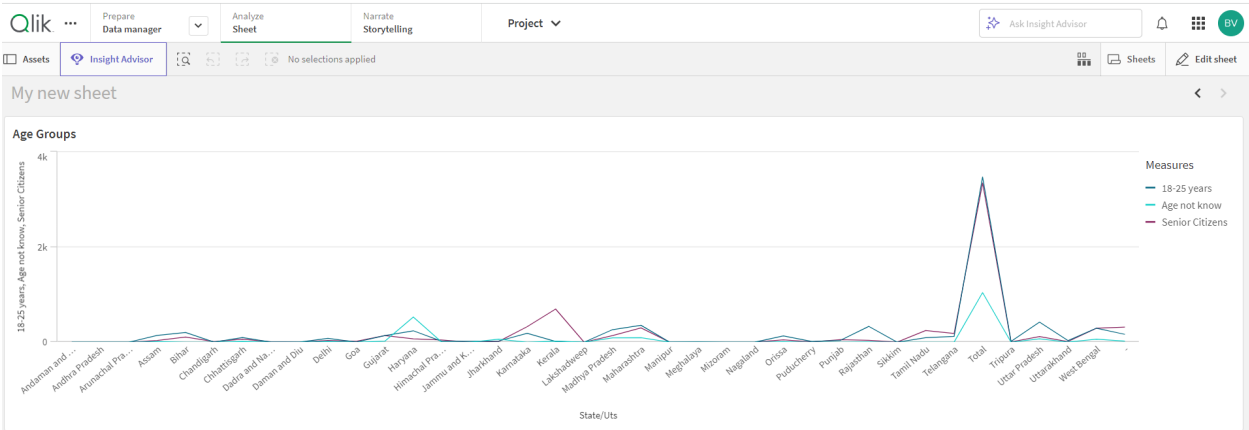
The datasets include different types of statistics concerning the occurrence of road accidents in India in 2019. The data contains specific information about other classifications like Controlled and Uncontrolled, and persons Injured and Killed by age and gender. For instance, in the uncontrolled sites, one could expect approximately 2773 total accidents with large variations in the yearly rate mentioned by a large Standard Deviation Figures. Furthermore, evidence shows that, other forms of accidents on average claimed 6020 people's lives, further affirming the significant consequences of road accidents in India. The datasets also reveal on the distribution of age and gender of the deceased for instance the number of females involving those aged 60 years and above who died. This includes the amount of data that can be utilised in effective assessment of trends, risk areas, and even in development of strategies that can in the long run improve the general road safety in India.

Data Preparation:

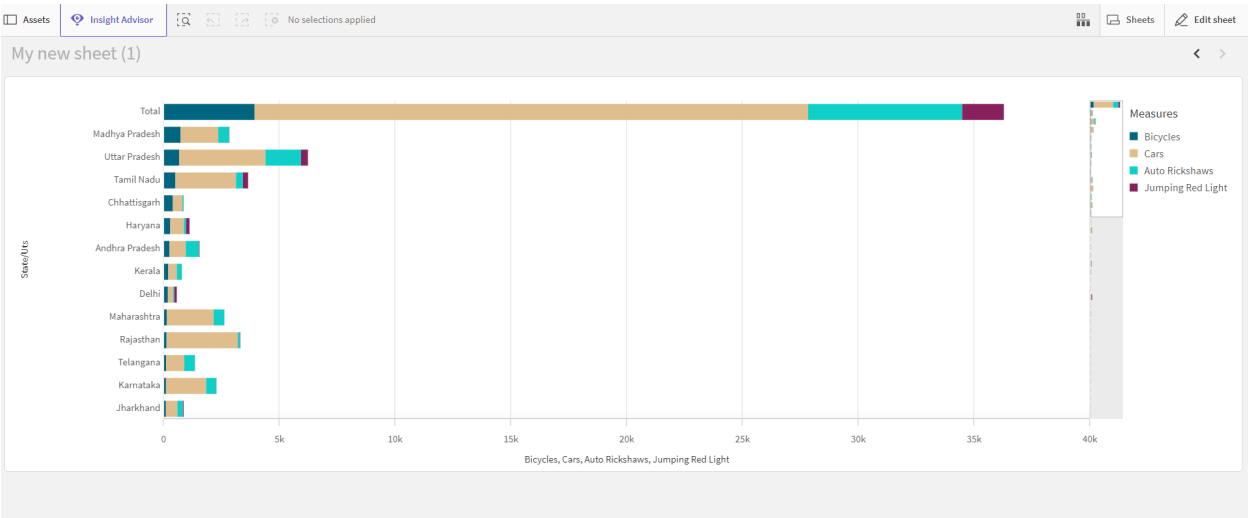
Before creating charts and graphs, data must be preprocessed to eradicate the inconsequential information which data gaps, converting the data into the structural format required for the visualization, discovering patterns and trends of the data by analyzing them, applying the necessary conditions on data so as to obtain subsets of data for analysis, preparing the data for visualization tools and software, and checking whether data is sufficient and suitable for the purpose of data visualization. It makes data easy to understand and prepares data for creating visualization for insights and information.

Data Visualization:

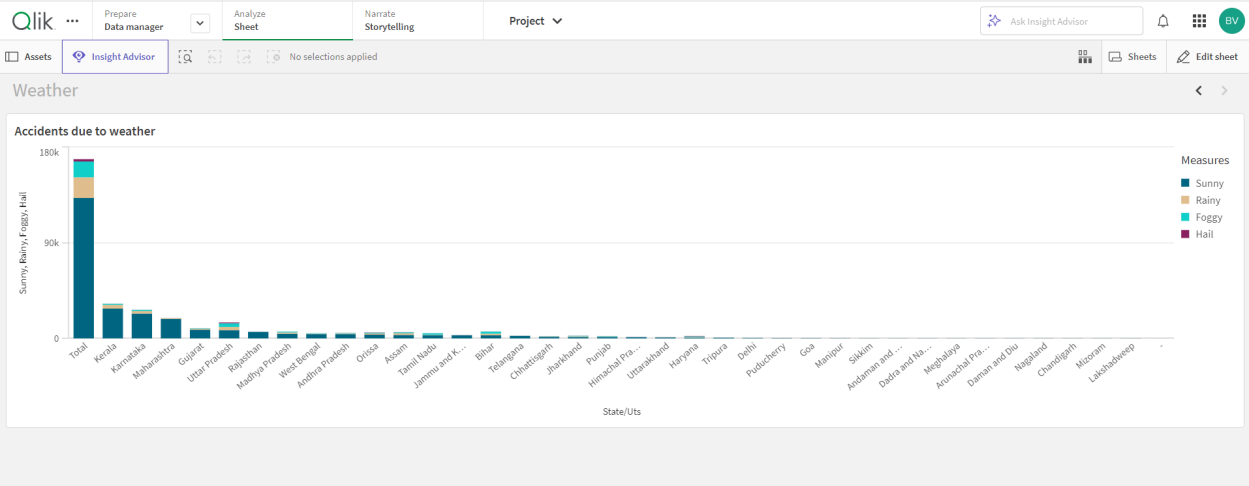
Accidents according to Age Groups



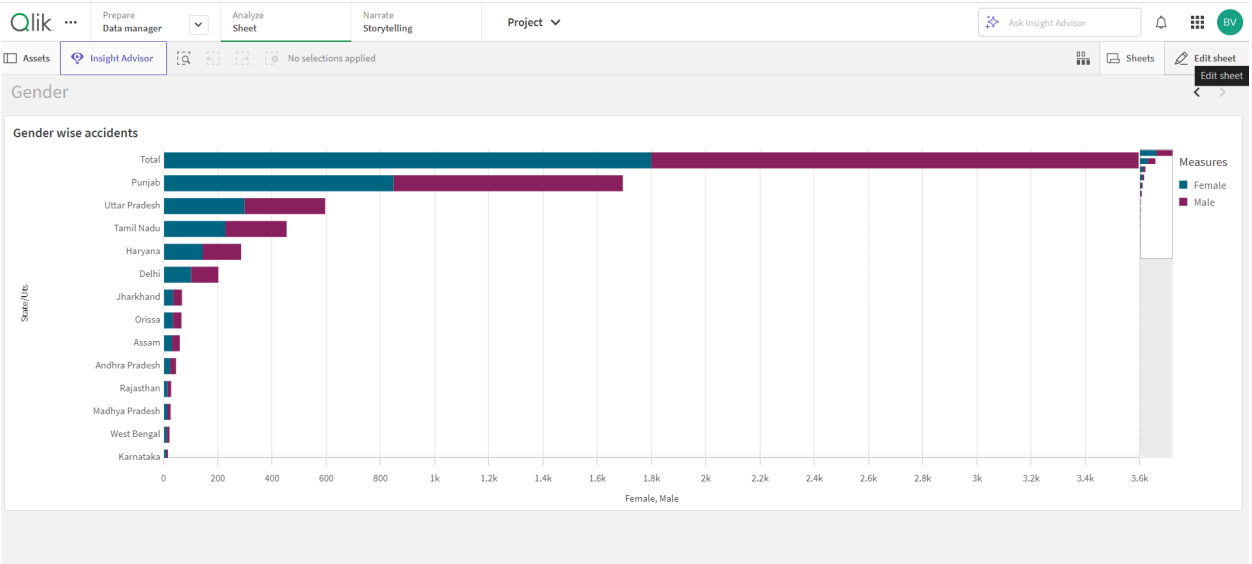
Accidents according to Vehicles



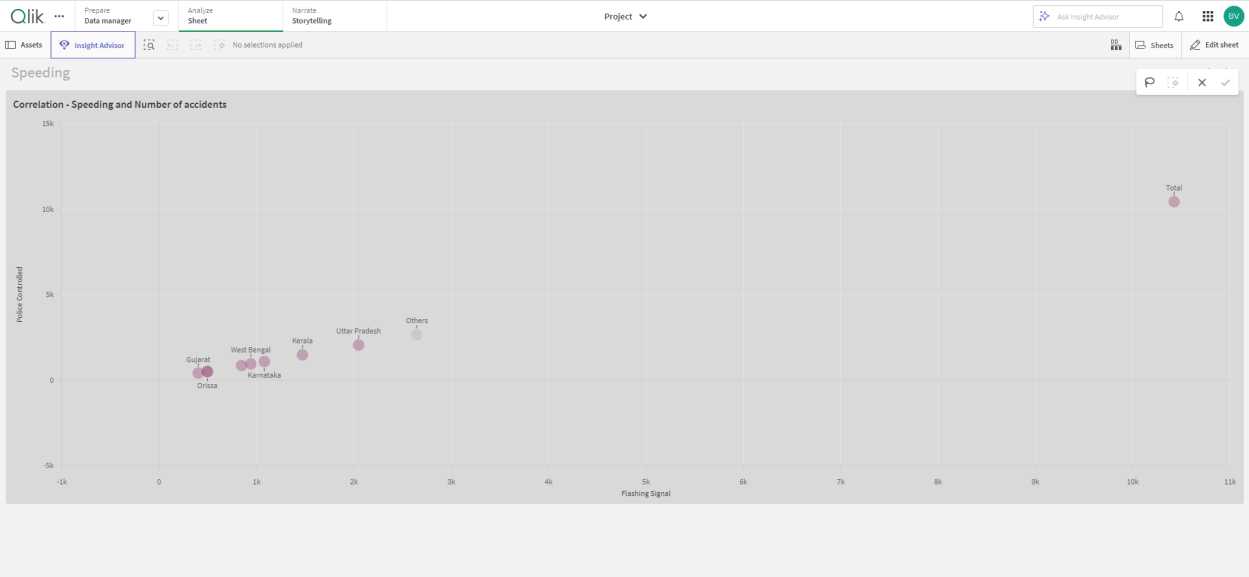
Accidents due to weather type



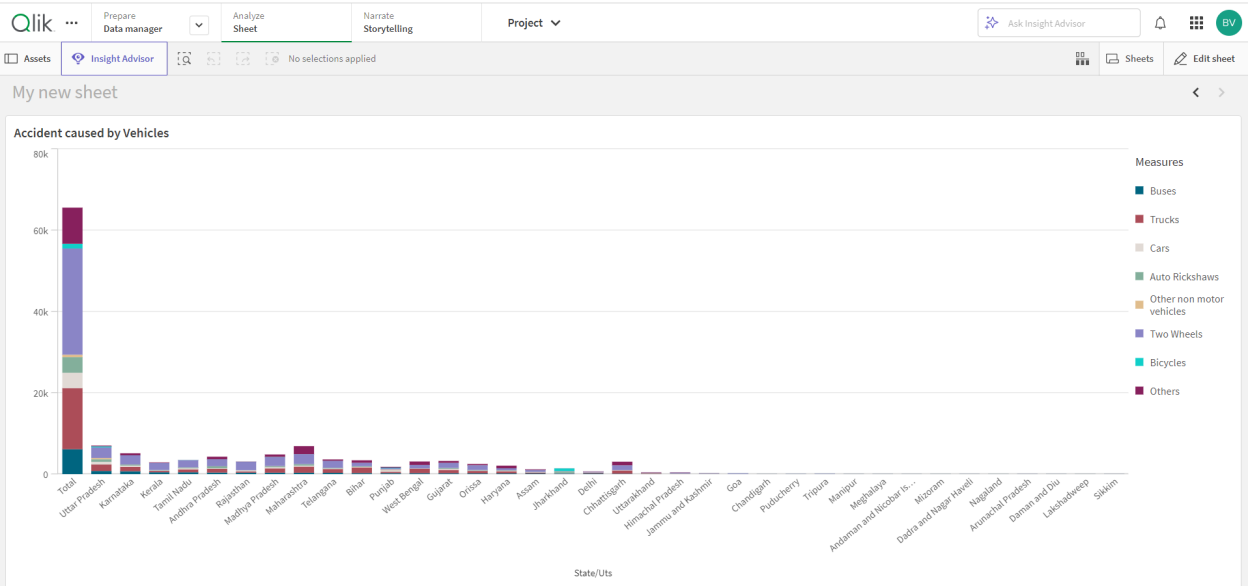
Gender wise Accidents



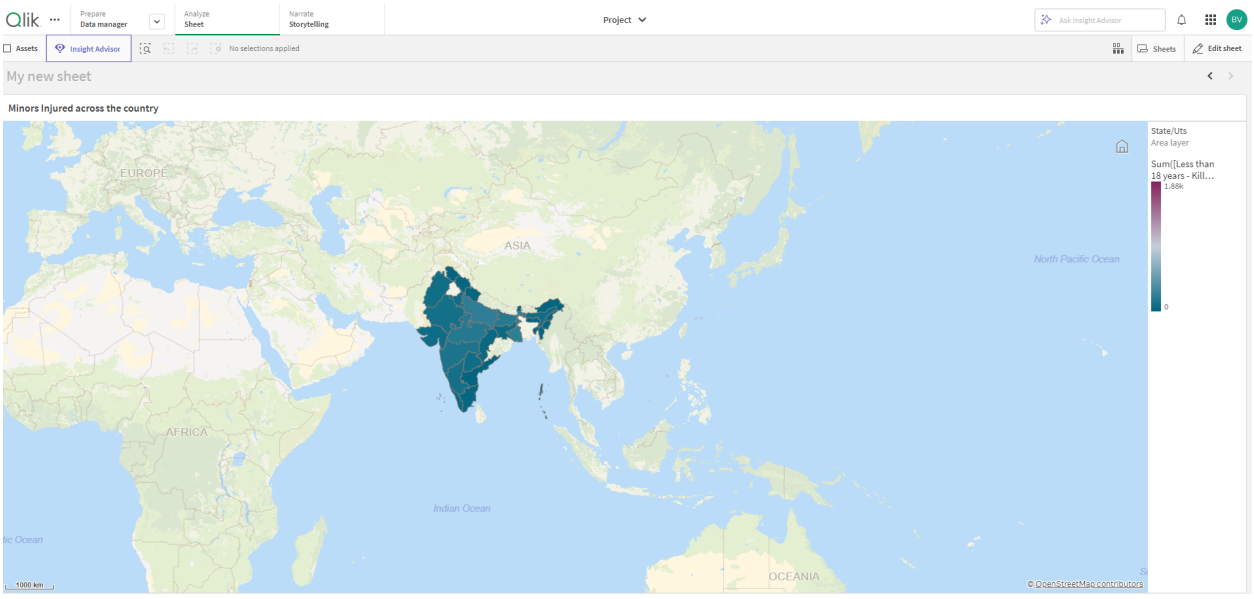
Accidents due to speeding of vehicles



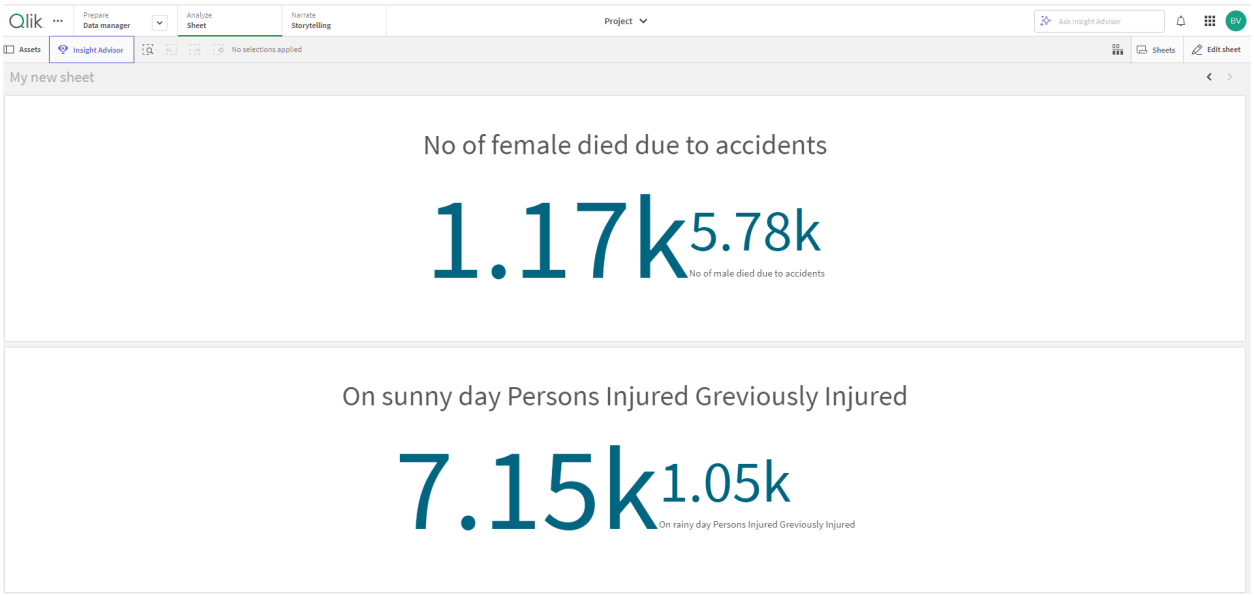
Accidents according to Vehicles



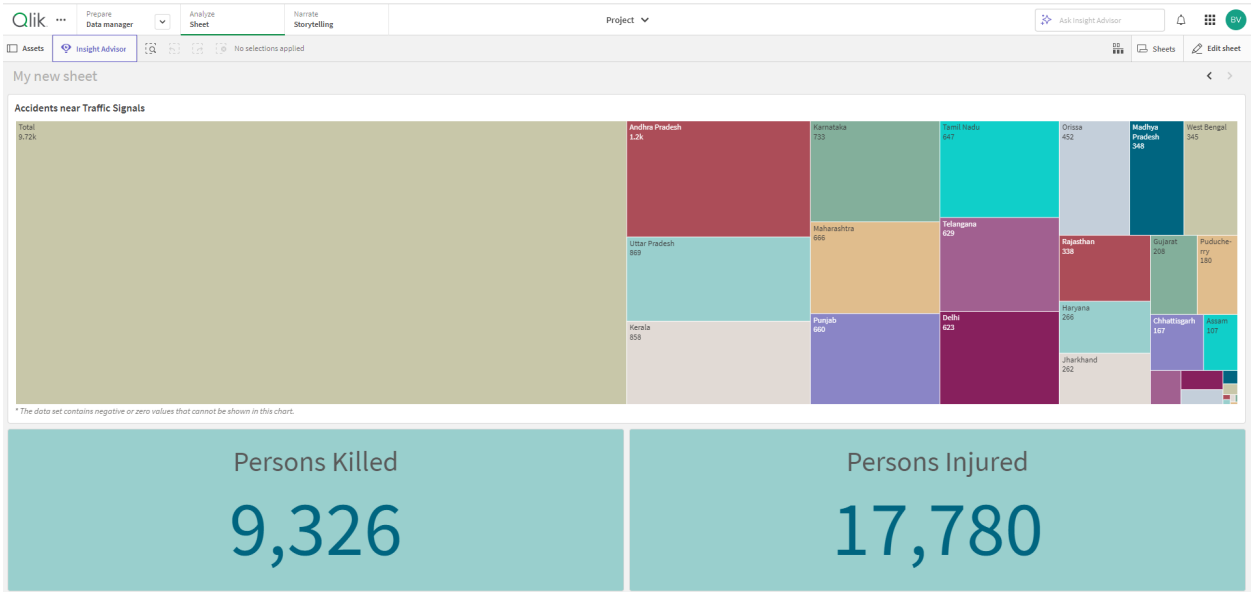
Minors Injured across the Country

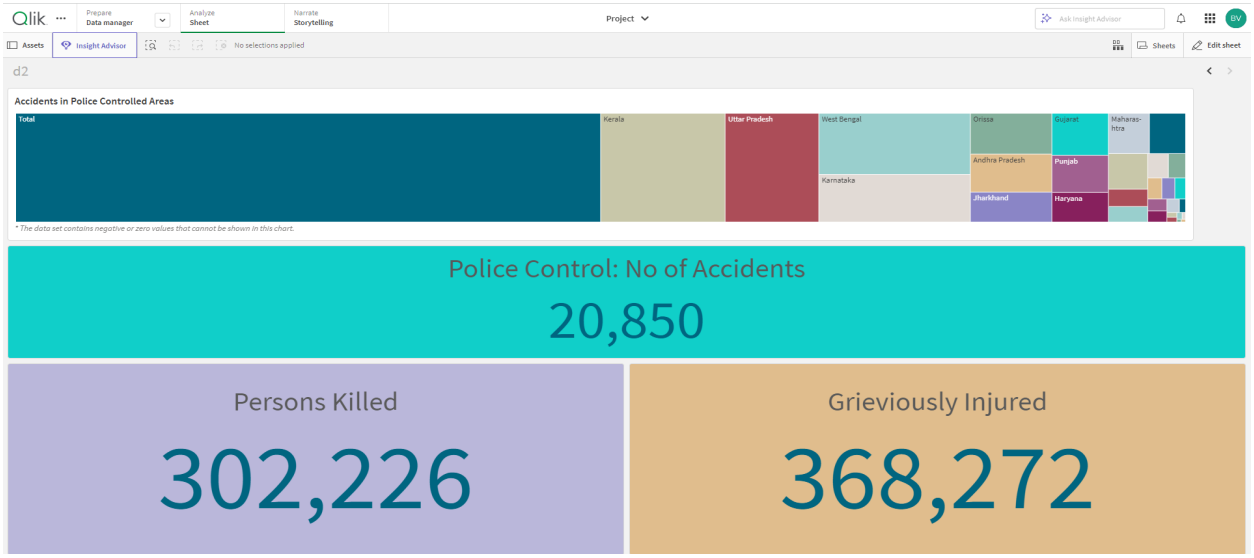


Number of females died due to accidents and On the sunny day persons grievously injured



Dashboard:


Qlik
Prepare
Data manager
Analyze
Sheet
Narrate
Storytelling
Project
Assets
Insight Advisor
No selections applied
Sheets
Edit sheet
My new sheet
Accidents near Traffic Signals
Total
9.72k
Andhra Pradesh
1.2k
Karnataka
733
Tamil Nadu
647
Orissa
452
Madhya Pradesh
348
West Bengal
345
Uttar Pradesh
869
Maharashtra
666
Telangana
629
Rajasthan
338
Gujarat
208
Puduche-rry
180
Kerala
858
Punjab
660
Delhi
623
Haryana
288
Chhattisgarh
167
Assam
107
Jharkhand
282
* The data set contains negative or zero values that cannot be shown in this chart.
Persons Killed
9,326
Persons Injured
17,780


Qlik
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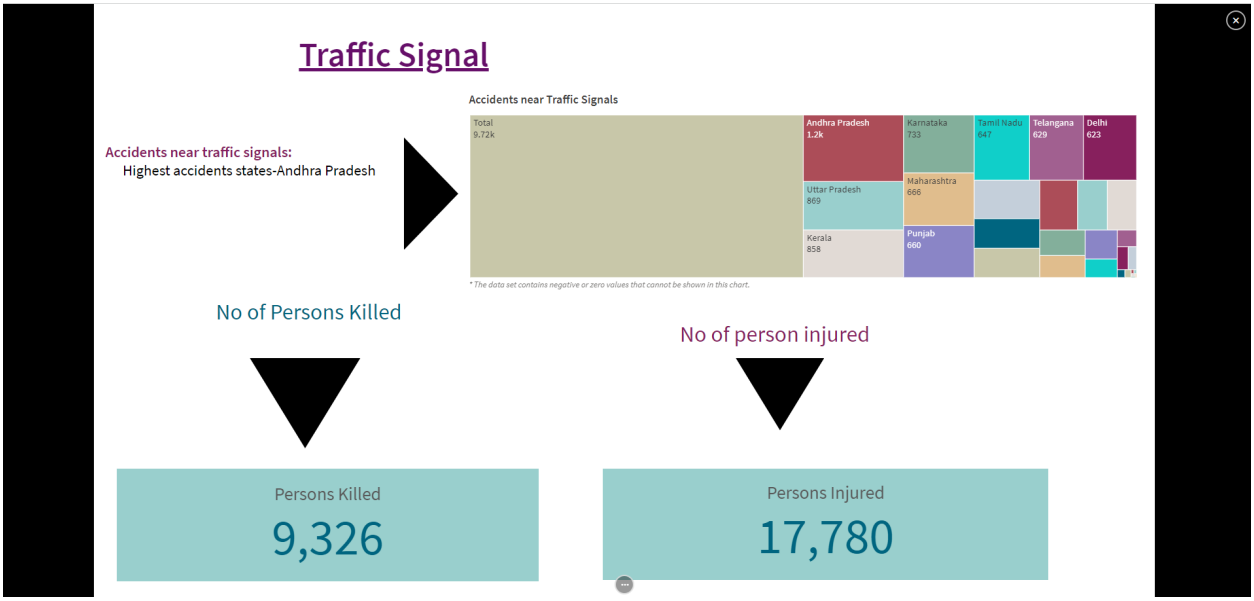
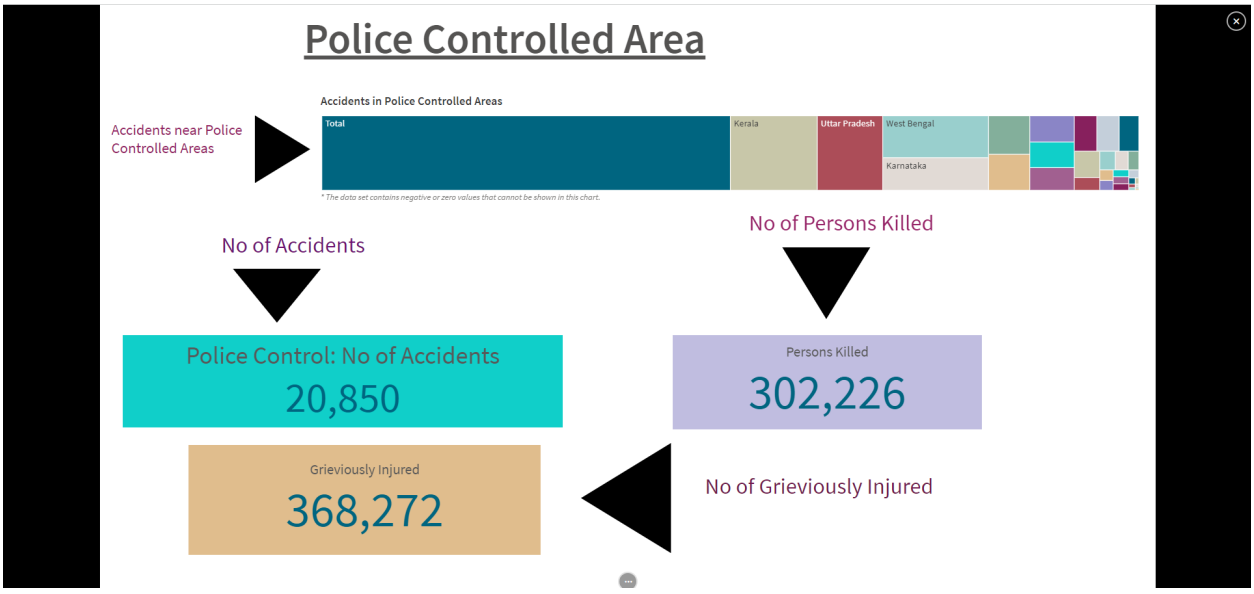
Narrate
Storytelling
Project
Assets
Insight Advisor
No selections applied
Sheets
Edit sheet
d2
Accidents in Police Controlled Areas
Total
Kerala
Uttar Pradesh
West Bengal
Orissa
Gujarat
Maharas-htra
Andhra Pradesh
Punjab
Karnataka
Jharkhand
Haryana
* The data set contains negative or zero values that cannot be shown in this chart.
Police Control: No of Accidents
20,850
Persons Killed
302,226
Grieviously Injured
368,272

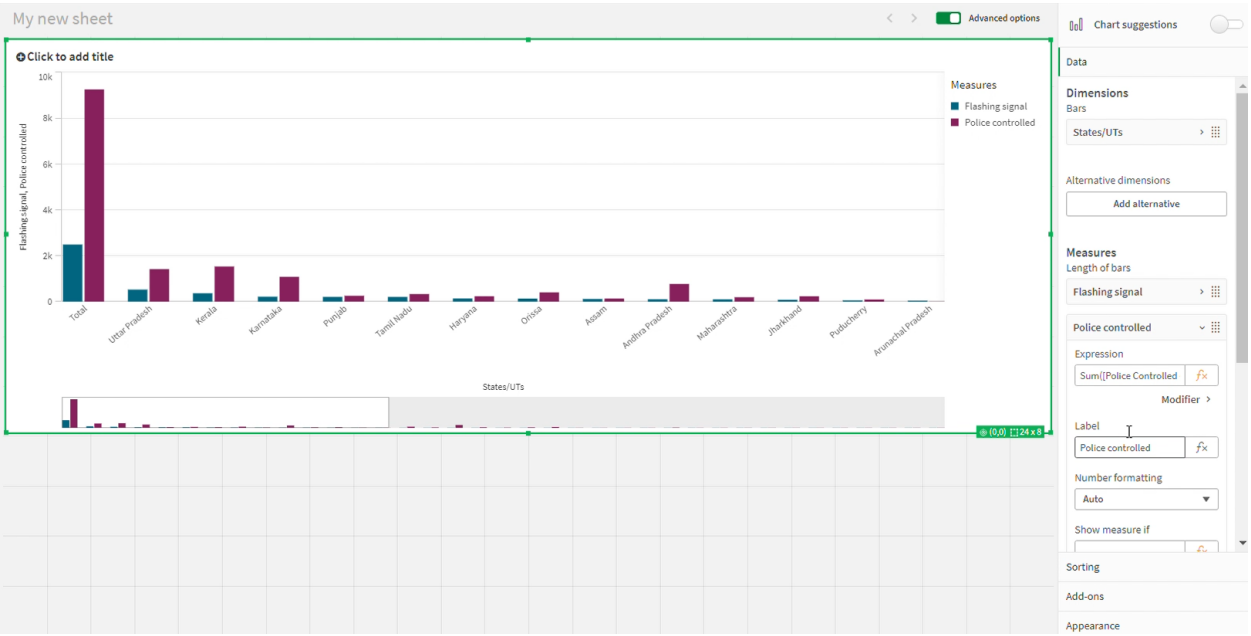
Storytelling:



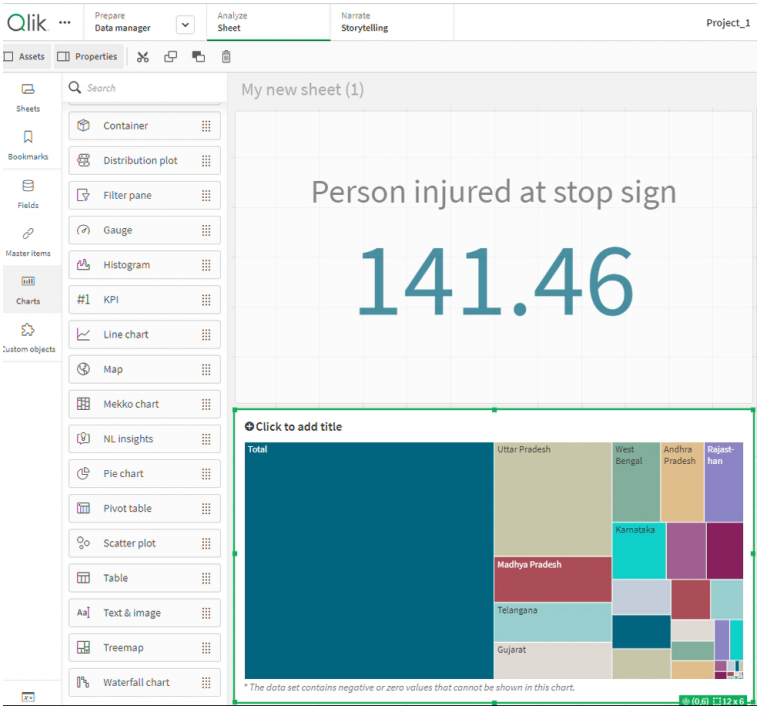


Performance Testing:

Application of Data Filters:



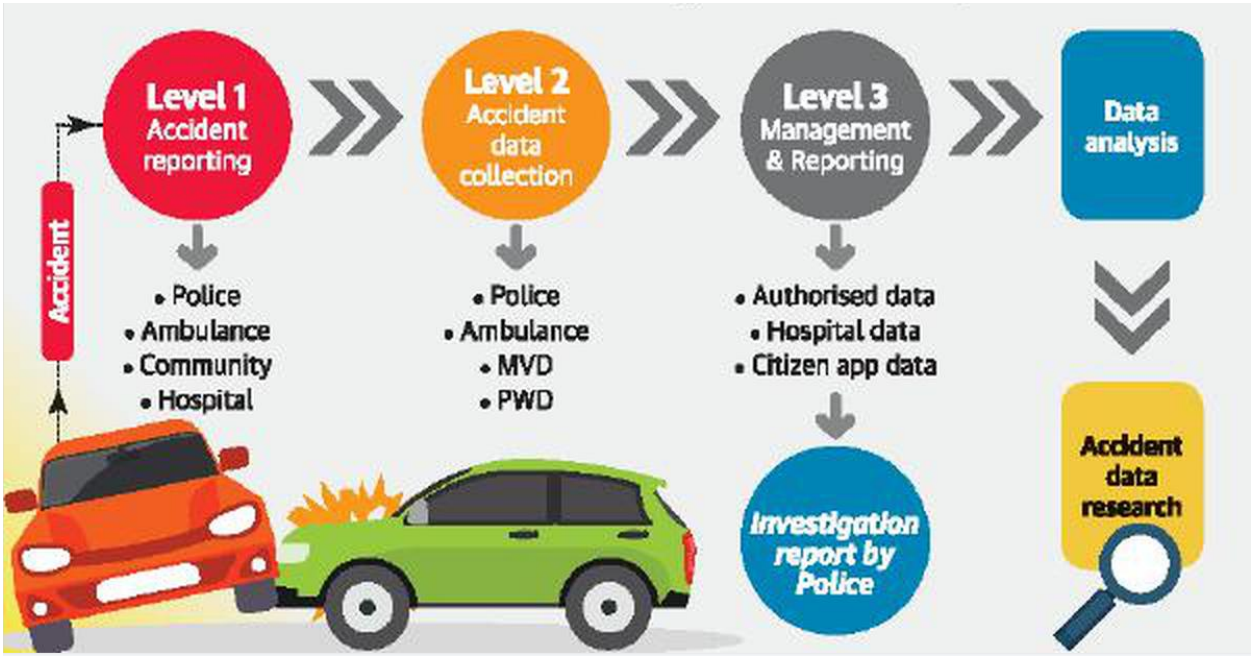
Use of Master Items/Calculated Fields:



Number of Graphs/ Visualizations:

- Accidents caused by Drunken Driving
- Accidents caused dur to mobile phone usage
- Accidents according to Age Groups
- Accidents according to Vehicles
- Accidents due to weather
- Gender wise Accidents
- Accidents due to speeding of vehicles
- Minors Injured across the Country
- Number of females died due to accidents
- On the sunny day persons grievously injured

Technical architecture:



Project Demonstration & Documentation:

Based on the research, business analytics used in the Road Safety and Accidents Patterns in India project help in pre-processing and analysis of accident data. With the help of mechanics-morphological analysis using the specified quantitative set of characteristics, including the number of pedestrians, vehicles, weather conditions, and causes of accidents, Business Analytics methods identify patterns and trends in road accidents by states, age, gender, and type of vehicles. Data analysis, trend prediction, regression analysis, and other analytical techniques help to detect problem areas and target population. These insights enable authorities to make the right decisions aimed at minimizing road risks, including making specific changes in accident-prone areas, improving traffic laws, and raising the population's awareness of risks. Moreover, when various factors such as weather conditions at the time of the accident and kinds of automobiles involved are studied, better plans to eliminate the incidence of accidents are formulated; therefore, making the roads safer and decreasing the number of deaths and other related casualties in India. It assists in efficient distribution of resources, traffic control, and minimizing the social and economic costs of road accidents.