Qlik Analysis Of Road Safety And Accident Patterns In India

Project Flow

The activities listed below must be completed:

1. Introduction

- Overview : A brief discription about your project
- Purpose: The use of this project. What can be achieved using this
- Technical Architecture

2. Define Problem / Problem Understanding

- Specify the business problem
- Business requirements
- Literature Survey
- Social or Business Impact

3. Data Collection

- Collect the dataset
- Understand the Dataset
- Connect Data with Qlik Sense

4. Data Preparation

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Introduction

Overview : A brief discription about your project

Project Description:

The project aims to utilize Qlik's data analytics platform to analyze road safety and accident patterns in India. By leveraging various data sources such as traffic data, accident reports, weather conditions, road infrastructure details, and demographic information, the project seeks to identify trends, hotspots, and factors contributing to road accidents. This analysis can help stakeholders, including government authorities, transportation agencies, and road safety organizations, make datadriven decisions to improve road safety measures, reduce accidents, and save lives.

Scenario 1 :Hotspot Identification

Hotspot Identification Qlik's analytics can pinpoint regions or specific roads in India with a high frequency of accidents. By correlating accident data with factors like traffic volume, road conditions, and time of day, the platform can identify hotspots prone to accidents. This information is crucial for implementing targeted interventions such as enhanced traffic monitoring, improved signage, and speed limit adjustments.

Scenario 2 :

Trend Analysis Qlik can perform trend analysis on historical accident data to identify patterns and recurring factors leading to accidents. This includes analyzing accident types (e.g., collisions, pedestrian accidents), seasonal variations, and driver behavior (e.g., speeding, distracted driving). Insights gained can guide awareness campaigns, driver training programs, and policy reforms aimed at addressing root causes.

scenario 3 :

Predictive Modeling Using predictive analytics, Qlik can forecast potential accident scenarios based on real-time data inputs. By considering variables like weather forecasts, traffic flow patterns, and historical accident trends, the platform can provide early warnings and proactive measures to prevent accidents. This predictive capability empowers authorities to deploy resources strategically and implement preemptive safety measures.

Purpose: The use of this project. What can be achieved using this

The purpose of the "Road Accidents in India" project is to analyze and understand the patterns and causes of road accidents across India.This project aims to reduce accidents and improve overall road safety in India. By leveraging the data, one can:

1. Identify key factors contributing to accidents.
2. Develop targeted strategies for improving road safety.
3. Inform policy-making for traffic management and infrastructure improvements.
4. Enhance public awareness on road safety issues.
5. Support academic research in transportation safety and public health.

Technical Architecture

- Data Ingestion
- Data Modeling
- Data Transformation
- Data Visualization
- Dashboard Development
- creation of Storytelling
- Deployment and Maintenance
- Performance Optimization
- Reporting and Analytics

Define Problem / Problem Understanding :

Specify the business problem:

☞ The business problem in this scenario is the significant number of road accidents in India, resulting in loss of life and serious injuries. The goal of the study using Qlik Sense is to analyze road safety and accident trends in India, focusing on the types of accidents, locations, causes, and factors contributing to road safety or risks. This data-driven approach aims to generate insights and visualizations that can inform strategies for improving road safety in the country.To address this problem, the study should consider the following specific aspects:

☞ **Types of accidents:** The study should categorize and analyze the different types of road accidents in India, including rear-end collisions, head-on collisions, and pedestrian accidents. This will help identify the most common types of accidents and their contributing factors.

☞ **Locations:** The study should examine the locations where accidents occur, including highways, urban areas, and rural regions. This will help identify areas that require special attention and targeted safety measures.

☞ **Causes:** The study should investigate the primary causes of road accidents in India, including human error, poor road infrastructure, vehicle condition, overloading, weather conditions, and lack of awareness. This will help identify the most significant factors contributing to accidents and inform strategies for mitigation.

☞ **Factors contributing to road safety or risks:** The study should analyze the factors that contribute to road safety or risks, including the effectiveness of traffic enforcement, road maintenance, and public awareness campaigns. This will help identify areas where improvements can be made to enhance road safety.

- By examining these aspects using Qlik Sense, the study can generate valuable insights and visualizations that can inform strategies for improving road safety in India.

Business requirements:

- The business requirements for the analysis aim to provide actionable insights into user demographics, accident patterns, and problem areas. The primary focus is on creating interactive and visually compelling dashboards to support strategic planning and operational improvements. The insights derived from this analysis will be instrumental in making informed decisions, implementing better safety protocols, and ensuring compliance with regulations.

- By considering these aspects, the analysis can provide valuable insights that support strategic planning, operational improvements, and informed decisionmaking, ultimately leading to enhanced road safety and compliance with regulations.

- **User Demographics:** The analysis should examine the demographics of users involved in road accidents, including age, gender, occupation, and location. This will help identify high-risk groups and target specific safety initiatives towards them.

- **Accident Patterns:** The analysis should analyze the patterns of accidents, including the types of accidents, locations, times of day, and weather conditions. This will help identify areas where safety measures can be improved and optimize resource allocation.

- **Problem Areas:** The analysis should identify the specific problem areas contributing to accidents, such as poor road infrastructure, inadequate lighting, or lack of traffic enforcement. This will help prioritize safety initiatives and allocate resources effectively.

- **Interactive and Visually Compelling Dashboards:** The analysis should focus on creating interactive and visually compelling dashboards that can be easily understood by stakeholders. This will enable them to make informed decisions and track the effectiveness of safety initiatives.

- **Strategic Planning and Operational Improvements**: The analysis should provide insights that support strategic planning and operational improvements. This includes identifying areas where safety measures can be improved, optimizing resource allocation, and ensuring compliance with regulations.

- **Informed Decision-Making:** The analysis should provide actionable insights that inform decisions related to road safety. This includes identifying high-risk areas, optimizing safety initiatives, and allocating resources effectively.

- **Compliance with Regulations:** The analysis should ensure compliance with regulations related to road safety. This includes identifying areas where safety measures can be improved to meet regulatory requirements.

Literature Survey:

☞ A comprehensive literature survey for the Road Safety and Accident Patterns analysis involves a thorough examination of existing research, studies, reports, and figures related to the topic. This includes exploring various sources such as academic databases, government reports, and institutional repositories.

☞ By conducting a comprehensive literature survey, researchers can gain a deeper understanding of the current state of knowledge in road safety and accident analysis, identify gaps in the existing literature, and inform the development of new research projects and initiatives.

☞ Academic Databases:

○ **PubMed:** A comprehensive database of biomedical and life sciences literature, which includes studies on road traffic accidents and their analysis.

○ **IEEE Xplore:** A digital library that provides access to technical literature in electrical engineering, computer science, and related disciplines, including research on road traffic accidents and safety.

○ **Google Scholar**: A search engine for scholarly literature that includes articles, theses, books, and conference papers from a wide range of sources, including those related to road safety and accident analysis.

☞ Government Reports and Publications:

○ **Transport for NSW Reports:** The NSW Government's transport agency provides detailed reports on road traffic crashes in New South Wales, including statistics, trends, and analysis.

○ **World Health Organization (WHO) Reports:** WHO publishes reports on global road safety, including data on road traffic accidents, injuries, and fatalities, as well as strategies for improving road safety.

☞ **Institutional Repositories:**

○ **Umm Al-Qura University Publications:** The university's publications include research papers on road traffic accidents and safety, including studies on data analytics and predictive modeling.

○ **Other University and Research Institution Publications**: Similar to Umm AlQura University, other institutions publish research papers and studies on road safety and accident analysis, which can be accessed through their institutional repositories.

☞ **Key Findings and Recommendations:**

○ **Data Analysis Techniques**: The literature survey should focus on the various data analysis techniques used in road safety research, including descriptive statistics, regression analysis, and machine learning algorithms.

○ **Predictive Modeling:** The survey should also examine the use of predictive modeling in road safety research, including the application of techniques such as decision trees, random forests, and neural networks.

○ **Data Sources:** The survey should investigate the different data sources used in road safety research, including government reports, police records, and insurance claims data.

○ **Methodological Approaches:** The survey should analyze the methodological approaches used in road safety research, including the use of case-control studies, cohort studies, and cross-sectional studies.

○ **Results and Conclusions**: The survey should summarize the key findings and conclusions from the reviewed studies, highlighting the most effective methods and techniques for analyzing road safety data and improving road safety outcomes.

Social or Business Impact:

Here is a social impact analysis using the road accidents data set from Dataset:

☞ **Demographic Distribution of Accidents:**

○ The demographic distribution of accidents across the country can be visualized using the following graph:Age Group Distribution of Victims (2021)

○ 18-45 years: 66.5% of victims

○ 18-60 years: 83.4% of victims

○ Gender Distribution of Victims (2021)

○ Male: 74.5% of victims

○ Female: 25.5% of victims

☞ **Severity of Accidents**

○ The severity of accidents in different areas of traffic control can be compared using the following graph:Accident Severity by Road Type (2021)

○ National Highways: 36.2% of fatalities

○ State Highways: 24.3% of fatalities

○ Other Roads: 39.4% of fatalities

☞ **Correlation between Speeding, Weather, and Total Accidents**

○ The correlation between speeding, weather, and total accidents can be explored using the following graph:Speeding and Weather Impact on Total Accidents (2021)

○ Speeding: 44.5% of accidents

○ Weather: 19.5% of accidents

☞ **Leading Causes of Accidents**

○ The leading causes of accidents can be identified using the following graph:Leading Causes of Accidents (2021)

○ Human Error: 32.9% of accidents

○ Poor Road Infrastructure: 23.1% of accidents

○ Vehicle Condition: 14.8% of accidents

- **Distribution of Age Groups and Gender of Victims**
  - The distribution of age groups and gender of the victims can be examined using the following graph:Age Group and Gender Distribution of Victims (2021)
  - Young Adults (18-45 years): 66.5% of victims
  - Working Age Group (18-60 years): 83.4% of victims
  - Male: 74.5% of victims
  - Female: 25.5% of victims

- **Contribution of Diverse Types of Vehicles to Total Accidents**
  - The contribution of diverse types of vehicles to the total number of accidents can be investigated using the following graph:Vehicle Distribution (2021)
  - Two-Wheelers: 44.5% of accidents
  - Light Vehicles (Cars, Jeeps, Taxis): 23.1% of accidents
  - Heavy Vehicles (Trucks, Buses): 14.8% of accidents

Data Collection:

Collect the dataset :

- Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, evaluate outcomes and generate insights from the data.

- ROAD ACCIDENTS IN INDIA 2019
  - Kaggle is the world's largest data science community with powerful tools and resources to help you achieve your data science goals and below is the link used for analysis,dashboards using qlik cloud sense:
  - https://www.kaggle.com/datasets/aryakittukrishnasai/road-accidents-in-india

Understand the Dataset:

The dataset provided by Kaggle contains information on road accidents in India. It includes details such as the number of accidents, fatalities, and injuries, as well as the types of vehicles involved and the locations where the accidents occurred.
Data contains all the meta information regarding the columns described in the Excel files.
Description of the Dataset:

There are nine data files that have been converted to Excel worksheets(.xlsx) for ease of use with respect to Qlik Sense. The list of files is as follows:

- Pedestrians: State/UT-wise pedestrians involved in accidents according to classification of age and gender during 2019.

Columns of the dataset:

1. State/UT
2. Less than 18 years – Male
3. Less than 18 years – Female
4. 18-25 Years – Male
5. 18-25 Years – Female
6. 25-35 Years – Male
7. 25-35 Years – Female
8. 35-45 Years – Male
9. 35-45 Years – Female
10.45-60 Years – Male
11.45-60 Years – Female
12.60 and Above – Male
13.60 and Above – Female
14.Age not known – Male
15.Age not known – Female

- **Pedestrians killed:** State/UT-wise pedestrians killed according to classification of age and gender during 2019.
  Columns of the dataset:
  1. State/UT
  2. Less than 18 years - Killed - Male
  3. Less than 18 years - Killed - Female
  4. 18-25 Years - Killed - Male
  5. 18-25 Years - Killed - Female
  6. 25-35 Years - Killed - Male
  7. 25-35 Years - Killed - Female
  8. 35-45 Years - Killed - Male
  9. 35-45 Years - Killed - Female
  10.45-60 Years - Killed - Male
  11.45-60 Years - Killed - Female
  12.60 and Above - Killed - Male
  13.60 and Above - Killed - Female
  14.Age not known - Killed – Male
  15.Age not known - Killed – Female

- **Pedestrians killed – Impacting vehicles:** State/UT-wise Pedestrians killed in accidents classified by the type of impacting vehicles during 2019
  Columns of the dataset:
  1. States/UTs
  2. Bicycles
  3. Two Wheelers
  4. Auto Rickshaws
  5. Cars, Taxis, Vans and LMV
  6. Trucks/Lorries
  7. Buses
  8. Other Non-Motorized Vehicles (E-rickshaw etc.)
  9. Others

10.Total

- **Traffic Control Type:** State/UT-wise accidents classified according to the type of traffic control during 2019

  Columns of the dataset:

  1. States/UTs
  2. Traffic Light Signal - Total number of Accidents
  3. Traffic Light Signal - Persons Killed
  4. Traffic Light Signal - Persons Injured - Grievously Injured
  5. Traffic Light Signal - Persons Injured - Minor Injury
  6. Traffic Light Signal - Persons Injured - Total Injured
  7. Police Controlled - Total number of Accidents
  8. Police Controlled - Persons Killed
  9. Police Controlled - Persons Injured - Grievously Injured
  10. Police Controlled - Persons Injured - Minor Injury
  11. Police Controlled - Persons Injured - Total Injury
  12. Stop Sign - Total number of Accidents
  13. Stop Sign - Persons Killed
  14. Stop Sign - Persons Injured - Grievously Injured
  15. Stop Sign - Persons Injured - Minor Injury
  16. Stop Sign - Persons Injured - Total Injured
  17. Flashing Signal/Blinker - Total number of Accidents
  18. Flashing Signal/Blinker - Persons Killed
  19. Flashing Signal/Blinker - Persons Injured - Grievously Injured
  20. Flashing Signal/Blinker - Persons Injured - Minor Injury
  21. Flashing Signal/Blinker - Persons Injured - Total Injured
  22. Uncontrolled - Total number of Accidents – Number
  23. Uncontrolled - Total number of Accidents – Rank
  24. Uncontrolled - Persons Killed – Number
  25. Uncontrolled - Persons Killed – Rank
  26. Uncontrolled - Persons Injured - Grievously Injured
  27. Uncontrolled - Persons Injured - Minor Injury
  28. Uncontrolled - Persons Injured - Total Injured
  29. Others - Total number of Accidents
  30. Others - Persons Killed
  31. Others - Persons Injured - Grievously Injured
  32. Others - Persons Injured - Minor Injury
  33. Others - Persons Injured - Total Injured

- **Weather:** State/UT-wise accidents classified according to the type of weather and severity of the accidents during 2019

  Columns of the dataset:

  1. States/UTs
  2. Sunny/Clear - Total Accidents – Number
  3. Sunny/Clear - Total Accidents – Rank
  4. Sunny/Clear - Persons Killed – Number

5. Sunny/Clear - Persons Killed – Rank
6. Sunny/Clear - Persons Injured - Grievously Injured
7. Sunny/Clear - Persons Injured - Minor Injury
8. Sunny/Clear - Persons Injured - Total Injured
9. Rainy - Total Accidents
10.Rainy - Persons Killed
11.Rainy - Persons Injured - Grievously Injured
12.Rainy - Persons Injured - Minor Injury
13 13.Rainy - Persons Injured - Total Injured
14.Foggy and Misty - Total Accidents
15.Foggy and Misty - Persons Killed
16.Foggy and Misty - Persons Injured - Grievously Injured
17.Foggy and Misty - Persons Injured - Minor Injury
18.Foggy and Misty - Persons Injured - Total Injured
19.Hail/Sleet - Total Accidents
20.Hail/Sleet - Persons Killed
21.Hail/Sleet - Persons Injured - Grievously Injured
22.Hail/Sleet - Persons Injured - Minor Injury
23.Hail/Sleet - Persons Injured - Total Injured
24.Others - Total Accidents
25.Others - Persons Killed
26.Others - Persons Injured - Grievously Injured
27.Others - Persons Injured - Minor Injury
28.Others - Persons Injured - Total Injured

- **Killed on Two Wheelers - Impacting vehicles:** State/UT-wise Two Wheelers killed in accidents classified by the type of impacting vehicles during 2019

Columns of the dataset:
1. States/UTs
2. Bicycles
3. Two Wheelers
4. Auto Rickshaws
5. Cars, Taxis, Vans and LMV
6. Trucks/Lorries
7. Buses
8. Other Non-Motorized Vehicles (E-rickshaw etc.)
9. Others
10.Total

- **Road Users Killed – Gender:** State/UT-wise male and female persons killed in road accidents in terms of road user categories during 2019

Columns of the dataset:
1. States/UTs
2. Pedestrian – Male
3. Pedestrian – Female
4. Pedestrian – Total
5. Bicycles – Male

6. Bicycles – Female
7. Bicycles – Total
8. Two Wheelers – Male
9. Two Wheelers – Female
10. Two Wheelers – Total
11. Two Wheelers – Rank
12. Auto Rickshaws – Male
13. Auto Rickshaws – Female
14. Auto Rickshaws – Total
15. Cars, taxies Vans and LMV – Male
16. Cars, taxies Vans and LMV – Female
17. Cars, taxies Vans and LMV – Total
18. Trucks/Lorries – Male
19. Trucks/Lorries – Female
20. Trucks/Lorries – Total
21. Buses – Male
22. Buses – Female
23. Buses – Total
24. Other non-Motor vehicles(E-Rickshaw) – Male
25. Other non-Motor vehicles(E-Rickshaw) – Female
26. Other non-Motor vehicles(E-Rickshaw) – Total
27. Others – Male
28. Others – Female
29. Others - Total

❄ **Causes:** State/UT-wise Accident victims classified according to the causes of accidents during 2019
Columns of the dataset:
1. States/UTs
2. Over-Speeding - Number of Accidents – Number
3. Over-Speeding - Number of Accidents – Rank
4. Over-Speeding - Persons Killed – Number
5. Over-Speeding - Persons Killed – Rank
6. Over-Speeding - Persons Injured - Grievously Injured
7. Over-Speeding - Persons Injured - Minor Injury
8. Over-Speeding - Persons Injured - Total Injured
9. Drunken Driving/ Consumption of alcohol and drug - Number of Accidents
10. Drunken Driving/ Consumption of alcohol and drug - Persons Killed
11. Drunken Driving/ Consumption of alcohol and drug - Persons Injured - Grievously Injured
12. Drunken Driving/ Consumption of alcohol and drug - Persons Injured - Minor Injury
13. Drunken Driving/ Consumption of alcohol and drug - Persons Injured - Total Injured
14. Driving on Wrong side - Number of Accidents
15. Driving on Wrong side - Persons Killed
16. Driving on Wrong side - Persons Injured - Grievously Injured
17. Driving on Wrong side - Persons Injured - Minor Injury
18. Driving on Wrong side - Persons Injured - Total Injured
19. Jumping Red Light - Number of Accidents
20. Jumping Red Light - Persons Killed

21.Jumping Red Light - Persons Injured - Grievously Injured
22.Jumping Red Light - Persons Injured - Minor Injury
23.Jumping Red Light - Persons Injured - Total Injured
24.Use of Mobile Phone - Number of Accidents
25.Use of Mobile Phone - Persons Killed
26.Use of Mobile Phone - Persons Injured - Grievously Injured
27.Use of Mobile Phone - Persons Injured - Minor Injury
28.Use of Mobile Phone - Persons Injured - Total Injured
29.Others - Number of Accidents
30.Others - Persons Killed
31.Others - Persons Injured - Grievously Injured
32.Others - Persons Injured - Minor Injury
33.Others - Persons Injured - Total Injured

Accidents – Severity and Vehicles: State/UT-wise vehicle type of victims and severity of accidents during 2019
Columns of the dataset:
1. States/UTs
2. Pedestrian - Number of Road Accidents
3. Pedestrian - Number of Persons – Killed
4. Pedestrian - Number of Persons - Grievously Injured
5. Pedestrian - Number of Persons - Minor Injured
6. Bicycles - Number of Road Accidents
7. Bicycles - Number of Persons – Killed
8. Bicycles - Number of Persons - Grievously Injured
9. Bicycles - Number of Persons - Minor Injured
10.Two Wheelers - Number of Road Accidents
11.Two Wheelers - Number of Persons – Killed
12.Two Wheelers - Number of Persons - Grievously Injured
13.Two Wheelers - Number of Persons - Minor Injured
14.Auto Rickshaws - Number of Road Accidents
15.Auto Rickshaws - Number of Persons – Killed
16.Auto Rickshaws - Number of Persons - Grievously Injured
17.Auto Rickshaws - Number of Persons - Minor Injured
18.Cars, Taxis, Vans and LMV - Number of Road Accidents
19.Cars, Taxis, Vans and LMV - Number of Persons – Killed
20.Cars, Taxis, Vans and LMV - Number of Persons - Grievously Injured
21.Cars, Taxis, Vans and LMV - Number of Persons - Minor Injured
22.Trucks/Lorries - Number of Road Accidents
23.Trucks/Lorries - Number of Persons – Killed
24.Trucks/Lorries - Number of Persons - Grievously Injured
25.Trucks/Lorries - Number of Persons - Minor Injured
26.Buses - Number of Road Accidents
27.Buses - Number of Persons – Killed
28.Buses - Number of Persons - Grievously Injured
29.Buses - Number of Persons - Minor Injured
30.Other non-motorized vehicle (E-rickshaw etc.) - Number of Road Accidents
31.Other non-motorized vehicle (E-rickshaw etc.) - Number of Persons – Killed

32.Other non-motorized vehicle (E-rickshaw etc.) - Number of Persons - Grievously Injured
33.Other non-motorized vehicle (E-rickshaw etc.) - Number of Persons - Minor Injured
34.Others - Number of Road Accidents
35.Others - Number of Persons – Killed
36.Others - Number of Persons - Grievously Injured
37.Others - Number of Persons - Minor Injured
38.Total - Number of Road Accidents
39.Total - Number of Persons – Killed
40.Total - Number of Persons - Grievously Injured
41.Total - Number of Persons - Minor Injured

Connect Data with Qlik Sense:

To connect data with Qlik Sense, you have multiple options:

- ✓ **Create a new data connection:** You can create a new data connection by using the data manager or the data load editor. This allows you to select data from various sources such as databases, social media data, local files, remote files, and web files.

- ✓ **Data connection types:** Qlik Sense supports various data connection types, including attached files, database connectors (available in Qlik Sense Enterprise only), and other connectors that can be added. Each data connection type has specific settings that need to be configured.

- ✓ **The way I connect to Data with Qlik sense**:

● Certainly! One method to connect data with Qlik Sense is by creating a new data connection using the data manager. Here's how you can do it:

○ Open your Qlik Sense app and navigate to the data manager.

○ In the data manager, click on the "Add data" button.

○ A dialog box will appear with various options to select your data source. Choose the appropriate option based on where your data is 18 stored (e.g., database, local file, web file, etc.).

○ Follow the prompts to provide the necessary details for your data source, such as connection settings, authentication credentials, and file paths.

○ Once you have configured the data connection, you can preview the data and make any necessary transformations or associations.

○ Finally, click on the "Load data" button to load the data into your Qlik Sense app.

By creating a new data connection in the data manager, you can easily select and load data from the sources you commonly use. Remember, this is just one method, and there are other ways to connect data with Qlik Sense depending on your specific requirements.

Data Preparation:

Here the way to prepare the dataset in step by step:

◎ Dataset link: https://www.kaggle.com/datasets/aryakittukrishnasai/roadaccidents-in-india ◎ Firstly login into Qlik snese cloud.

◎ The Home page of Qlik data analytics will displayed.

◎ Next follow this this process:

- Click on "+ add new" .
- drop down list appear select "New Analytics App".
- A form will appear give the name of app as "Accident Data Analysis App" and keep remaining as it is
- click on create.
- Then you will redirect into newly created App.
- There you see "Files and Other Resources" > click it.
- Now Drag and drop all 9 datasets into qlik sense one by one.
- After adding one dataset you will redirect to Data Manager.
- Later all datasets are loaded then click on "Apply All". To combine to one.
- If you want to change the dataset name or other you can go to associate table for updation.
    - Here I changed the dataset names as
        - RA2019_A24.csv - Traffic Control Type.csv
        - RA2019_A25.csv - Weather.csv
        - RA2019_A26.csv - Accidents - Severity and Vehicles.csv
        - RA2019_A29.csv - Road Users Killed - Gender.csv
        - RA2019_A29a.csv - Pedestrians killed – Impacting vehicles.csv
        - RA2019_A29c.csv - Killed on Two Wheelers - Impacting vehicles.csv
        - RA2019_A32.csv - Pedestrians.csv
        - RA2019_A33.csv - Pedestrians killed.csv
        - RA2019_A35.csv - Causes.csv
- make sure that after any updation or modification your dataset you will click "Load Data" compalsary.
- Then your dataset is ready to visualization.

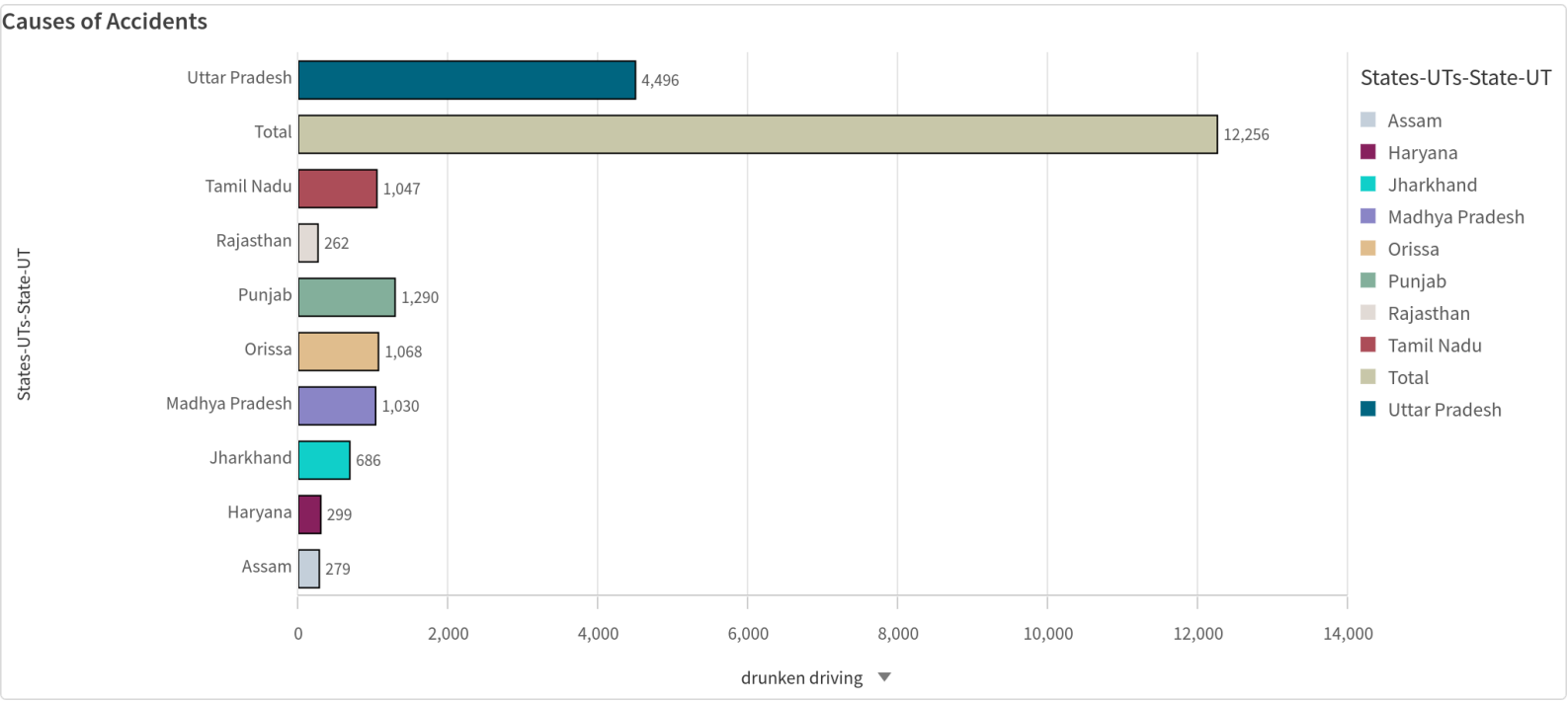
Data Visualization

Data visualization is the process of creating graphical representations of data to help people understand information. The goal of data visualization is to make complex data sets more accessible, intuitive, and easier to interpret. By using visual elements such as charts, graphs, and maps, data visualization can help people identify patterns, trends, and outliers quickly in the data.

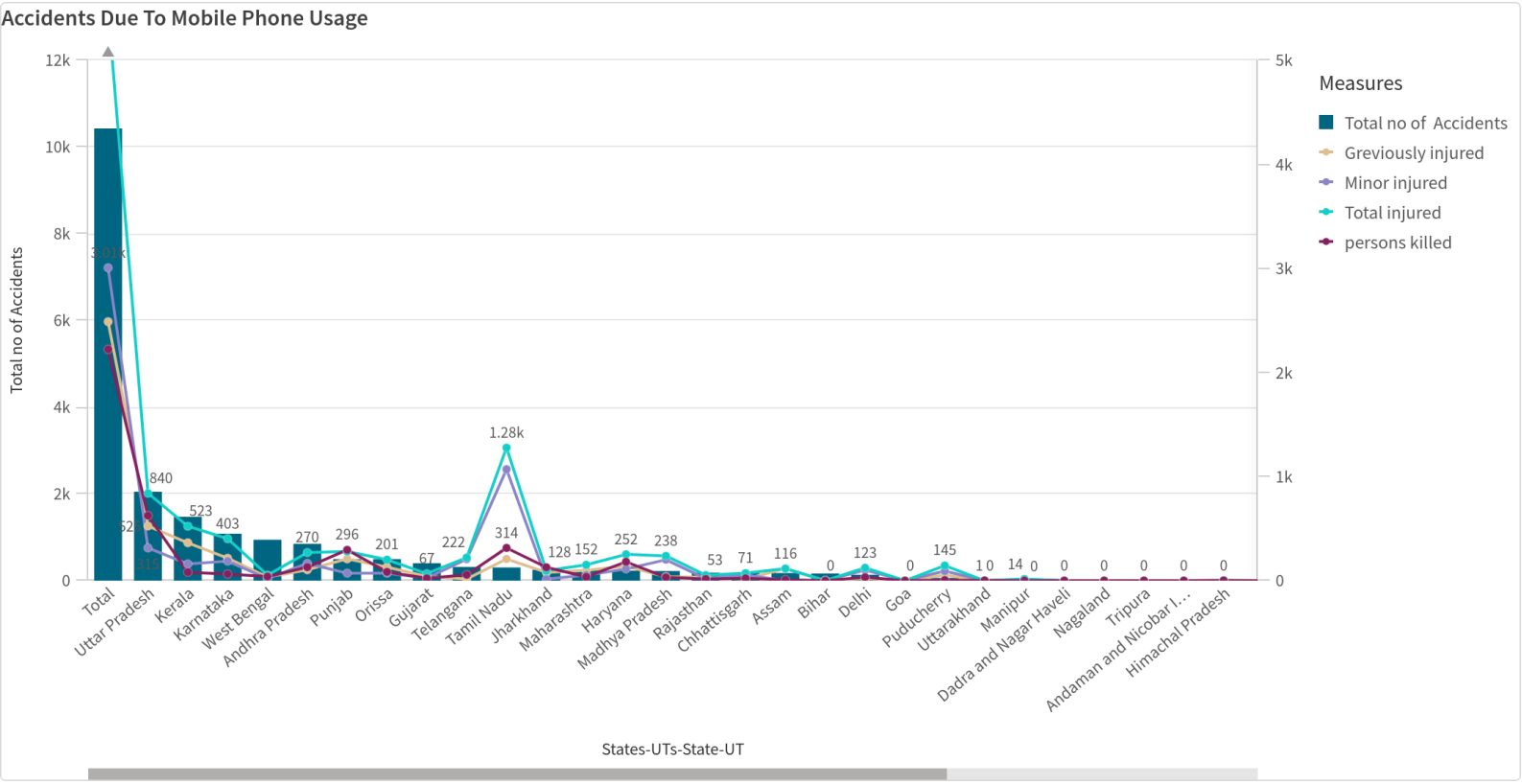
Number Of Unique Visualizations

The number of unique visualizations that can be created with a given dataset. Some common types of visualizations that can be used to analyse include bar charts, line charts, heat maps, scatter plots, pie charts, maps etc. These visualizations can be used to compare, track changes over time, show distribution, relationships between variables, breakdown of one category and much more.

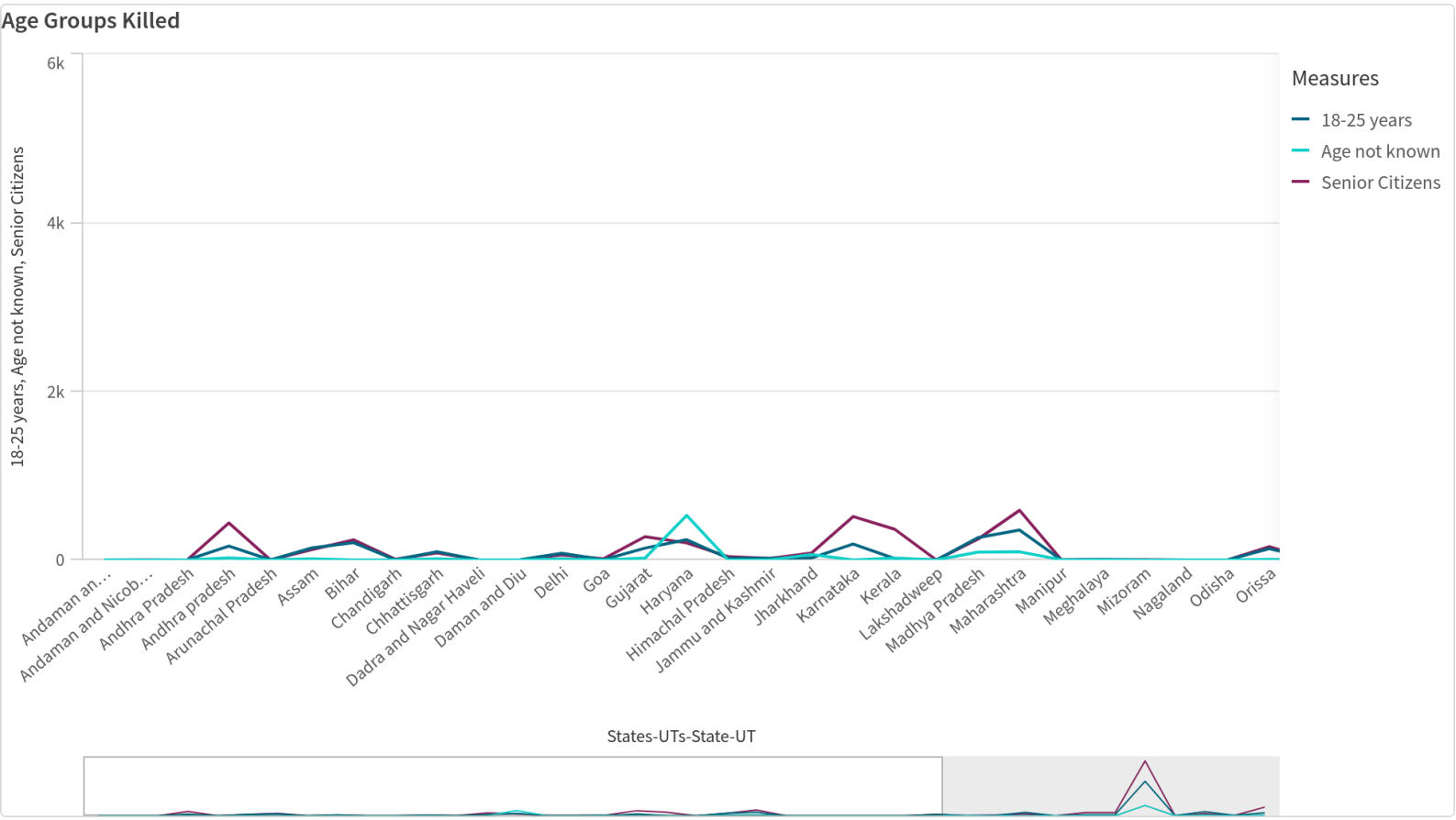
Visulazation 1: Accidents due to Drunken Driving



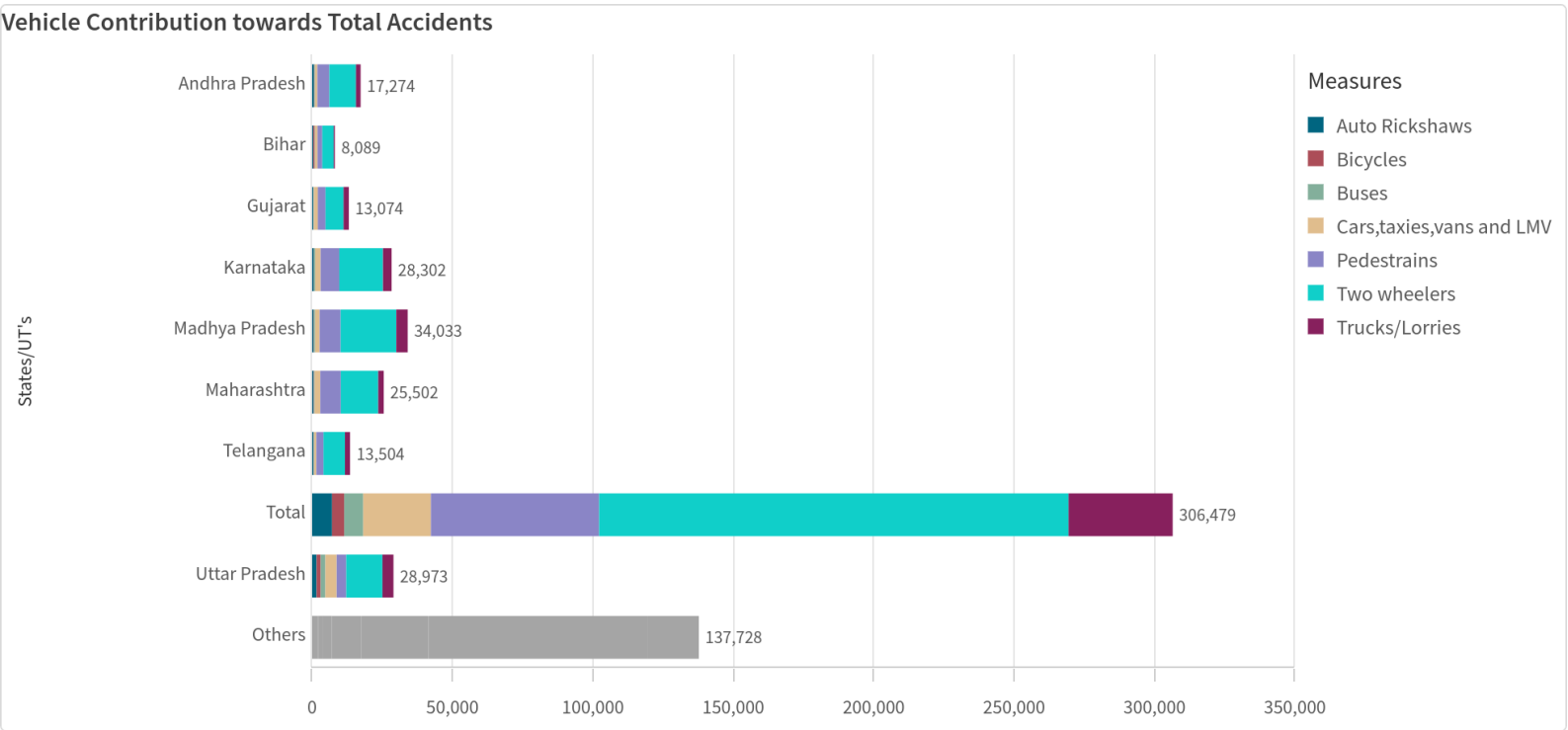
Visualization 2 : State-wise Mobile Phone Usage



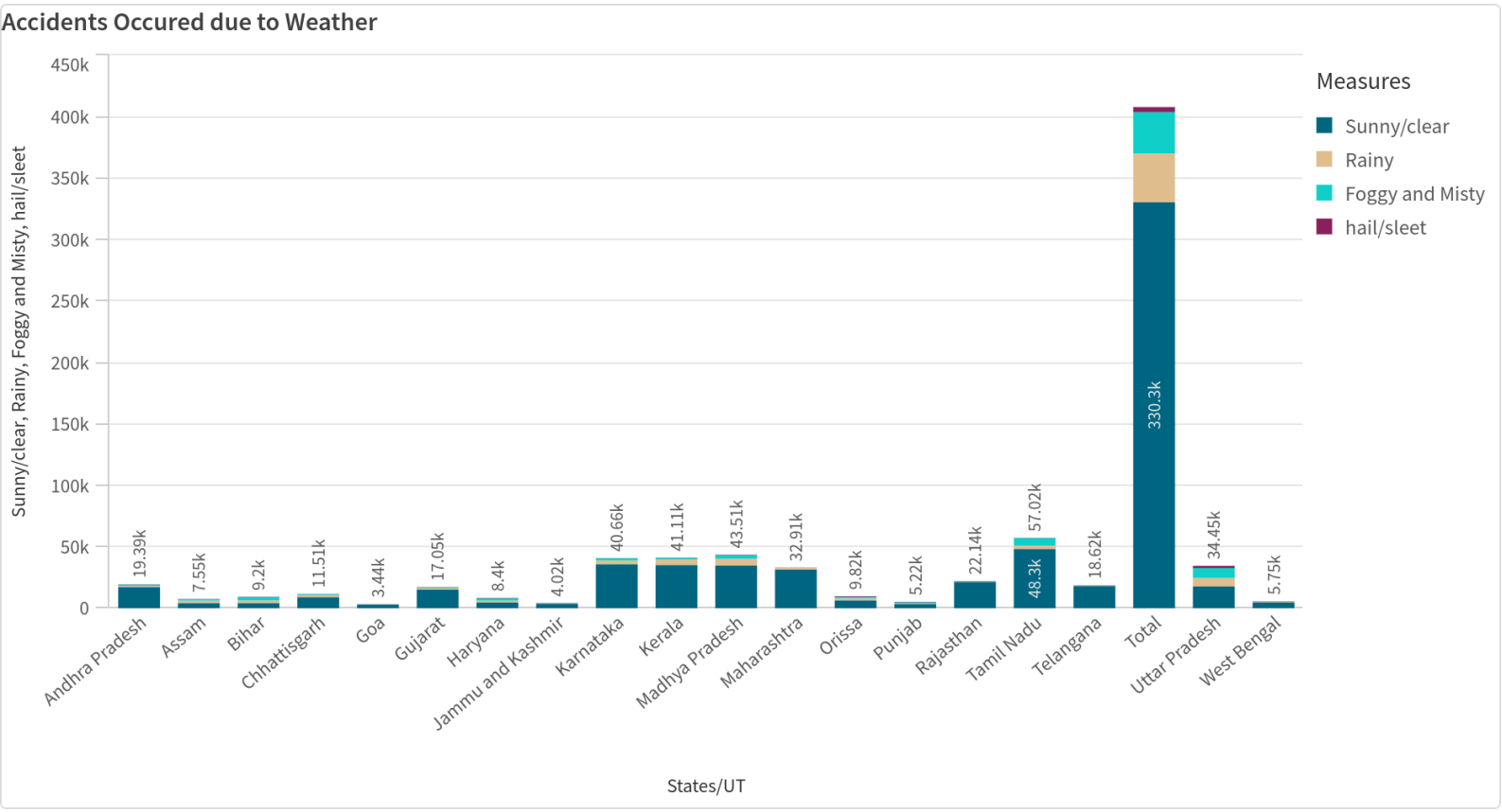
Visualization 3 : Pedestrians Killed: Age groups



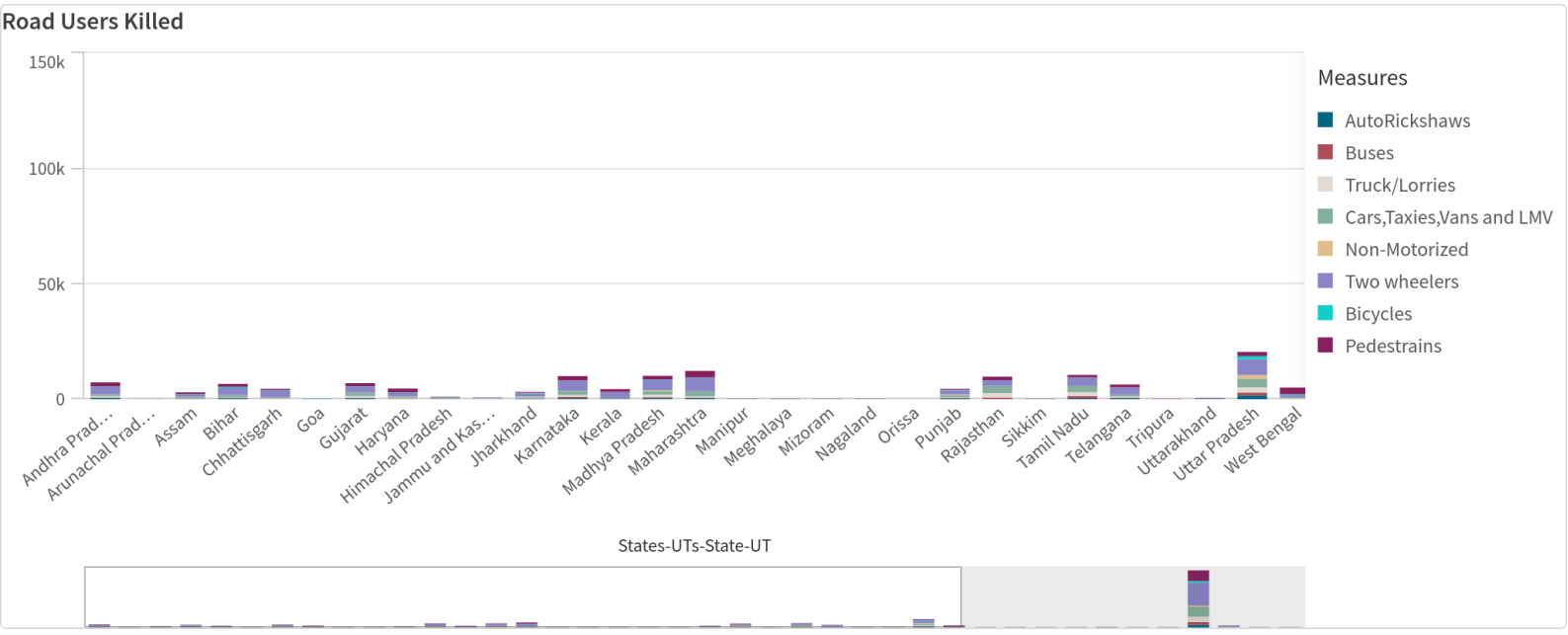
Visualization 4 : Vehicle Contribution towards Total Accidents



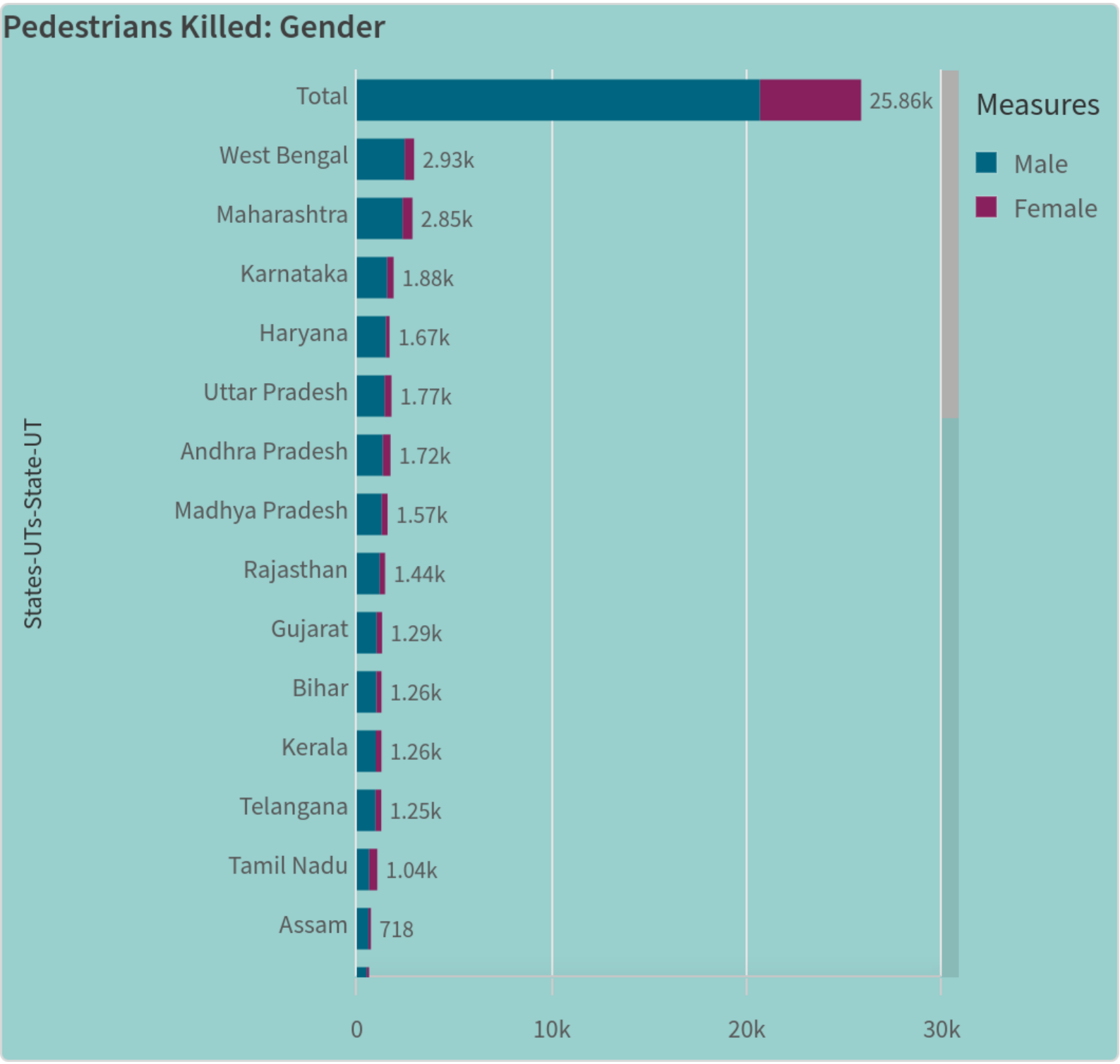
Visualization 5 : Accidents by Weather Type



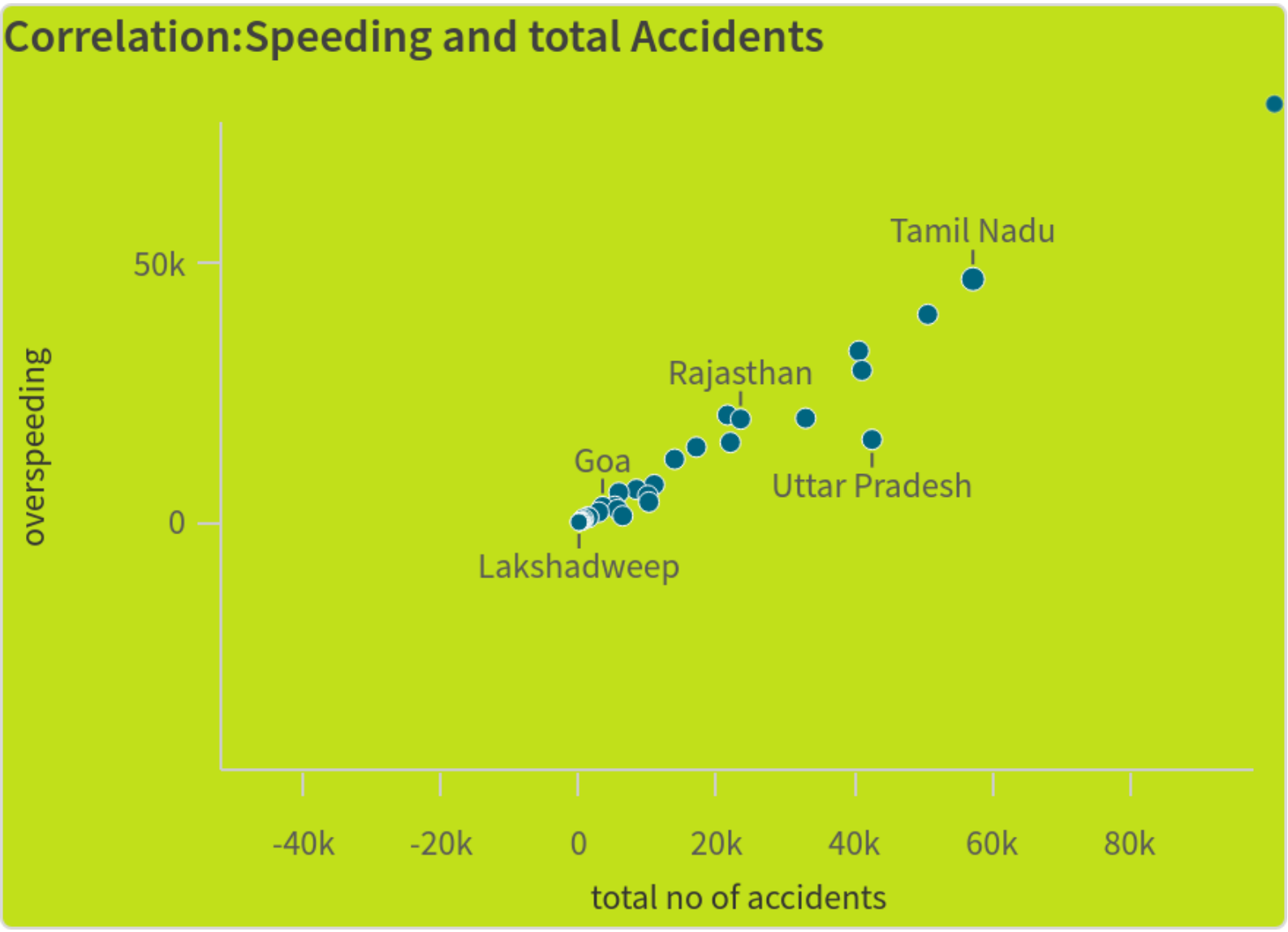
Visualization 6: Road Users Killed: Vehicle Distribution



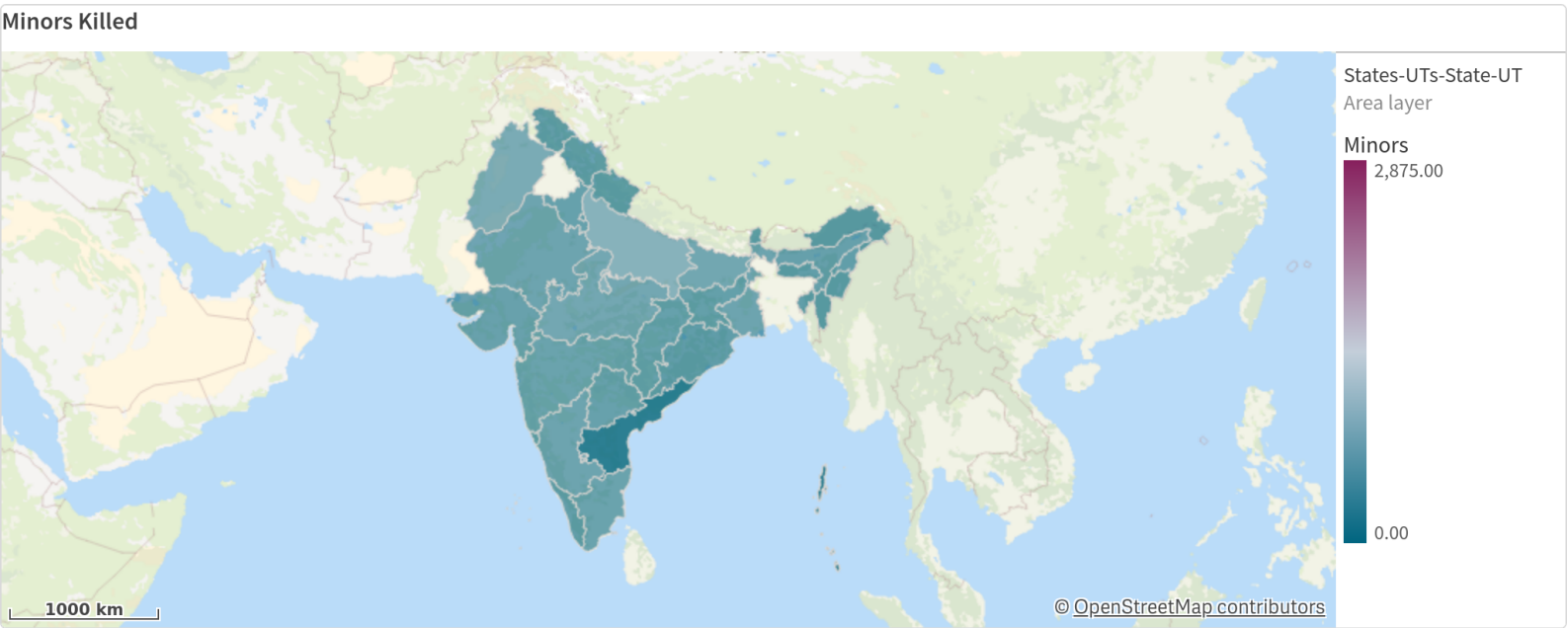
Visualization 7 : Pedestrians Killed: Gender



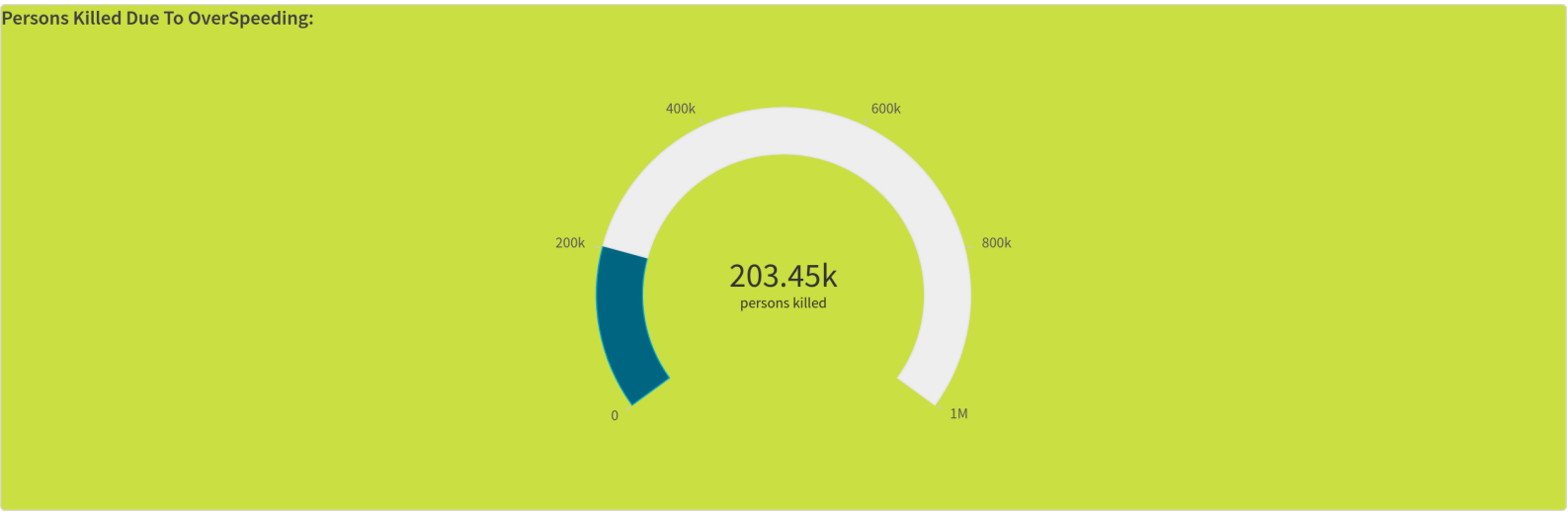
Visualization 8 : Correlation - Speeding and Number of accidents



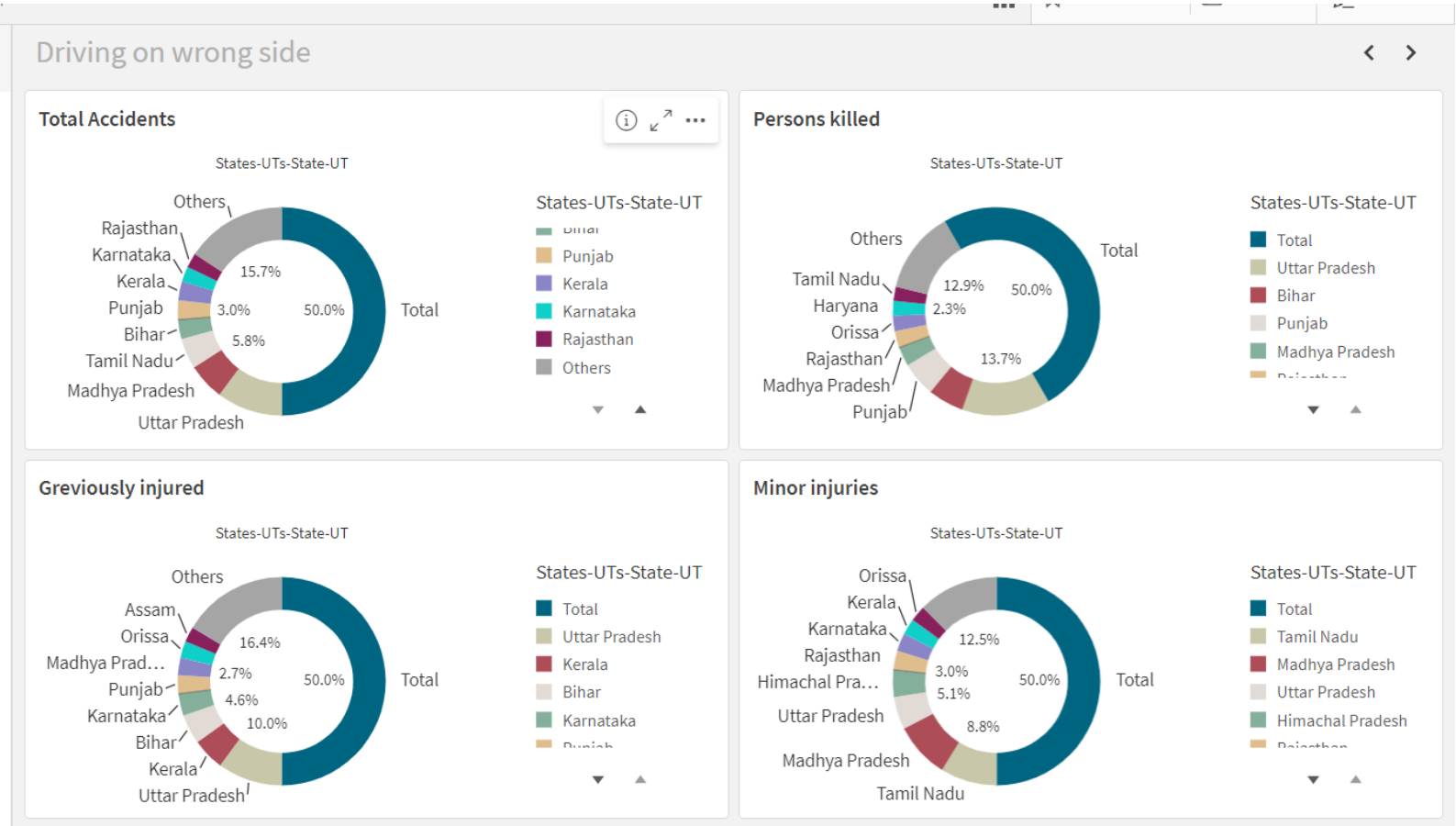
Visualization 9 : Minors Injured across the country



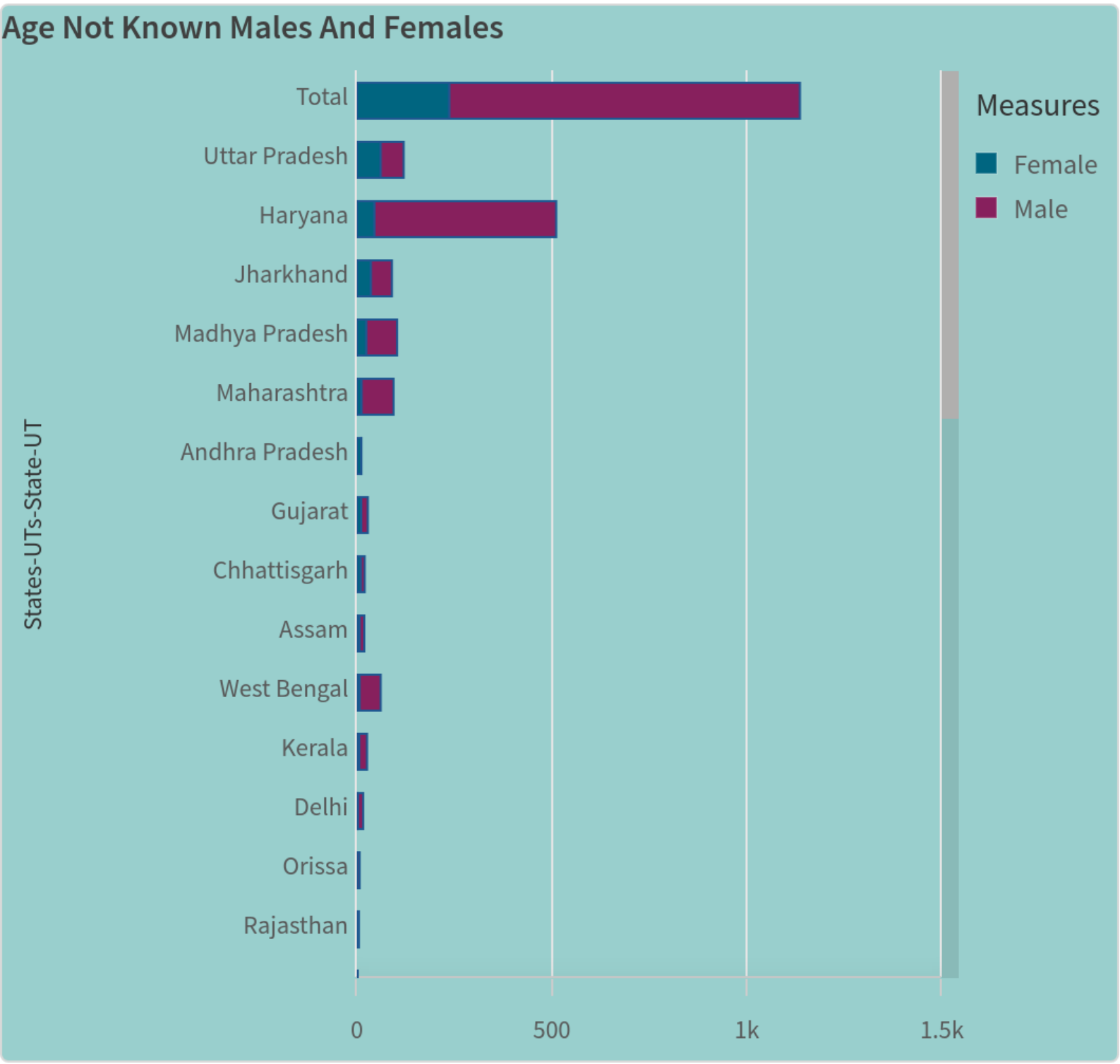
Visualization 10 : Persons Killed Due To Overspeeding



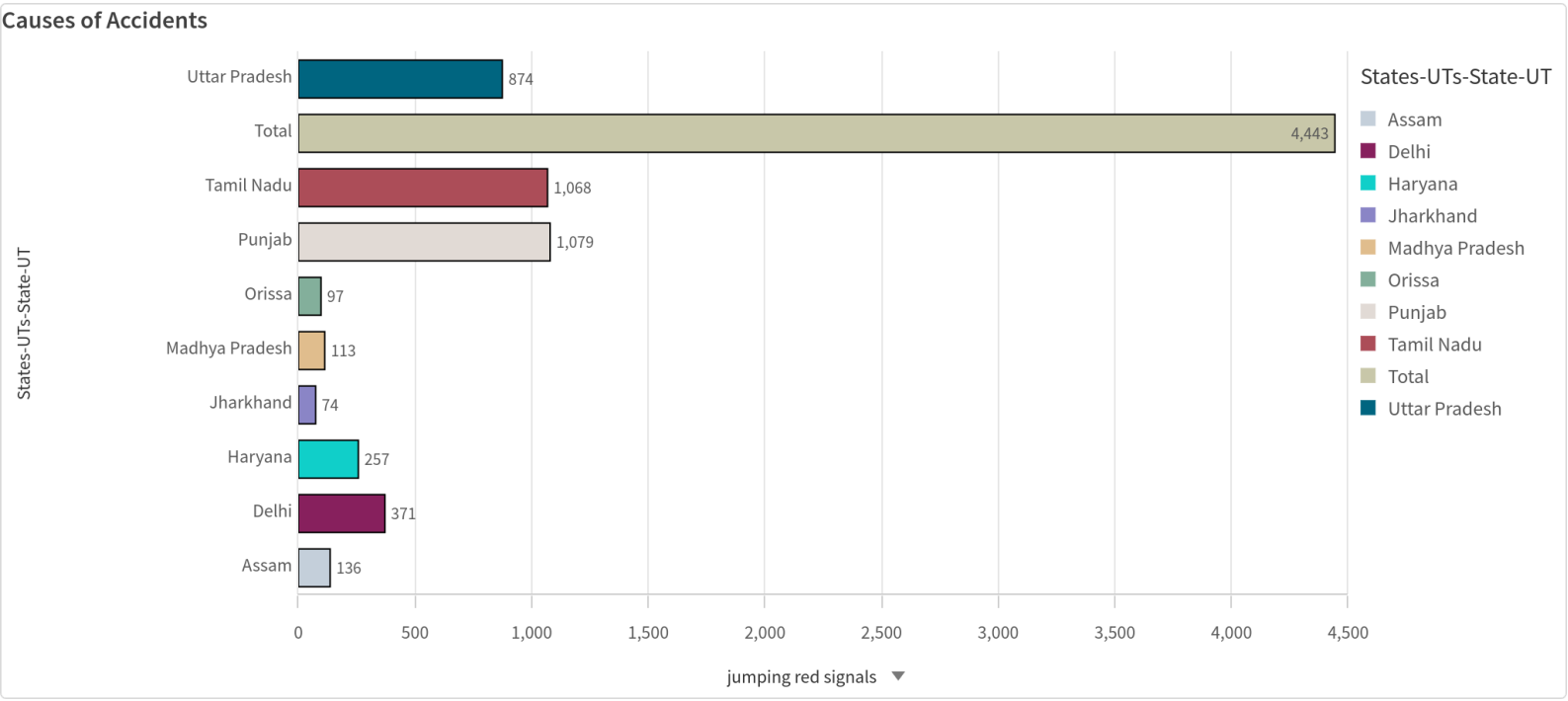
Visualization 11 : Driving On Wrong Sides



Visualization 12 : Age Not Known Males And Females



Visualization 13 : Jumping Red Signals

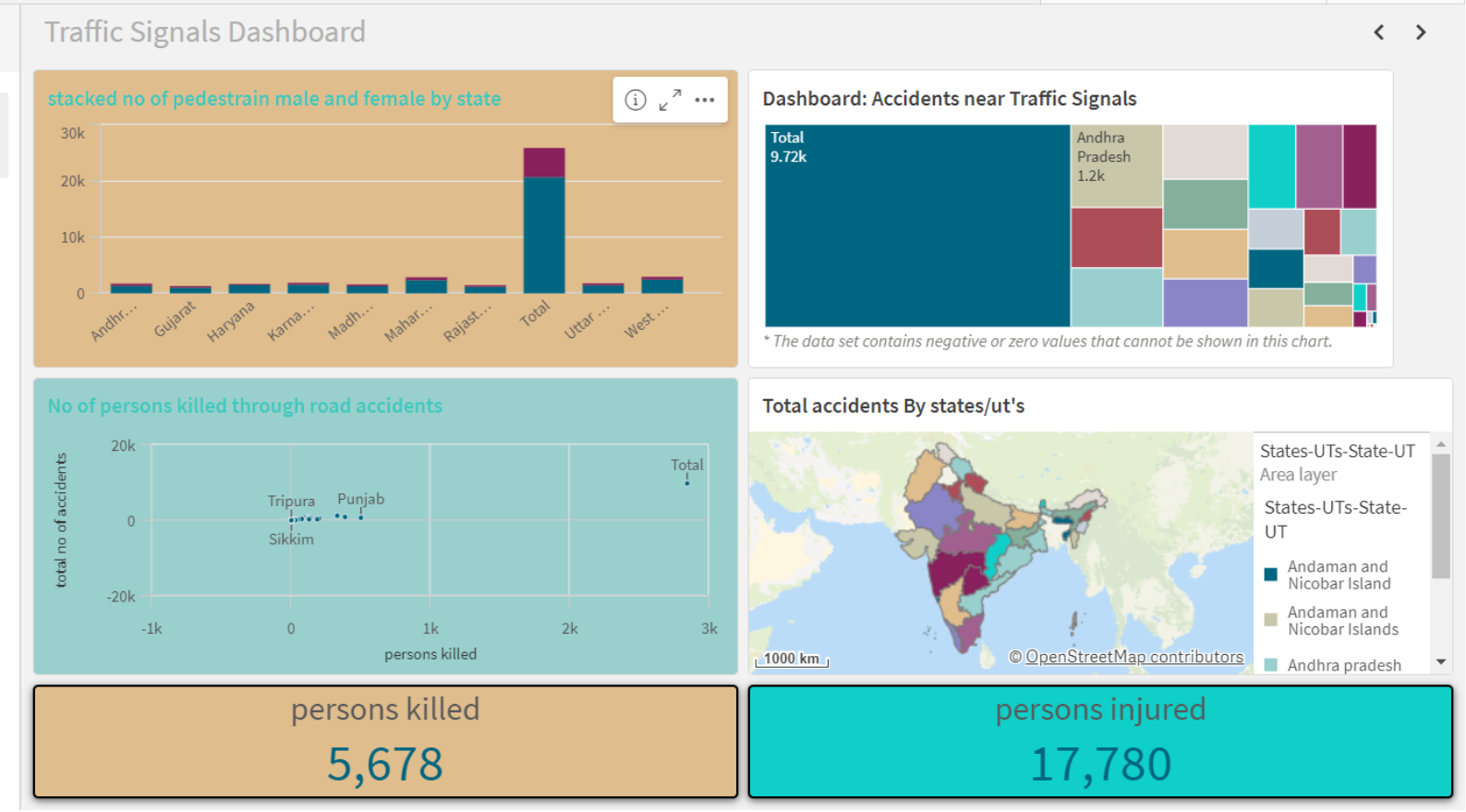


Dashboard

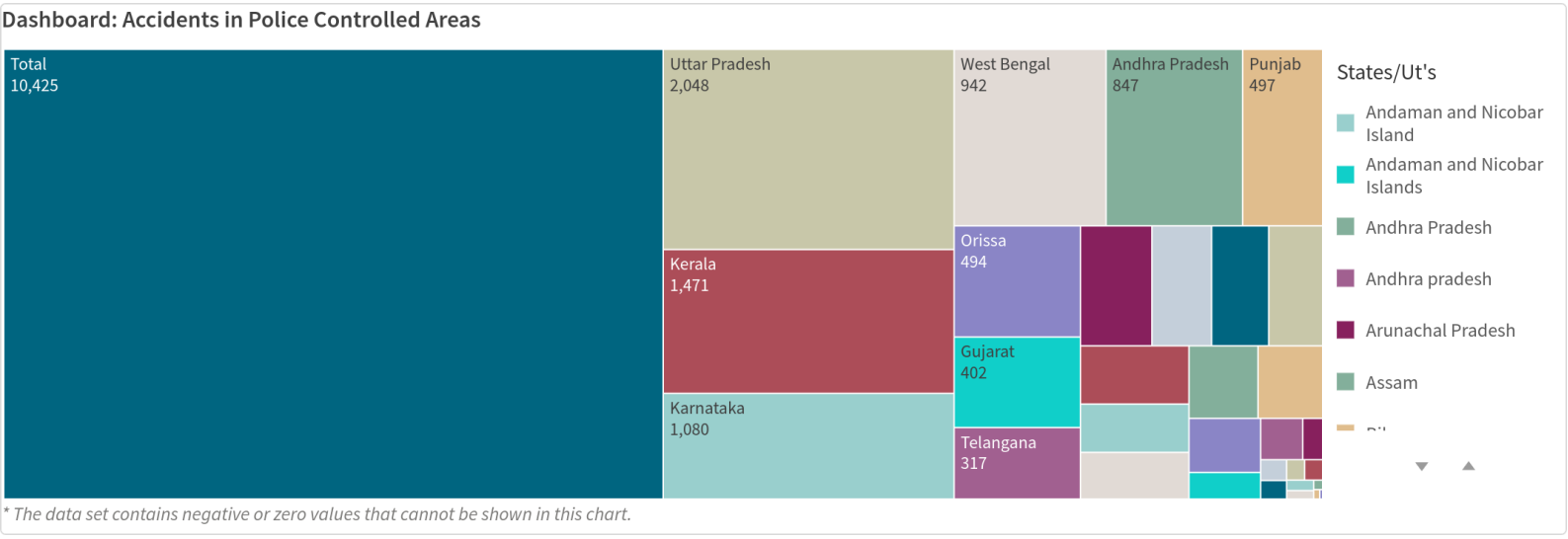
A dashboard is a graphical user interface (GUI) that displays information and data in an organized and easy-to-read format. Dashboards are often used to provide real time monitoring and analysis of data.

They are typically designed for a specific purpose or use case. Dashboards can be used in a variety of settings, such as business, finance, manufacturing, healthcare, and many other industries. They can be used to track key performance indicators (KPIs), monitor performance metrics, and display data in the form of charts, graphs, and tables.

Traffic Signals dashboard:



Reactive dashboard:



Let's see the details of the **Traffic signals Dashboard** shown in above dashboard:

1. Key Metrics:
    - Total Accidents: 1.45 million
    - Total Injuries: 1.35 million
    - Total Kills: 490,400
    - Vehicles Involved: 7

2. Data Visualizations:

    - Stacked No of Pedestrian Female and Male by States (Bar Chart):
        - This chart displays the number of male and female pedestrians involved in accidents across different states.
        - The x-axis represents the states, and the y-axis shows the count (in thousands).

    - Number of Kills through Road Accidents (Scatter Plot):
        - This scatter plot likely shows age groups on the x-axis and the corresponding number of fatalities (kills) on the y-axis.

    - Total Accidents by States (U.S.) (Map Visualization):
        - The map color-codes states based on the total number of accidents. Darker shades indicate higher accident rates.

    - Total Accidents, Kills, and People using Mobile (Treemap Chart):
        - This treemap chart visually breaks down factors contributing to accidents. It likely includes sections related to mobile phone usage, total accidents, and fatalities.

3. Insights and Implications:
    - Policymakers can use this dashboard to identify high-risk areas and allocate resources accordingly.
    - Focusing on pedestrian safety, especially in states with higher pedestrian accidents, is crucial.
    - Analyzing traffic control effectiveness can lead to better road management.
    - Addressing mobile phone distractions may reduce accidents.

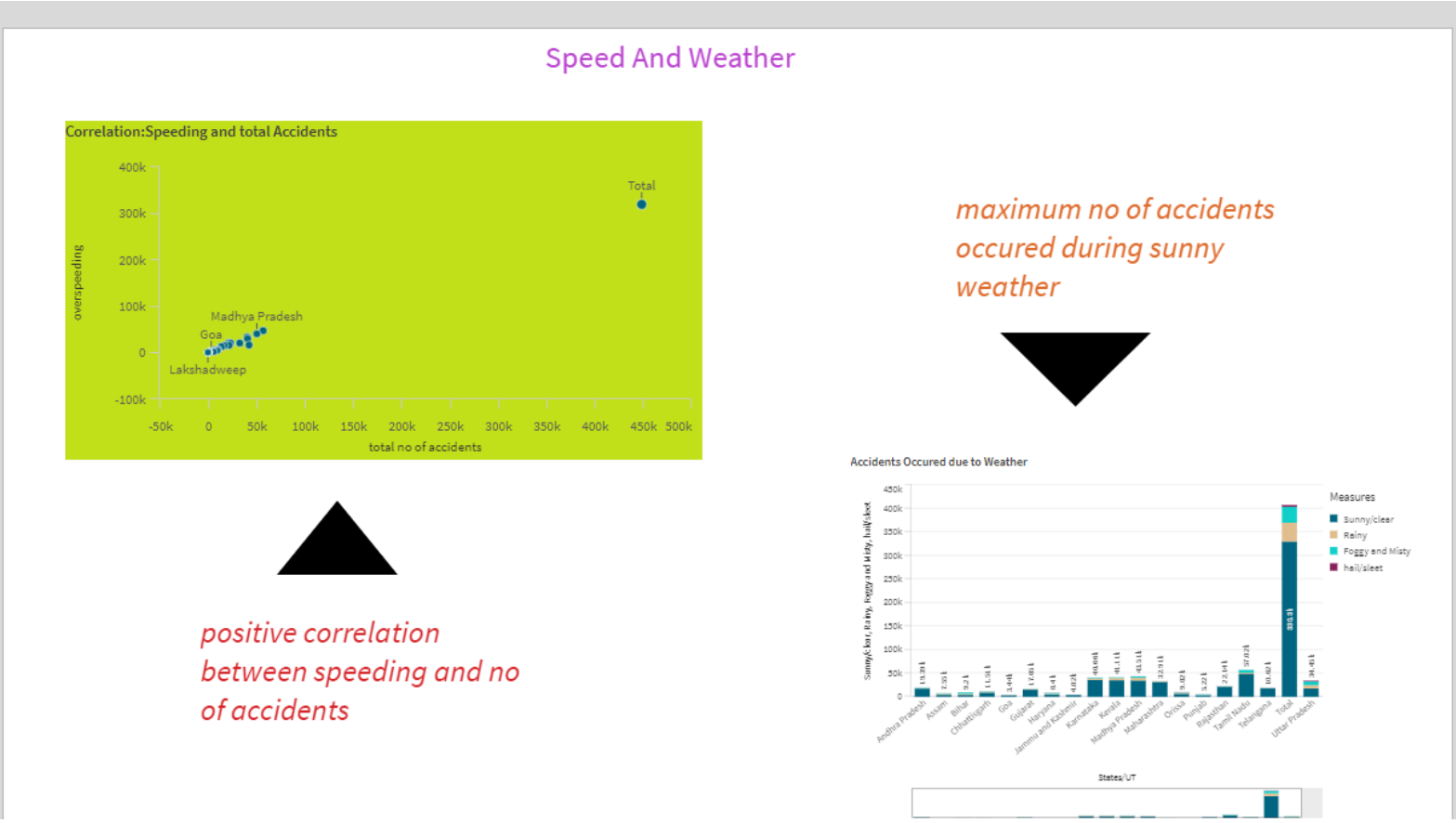
Dashboard Link:
https://btet0pvlqaibpvi.sg.qlikcloud.com/sense/app/dc998279-5755-4cba-8dbe-0539db0409a4/sheet/GmpxEp/state/analysis
https://btet0pvlqaibpvi.sg.qlikcloud.com/sense/app/dc998279-5755-4cba-8dbe-0539db0409a4/sheet/GmpxEp/state/analysis

Story:

Story Creation

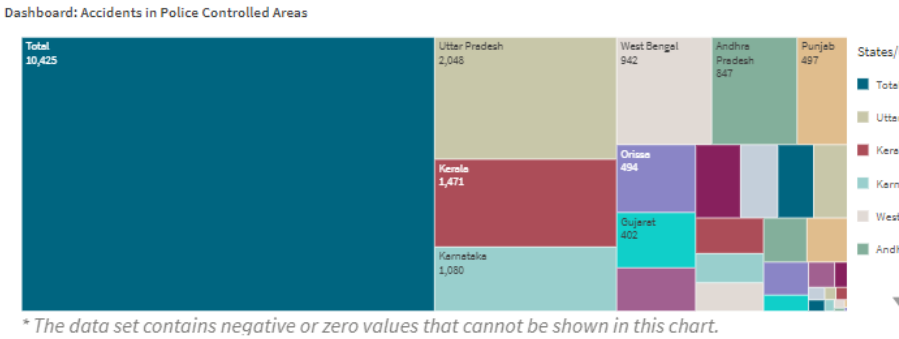
A data story is a way of presenting data and analysis in a narrative format, with the goal of making information more engaging and easier to understand. A data story typically includes a clear introduction that sets the stage and explains the context for the data, a body that presents the data and analysis in a logical and systematic way and a conclusion that summarizes the key findings and highlights their implications. Data stories can be told using a variety of media, such as reports, presentations, interactive visualizations and videos.

- ➤ Navigate to "Narrate Storytelling" to create.
- ➤ By default one blank sheet is appear.
- ➤ Start doing Storytelling from exsisting visualizations.
- ➤ To get exsisting visualization we use snapshot library for import.
- ➤ we can add text, paragraph, symbols etc.., for better understanding.
- ➤ Here is the Storytelling for Road safety Accidents in India



Persons Killed Due To OverSpeeding:

Statewise Distribution of Accidents in police controlled Areas



** The data set contains negative or zero values that cannot be shown in this chart.*

Total No of Accidents

police controlled:No of Accidents
20.85k

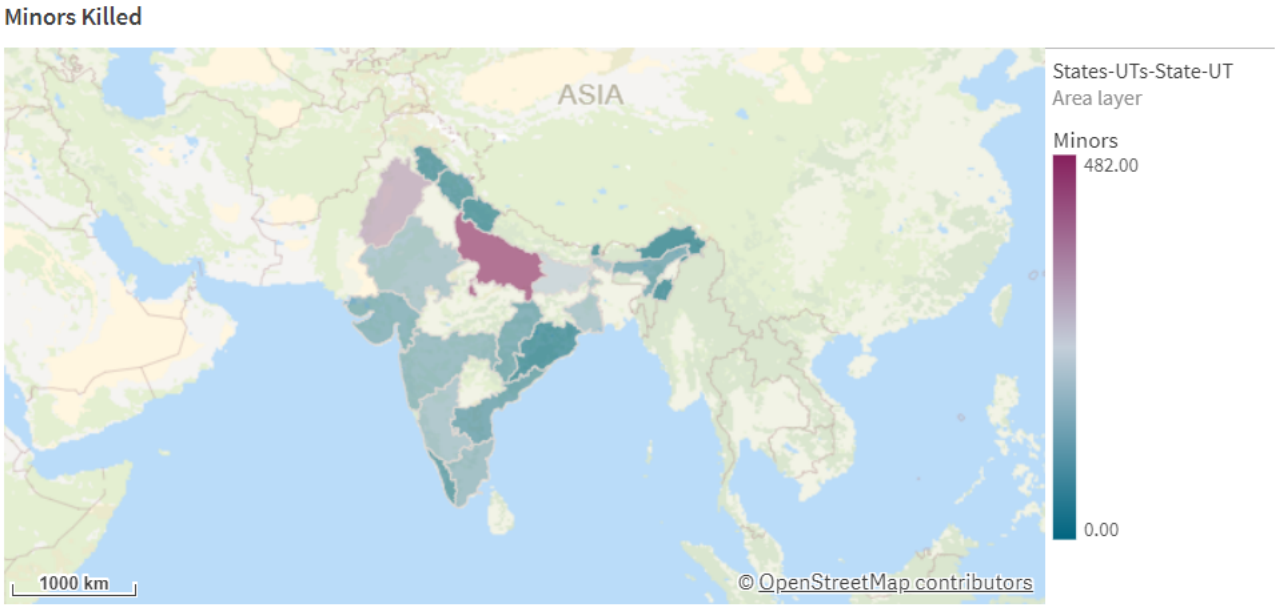
Persons injured

persons injured
18.51k

Persons Killed

persons killed
7k

Highest Numbers of Minors Injured: Uttar Pradesh and Punjab Respectively



Storytelling link:

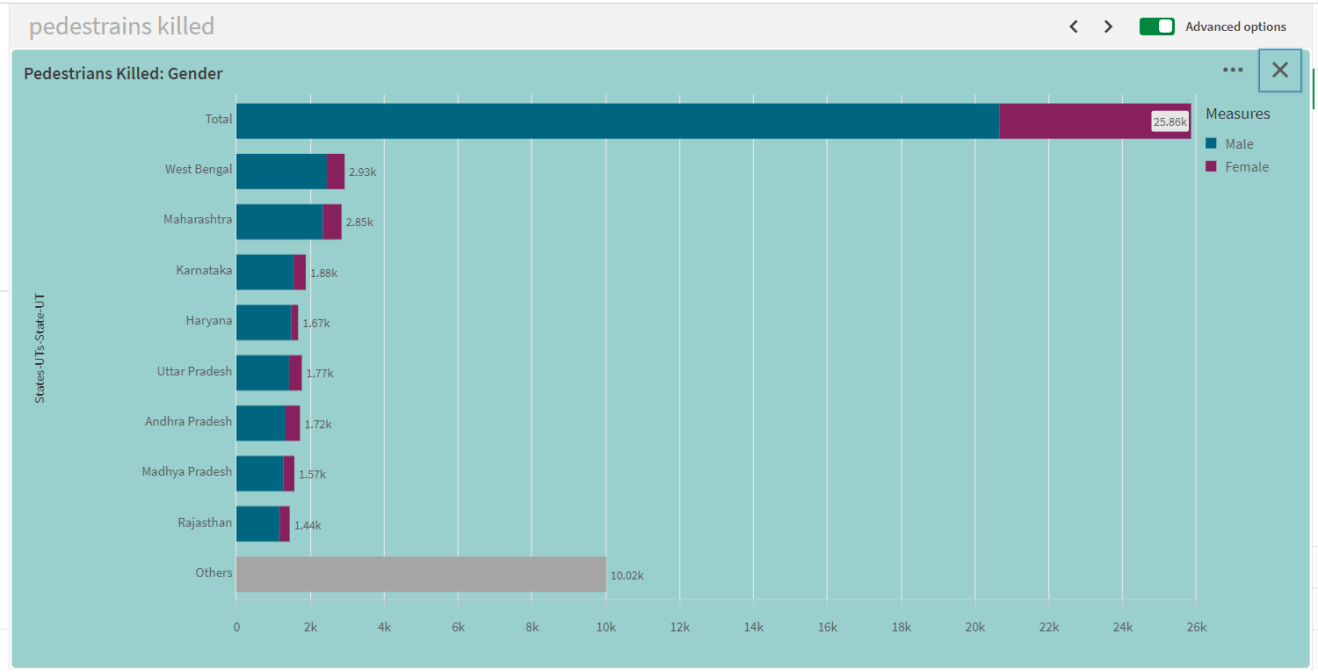
https://btet0pvlqaibpvi.sg.qlikcloud.com/sense/app/dc998279-5755-4cba-8dbe-0539db0409a4/story/duYRsQ/state/play/slide/qqTrR

Performance Testing

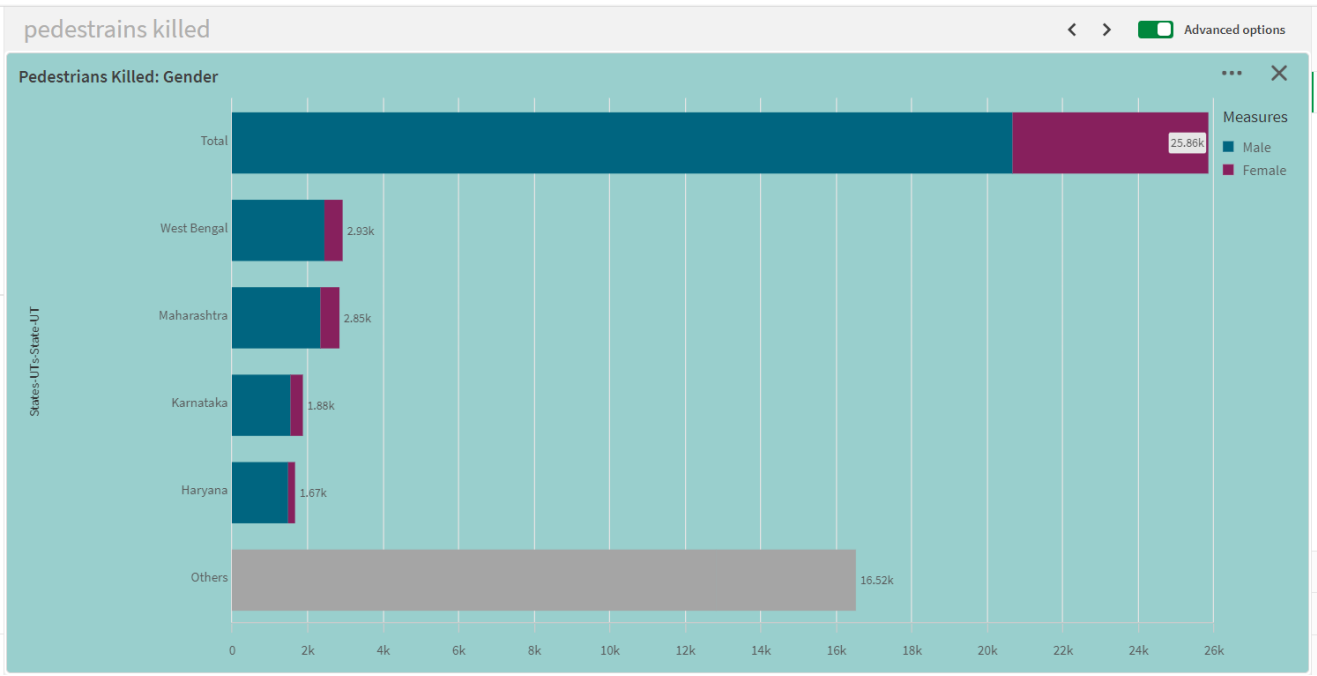
Application Of Data Filters

1. Here the one data filter which

a. first one fixed Number = 10

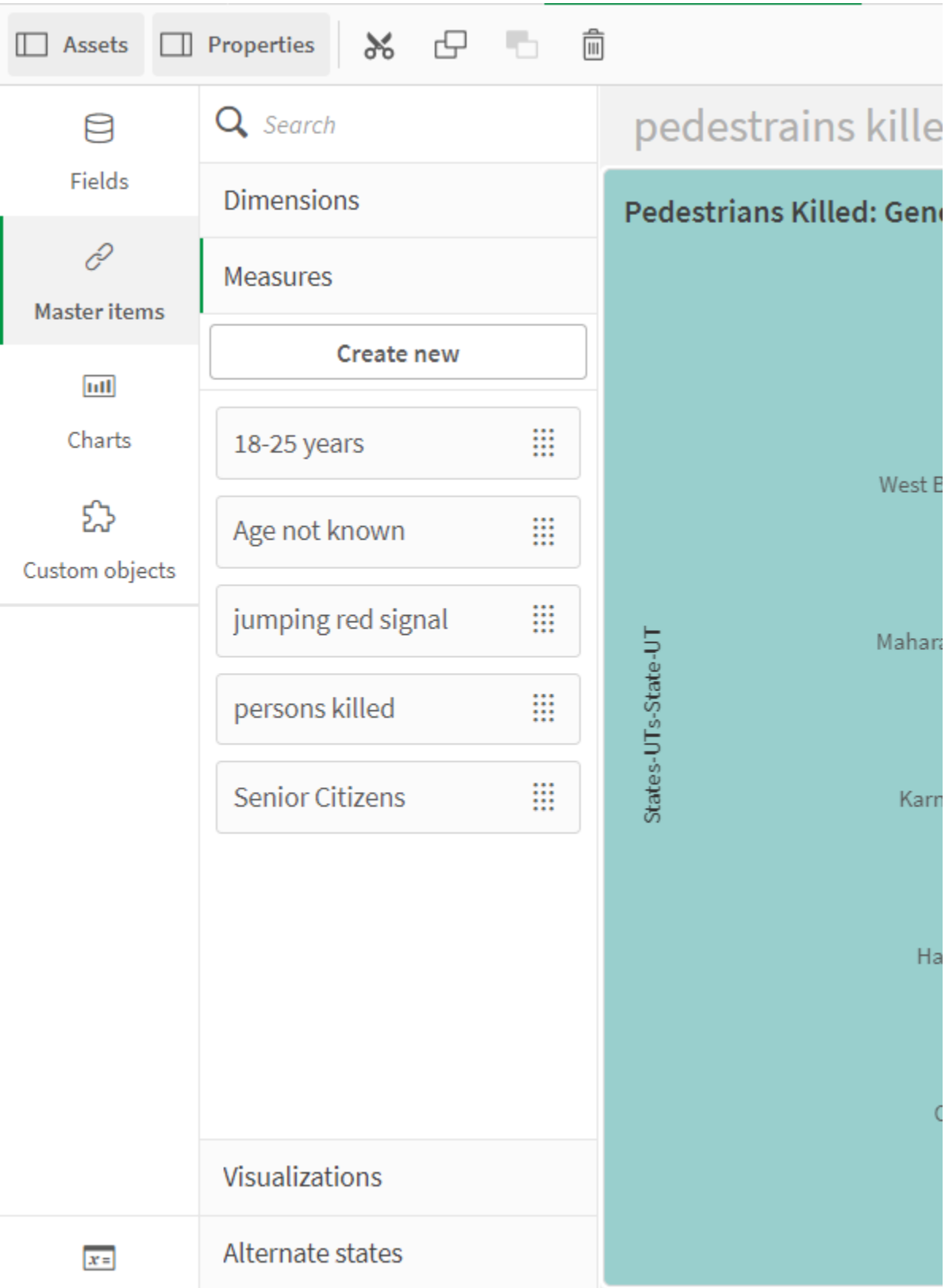


b. second fixed Number = 6

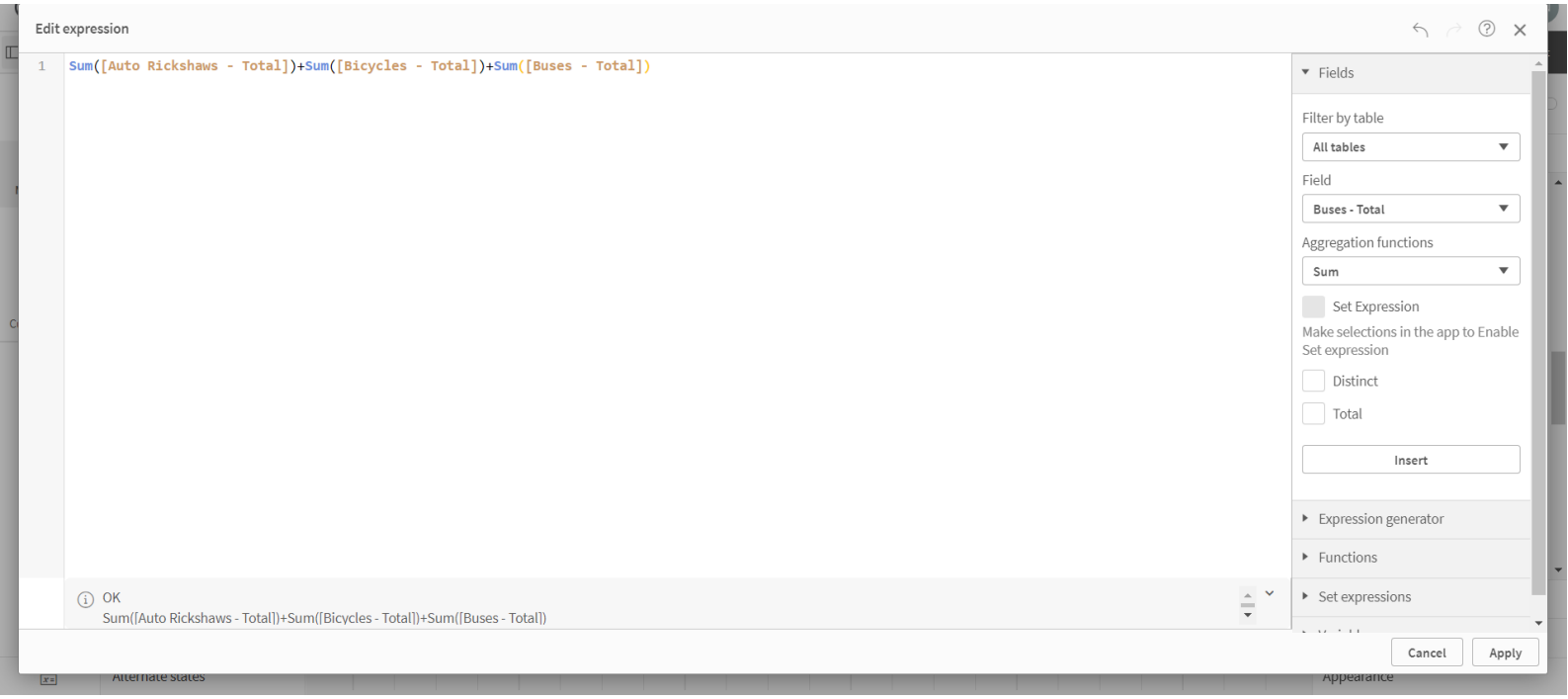


Use Of Master Items/Calculated Fields

1. Here we create measures and used for Visualization



2. Used expression



Number Of Graphs/ Visualizations

1. **Accidents due to Drunken Driving**
2. **State-wise Mobile Phone Usage**
3. **Pedestrians Killed: Age groups**
4. **Vehicle Contribution towards Total Accidents**
5. **Accidents by Weather Type**
6. **Road Users Killed: Vehicle Distribution**
7. **Pedestrians Killed: Gender**
8. **Correlation - Speeding and Number of accidents**
9. **Minors Injured across the country**
10. **Persons Killed Due To Overspeeding**
11. **Driving On Wrong Sides**
12. **Age Not Known Males And Females**
13. **Jumping Red Signals**