1. INTRODUCTION

1.1 Overview

Our project utilizes Qlik's data analytics to enhance road safety in India by analyzing diverse data sources including traffic reports, accident records, weather conditions, road infrastructure details, and demographic information. The primary objective is to identify patterns and key factors contributing to accidents. Qlik enables us to pinpoint accident hotspots by correlating data such as traffic volume, road conditions, and time of day, facilitating targeted interventions like enhanced monitoring, improved signage, and adjustments to speed limits. Additionally, we analyze historical accident data to uncover trends in accident types, seasonal variations, and driver behavior, guiding initiatives such as awareness campaigns, driver training programs, and policy reforms. Furthermore, predictive modeling using real-time data inputs such as weather forecasts and traffic flow patterns allows us to forecast potential accident scenarios, empowering authorities to implement preemptive safety measures and optimize resource deployment. Ultimately, our project aims to leverage data-driven insights to improve road safety measures, reduce accidents, and save lives across India.

1.2 Purpose

The analysis focuses on understanding who's affected by accidents, how and where accidents happen most, and what areas need the most attention. We're aiming to create easy-to-use, visually appealing dashboards that help us plan better and improve how things work. These insights will help us make smart choices, set up safer practices, and follow the rules properly. By using this information, we want to make sure everyone stays safer and reduce accidents overall.

1.3 Technical Architecture

- Problem Definition
- Data Collection
- Data Preparation
- Data Visualization
- Dashboard Development
- Storytelling
- Performance Testing
- Project Demonstration & Documentation

2. DEFINE PROBLEM / PROBLEM UNDERSTANDING

2.1 Specify the business problem

Technological advances in transportation have made distances shorter but have also increased risks to life. Each year, accidents cause loss of thousands of lives and serious injuries to millions in India. To address this, we're conducting a study using Qlik Sense, a data analytics tool, to analyze road safety and accident trends. This involves examining data on accident types, locations, causes, and factors influencing road safety. By using Qlik Sense's visualizations and insights, we aim to identify patterns and develop strategies to enhance road safety across the country.

2.2 Business requirements

The analysis aims to uncover insights about who's involved in accidents, where and why accidents happen, and areas needing attention. We'll create interactive dashboards that are visually engaging to help with planning and operational improvements. These insights will guide decisions, improve safety protocols, and ensure compliance with regulations effectively.

2.3 Literature Survey

A literature survey for the Road Safety and Accident Patterns analysis involves researching previous studies, articles, reports, and data related to accident analysis methods and findings. This includes exploring academic databases like PubMed, IEEE Xplore, Google Scholar, and institutional repositories. Government reports also offer valuable insights into recent developments in the field.

3. DATA COLLECTION

3.1 Collect the Dataset

3.2 Connect Data with Qlik Sense

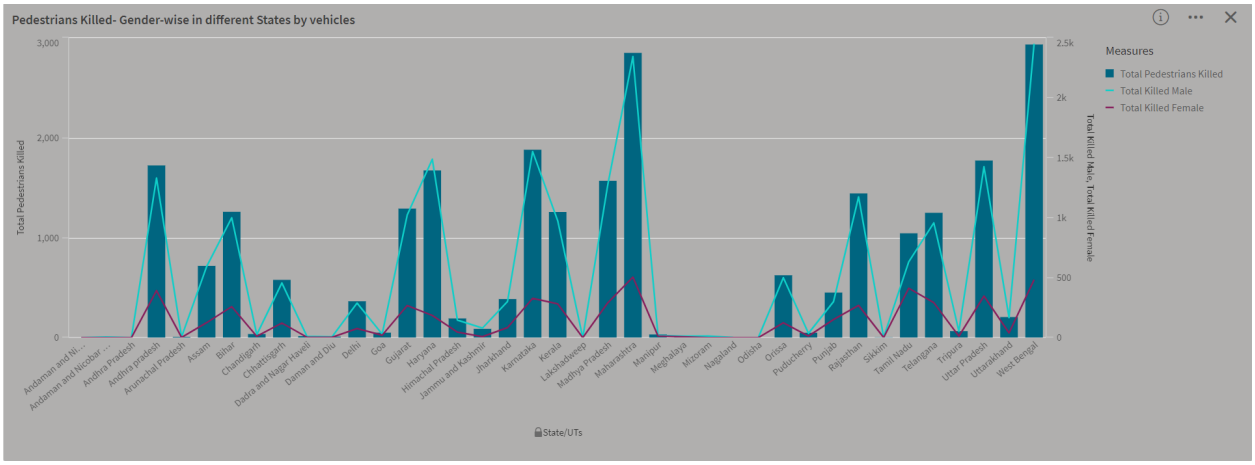
4. DATA PREPARATION

4.1 Prepare the Data for Visualizations

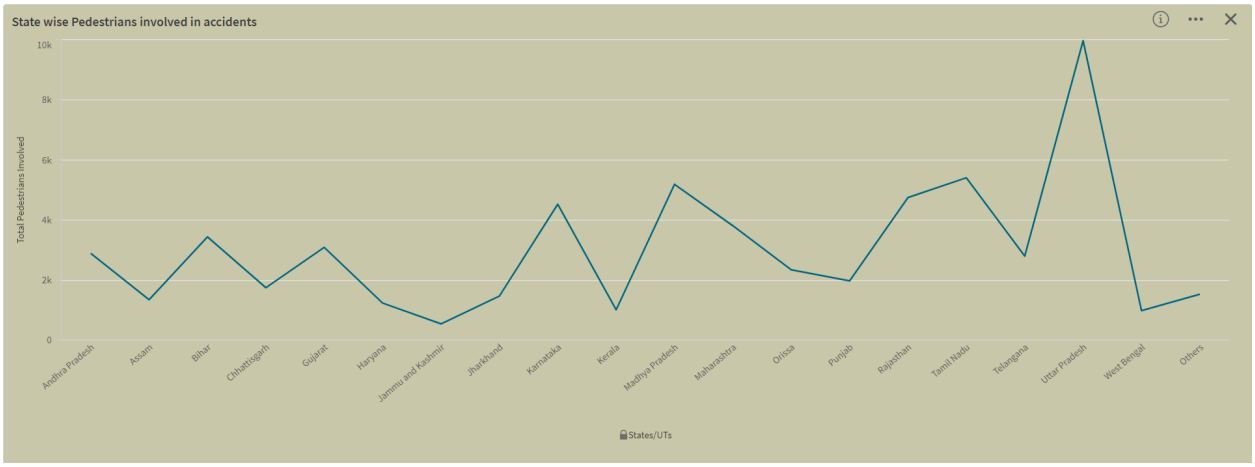
5. DATA VISUALIZATIONS

5.1 Visualizations

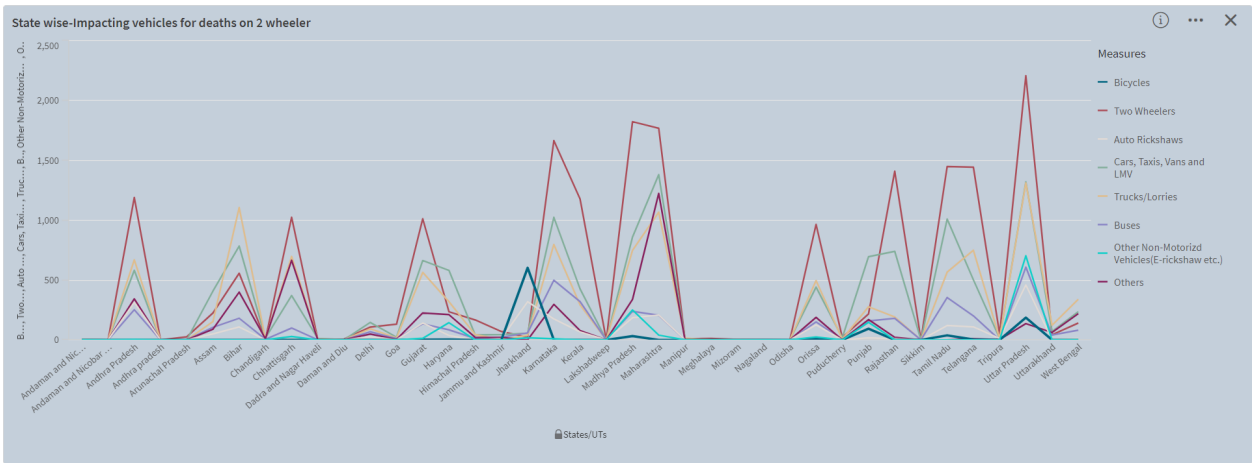
1.1 Pedestrians Killed- Gender-wise in different States by Vehicles



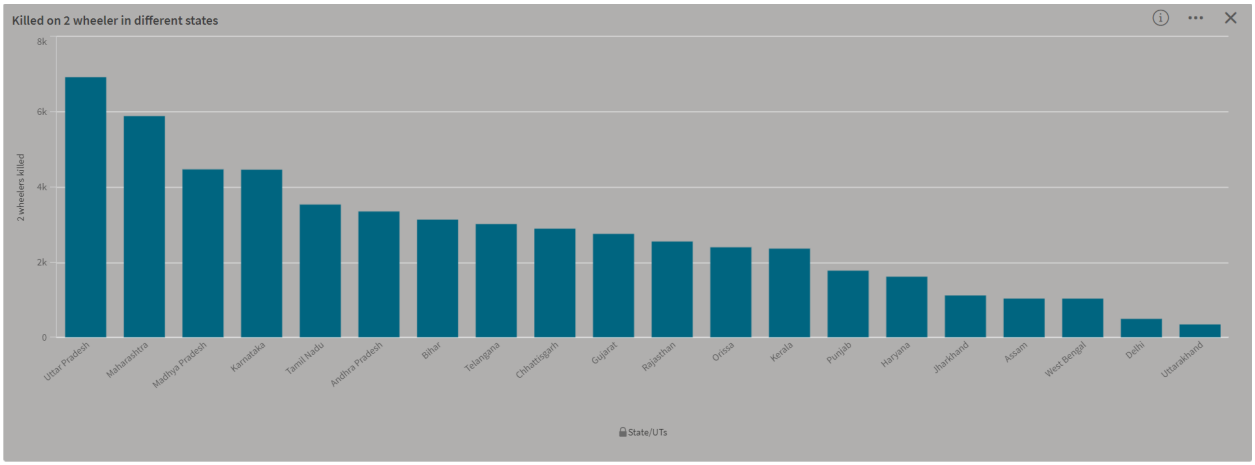
1.2 State wise Pedestrians involved in accidents



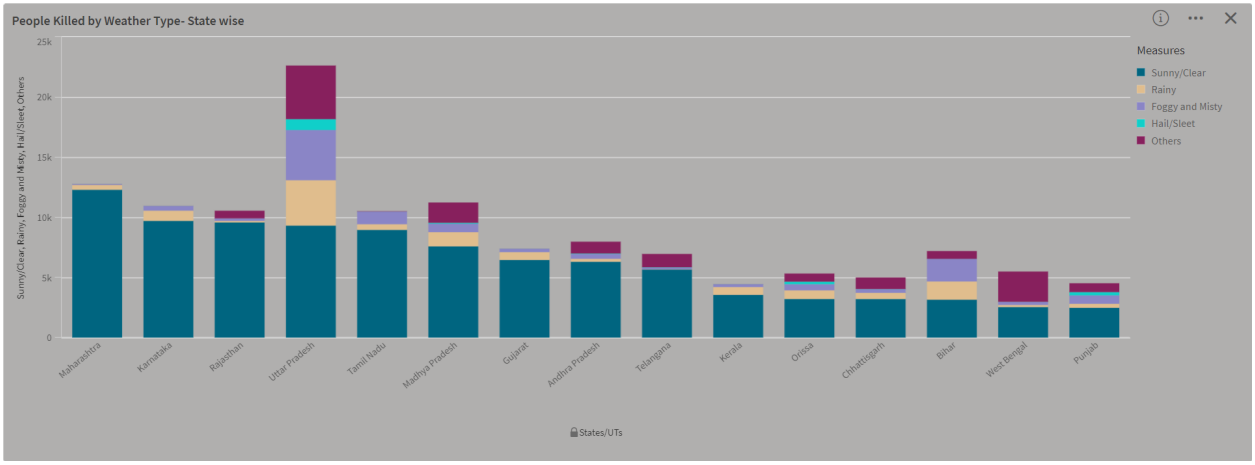
1.3 State wise- impacting vehicles for deaths on 2 wheelers



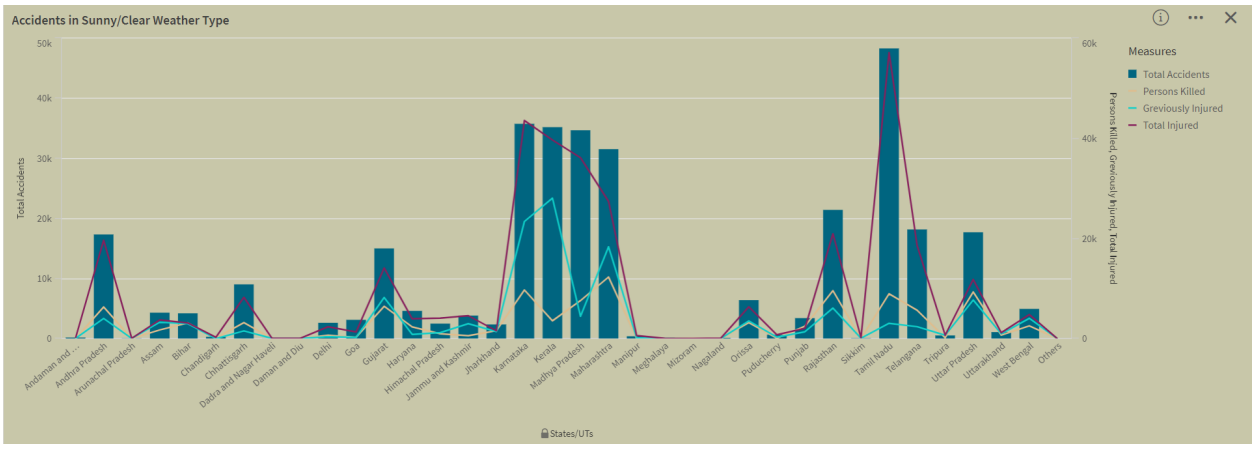
1.4 Killed on 2 wheeler in different states



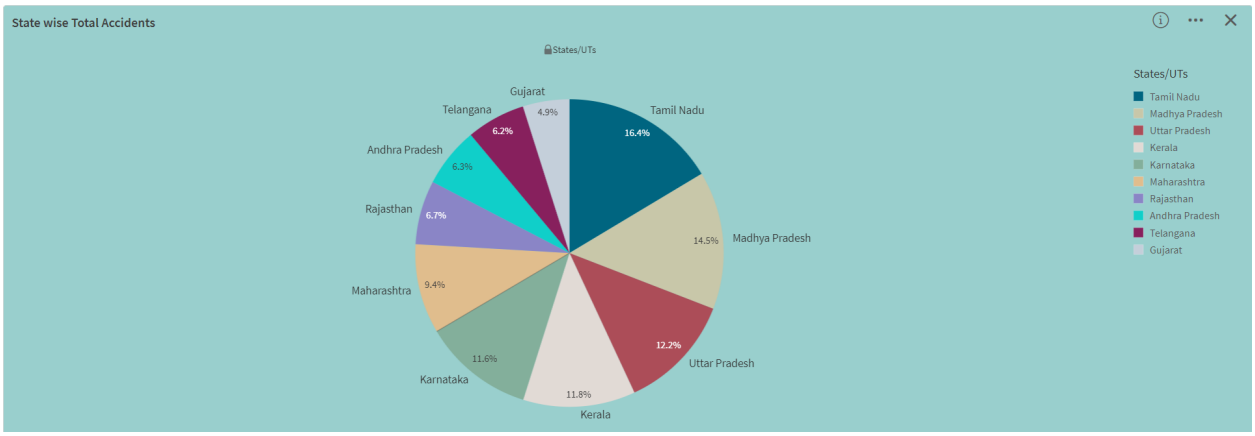
1.5 People killed be weather type-state wise



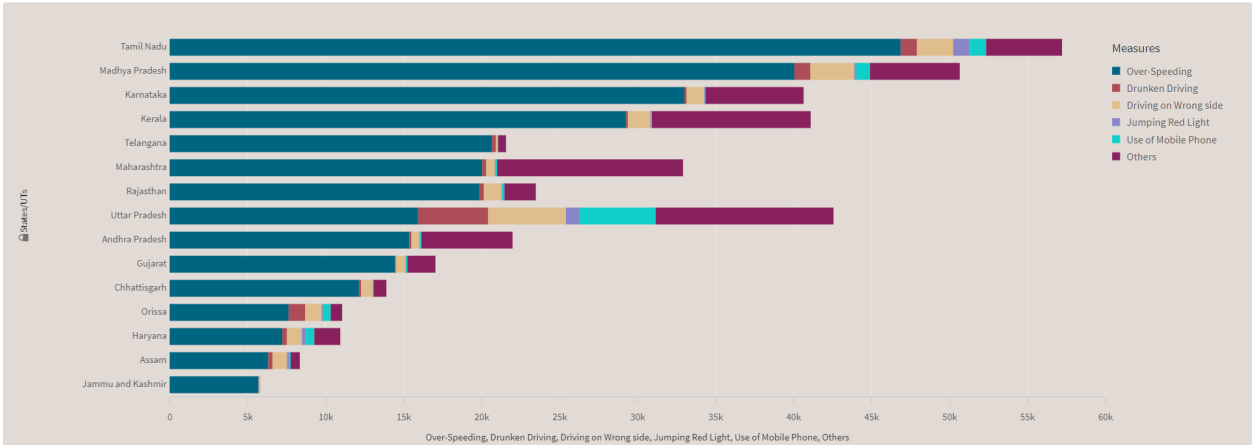
1.6 Accidents in Sunny/Clear Weather type



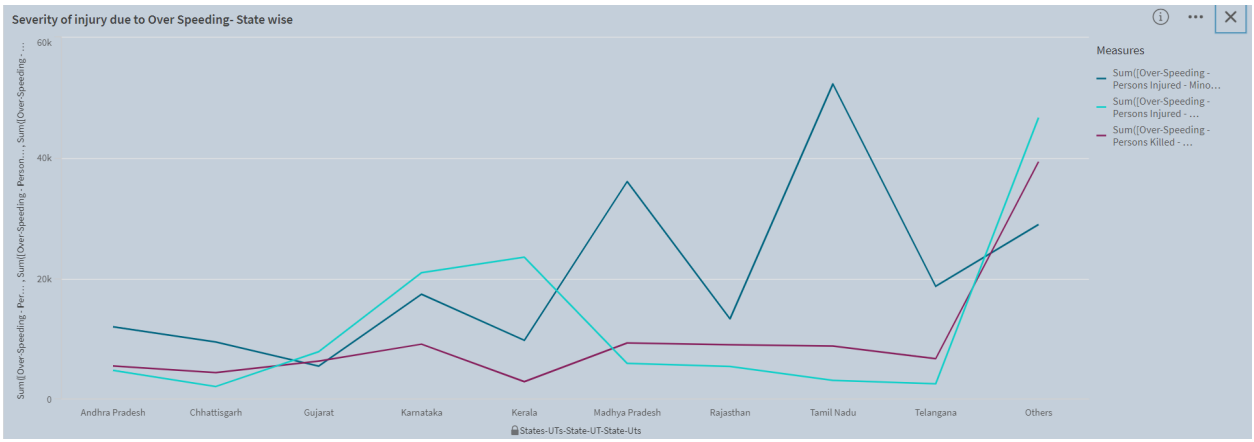
1.7 State wise Total Accidents



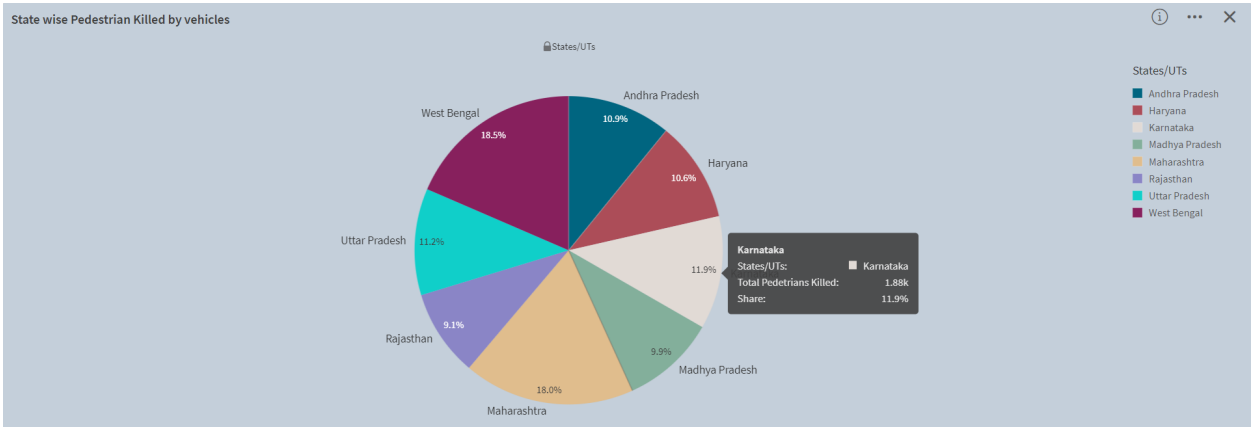
1.8 Causes of accidents in Different States



1.9 Severity of Injury due to Over Speeding- State wise



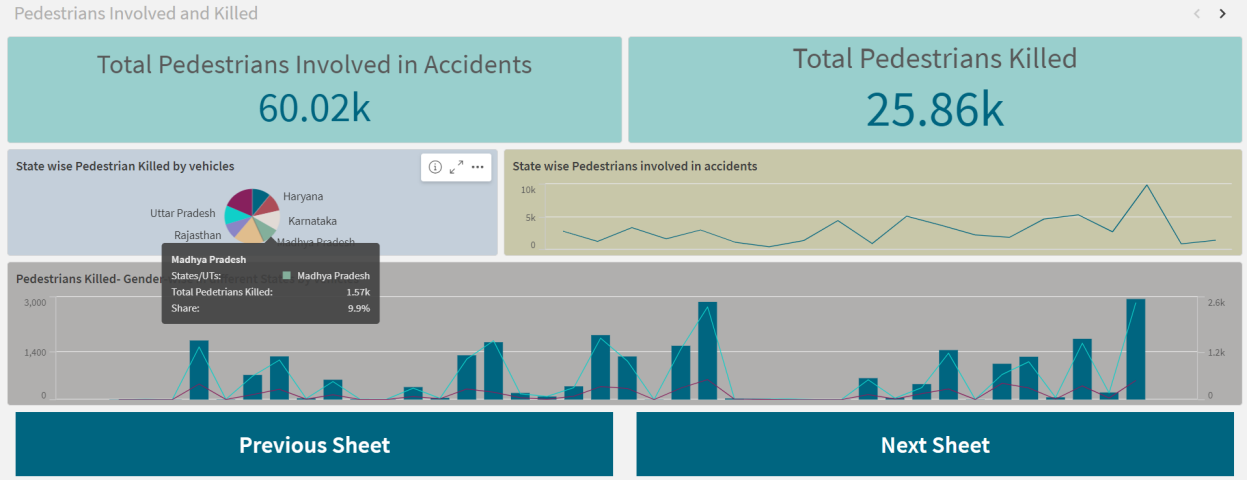
1.10 State wise Pedestrians killed by vehicles



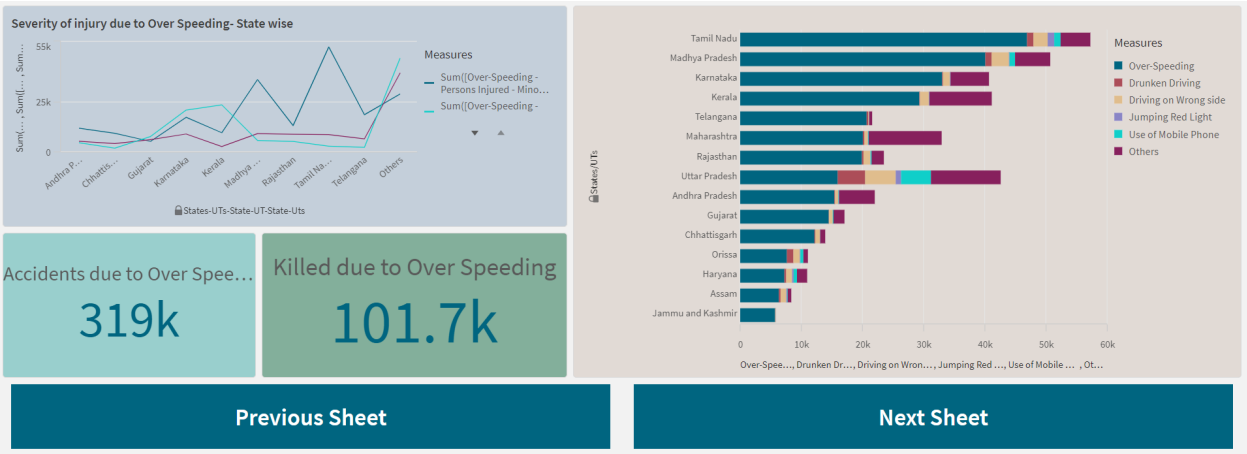
6. DASHBOARD

6.1 Responsive and Design of Dashboard

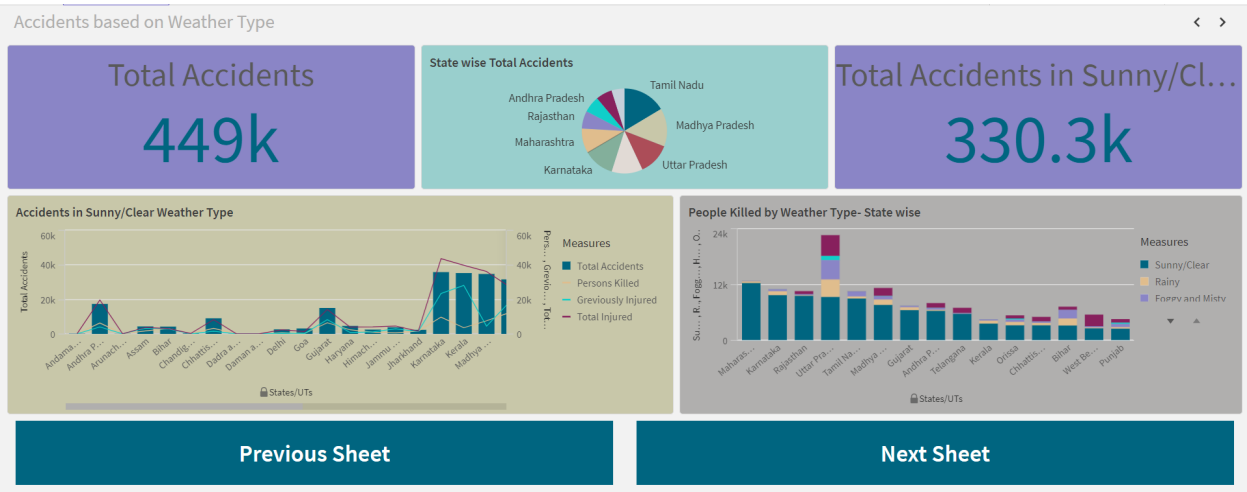
Dashboard: Pedestians involved and killed



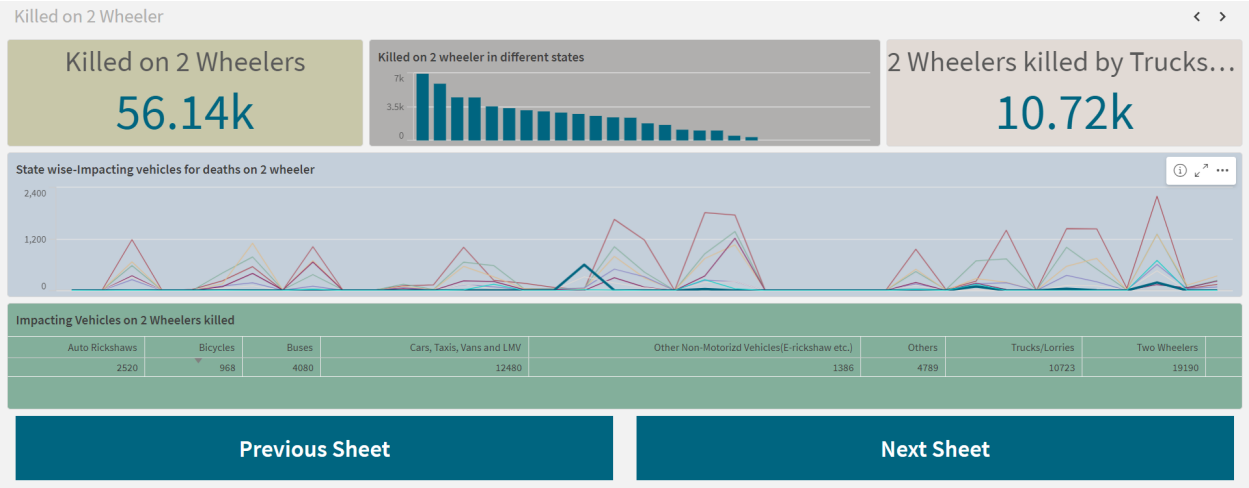
Dashboard: Causes of Accidents



Dashboard: Accidents based on Weather Type



Dashboard: Killed on 2 Wheeler

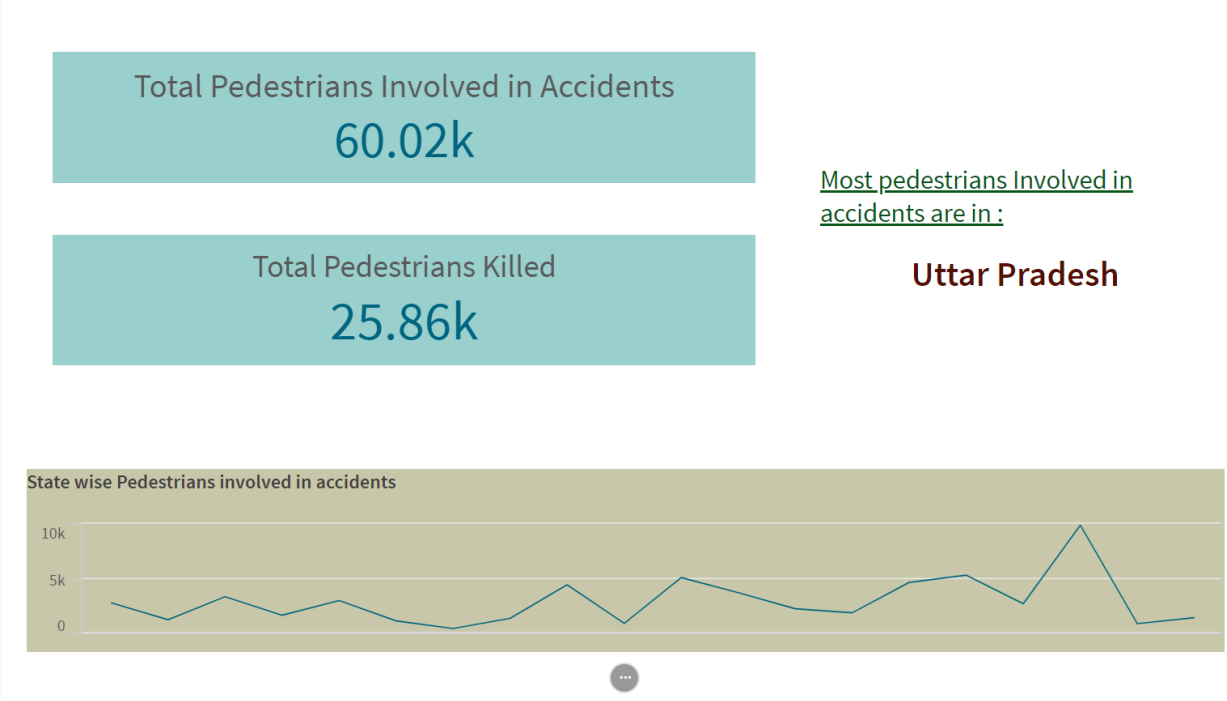


7. REPORT

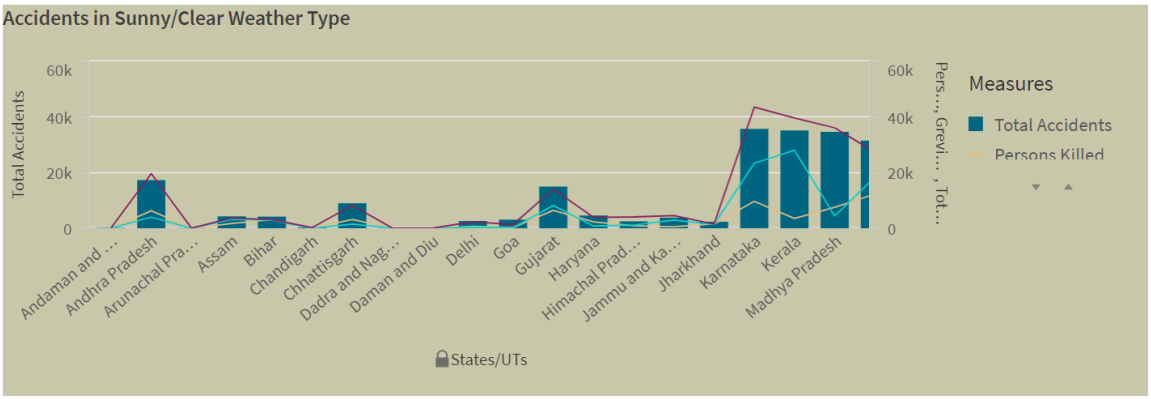
7.1 Report Creation

1.1

1.2



1.3



Most number of Accidents happened due to Sunny/Clear Weather are in:

KARNATAKA

Total Accidents in Sunny/Clea...
330.3k

8. PERFORMANCE TESTING

8.1 Amount of Data Rendered

8.2 Utilization of Data Filters