## 1. Introduction

### 1.1 Overview

This project explores insights derived from road safety data in India using Qlik Sense, a leading data analytics and visualization tool. The project aims to demonstrate how real-world data can be used to perform meaningful analysis and derive insights in the context of road safety.

### 1.2 Purpose

The purpose of this project is to showcase the capabilities of Qlik Sense in handling and analyzing large datasets, specifically related to road safety. The project aims to:

* Identify patterns and trends in road accidents.
* Provide actionable insights for improving road safety.
* Demonstrate the use of Qlik Sense for creating interactive and dynamic visualizations.

### 1.3 Technical Architecture

The technical architecture involves:

* Data source: Road safety data from various sources in India.
* Data processing: Data preparation using Qlik Sense.
* Data visualization: Interactive dashboards and reports created in Qlik Sense.
* Deployment: Qlik Sense server for rendering and sharing visualizations.

## 2. Define Problem / Problem Understanding

### 2.1 Specify the Business Problem

The business problem addressed is enhancing road safety to reduce accidents, injuries, and fatalities. This involves analyzing accident data, identifying high-risk areas, understanding causes, and developing strategies for improving safety.

### 2.2 Business Requirements

* Ability to handle large datasets.
* Interactive and user-friendly visualizations.
* Real-time data processing and analysis.
* Insights into key metrics such as accident types, locations, and causes.

### 2.3 Literature Survey

A review of existing literature on road safety analysis reveals common challenges such as data volume, complexity, and the need for real-time insights. Studies have shown that data analytics can significantly contribute to improving road safety and reducing accidents.

## 3. Data Collection

### 3.1 Collect the Dataset

The dataset comprises road safety data collected from various sources in India, including information on accidents, locations, causes, and other relevant metrics.

### 3.2 Connect Data with Qlik Sense

The dataset is uploaded to Qlik Sense, where it is connected using Qlik's data load editor. The data is then structured and organized for analysis.

## 4. Data Preparation

### 4.1 Prepare the Data for Visualization

Data preparation involves cleaning the dataset, handling missing values, and transforming data into a suitable format for visualization. This step ensures the accuracy and reliability of the data used for analysis.

## 5. Data Visualizations

### 5.1 Visualizations

Various visualizations are created to explore different aspects of the data:

* Bar charts to compare accident types across different regions.
* Line graphs to show trends in accident numbers over time.
* Heat maps to visualize accident density and high-risk locations.
* Pie charts to represent the distribution of accident causes.

## 6. Dashboard

### 6.1 Responsive and Design of Dashboard

The dashboard is designed to be responsive and user-friendly, allowing users to interact with the data through filters and drill-down capabilities. It includes multiple views and perspectives to provide a comprehensive overview of road safety data.

## 7. Report

### 7.1 Report Creation

Reports are generated to summarize the findings from the data analysis. These reports include key insights, visualizations, and recommendations for improving road safety.

## 8. Performance Testing

### 8.1 Amount of Data Rendered

Performance testing is conducted to evaluate how Qlik Sense handles large volumes of data. This involves testing the rendering speed and responsiveness of visualizations when dealing with substantial datasets.

### 8.2 Utilization of Data Filters

The effectiveness of data filters is assessed to ensure users can efficiently navigate and analyze specific subsets of data. This includes testing the performance impact of applying multiple filters simultaneously.

By following this structured approach, the project demonstrates the powerful capabilities of Qlik Sense in transforming road safety data into actionable insights, ultimately aiding in the improvement of road safety in India.