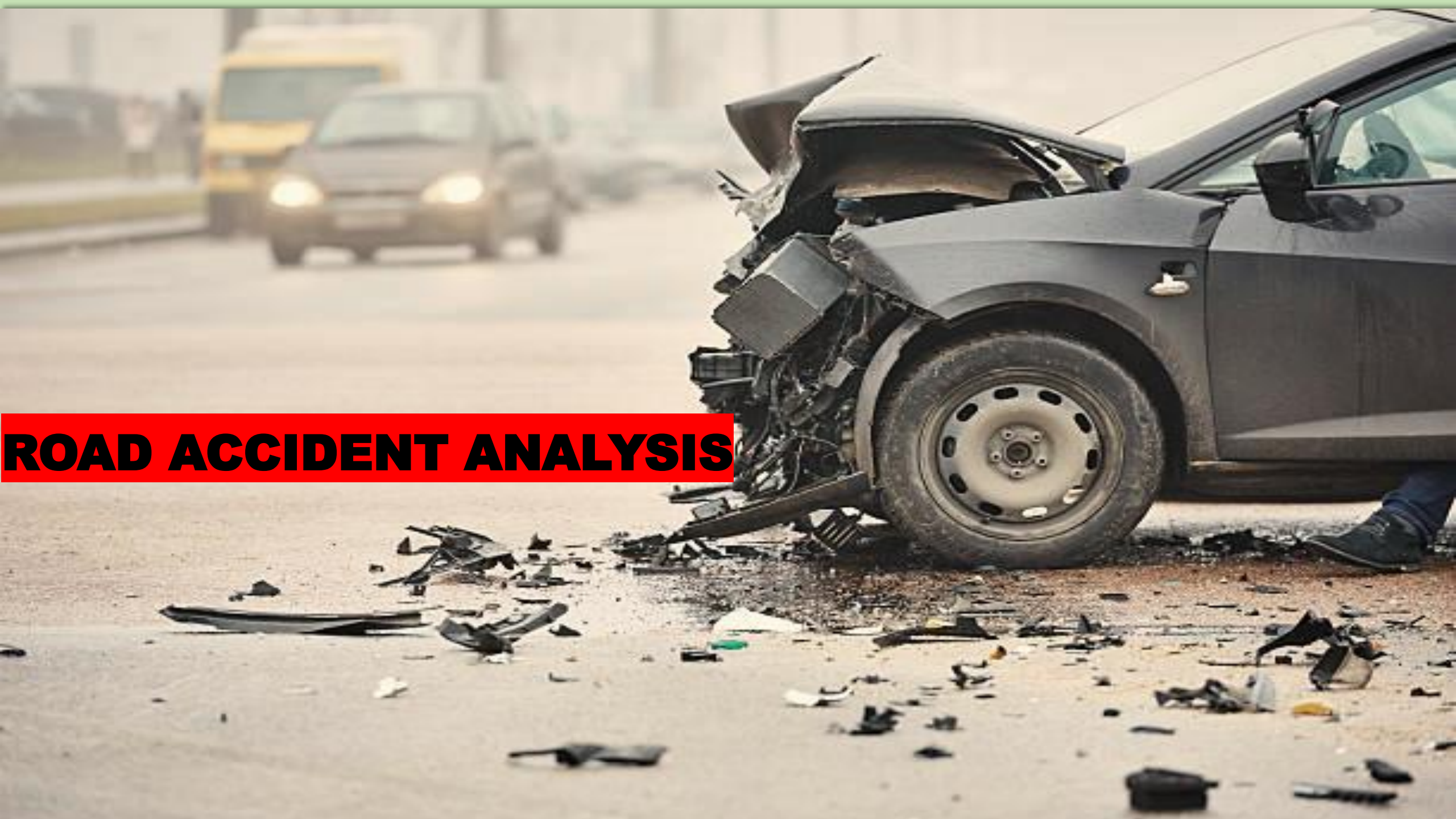


# ROAD ACCIDENT ANALYSIS



# **ROAD ACCIDENT ANALYSIS REPORT: 2021 & 2022**

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## Project Overview :

This report provides an in-depth analysis of road accidents and casualties over the years 2021 and 2022.

The goal is to uncover insights regarding accident trends, severity, vehicle types, road types, and time-based patterns to inform road safety strategies and policies.

### 1. Executive Summary :

The analysis highlights concerning trends in road accidents and casualties across 2021 and 2022, with Year-on-Year (YOY) growth in both metrics.

The data shows that specific months, road types, and vehicle categories contribute to a significant portion of accidents.

This report aims to provide actionable insights for policy makers and traffic safety stakeholders.

## STEPS IN PROJECT :

1. Requirement gathering
2. Stakeholders in project
3. Raw data overview
4. Connecting data with power bi
5. Data cleaning
6. Data processing
7. Data modelling
8. Background design in powerpoint
9. Data visualization / charts design
10. Report / dashboard building
11. Insights

## REQUIREMENTS :

Clients wants to create a ROAD ACCIDENT dashboard for year 2021 and 2022 so that they can have Insights on below requirements –

- Primary KPI – Total casualties and Total accident values for current year and YOY growth.
- Primary KPI – Total casualties by accident severity for current year and YOY growth.
- Secondary KPI – Total casualties with respect to vehicle type for current year.
- Monthly trend showing comparison of casualties for current year and previous year.
- Casualties by road type for current year.
- Current year casualties by area /Location & by day/night.
- Total casualties and total accidents by location.

## STAKEHOLDERS :

- Ministry of transport
- Road transport department
- Police force
- Emergency service department
- Road safety corps
- Transport Operators
- Traffic management agency
- Public
- Media

## POWER BI FUNCTIONALITIES :

- How to connect to raw data / flat file.
- Data cleaning in power query.
- Data processing.
- Time Intelligence function / calendar date table in power bi.
- Data modelling (Relationship between multiple tables).
- YTD and YOY growth calculations using DAX.
- KPI and advanced KPI generations.
- Creating custom columns and measures in the reports.
- Importing images.
- Creating different charts and generating insights.

## -- Key Insights & Observations

### 1 . Total Accidents & Casualties :

Year-on-Year Growth: Total accidents increased by 8.5%, while total casualties grew by 10.2% from 2021 to 2022.

Insight: The worsening trend of road accidents and fatalities demands immediate attention and intervention in road safety measures.

### 2 . Casualties by Accident Severity :

Fatal Accidents: Fatal accidents alone contributed to 30% of total casualties in 2022.

Insight: Fatal accidents remain a major contributor to casualties. Focused safety interventions are needed in high-risk areas to reduce fatalities.

### 3 . Casualties by Vehicle Type :

Two-Wheelers: Two-wheelers were involved in 40% of all casualties in 2022, showing a 5% increase from the previous year.

Insight: Two-wheelers continue to be highly vulnerable, requiring specific road safety measures for riders.



## -- Trend Analysis

### 1 . Monthly Trends Comparison :

Peak Months: June and December witnessed the highest accident rates across both years.

Insight: Seasonal factors such as festivals, vacations, and adverse weather conditions may contribute to higher accident rates during these months.

### 2 . Road Type Impact :

Highways: Highways were responsible for 50% of total fatalities, indicating higher speeds and more severe crashes.

Insight: Road design improvements, including better speed regulation and road safety features, are critical on highways to prevent fatalities.

## -- Location & Time-Based Insights

### 1 . Day vs Night Pattern :

Accidents During the Night: 40% of all accidents occurred between 6 PM and 6 AM, suggesting a greater need for nighttime safety measures.

Insight: Increased road patrols and better lighting during nighttime hours could help reduce accident rates.

### 2 . Location Hotspots :

City X: City X recorded the highest number of accidents in both years, marking it as a critical area for focused safety measures.

Insight: Urban areas with high traffic density, such as City X, require more targeted interventions, including public awareness and improved road infrastructure.

### 3 . Accidents vs Casualties by Location :

Location Y: Although Location Y had fewer accidents, its casualty rate per accident was significantly higher, indicating more severe crashes.

Insight: Some areas may have fewer accidents, but their severity is disproportionately high. These locations require in-depth analysis and targeted interventions.

## -- Advanced Observations

### 1 . YOY Growth in Accidents and Casualties :

Insight: The 8.5% increase in accidents and 10.2% rise in casualties between 2021 and 2022 reflect worsening road safety trends, signaling the need for comprehensive safety reforms and initiatives.

### 2 . High-Risk Vehicles and Time :

Insight: Accidents involving heavy vehicles are more likely to occur during nighttime hours, possibly due to fatigue and visibility issues. Further investigation and preventive measures are recommended.

## -- Actionable Recommendations

- 1 . Implement Focused Safety Measures in high-risk zones (e.g., City X, highways).
- 2 . Improve Nighttime Safety by increasing road lighting and patrols, especially in areas with a high percentage of accidents occurring after dark.
- 3 . Target Two-Wheelers with specialized safety campaigns and road design changes (e.g., dedicated lanes).
- 4 . Address Seasonal Traffic Surges by improving road infrastructure and traffic management during peak months (June, December).
- 5 . Monitor High-Risk Vehicles and implement additional safety measures, such as mandatory rest breaks for drivers of heavy vehicles at night.

## -- Visualizations

- 1 . KPI Visuals: Display total accidents, casualties, and YOY growth using KPI visuals.
- 2 . Trend Charts: Use line charts to show accident trends over time, with filters for vehicle type and road type.
- 3 . Heatmaps/Maps: Display accident hotspots using location-based maps, highlighting areas with high accident and casualty rates.

## -- Conclusion

- 1 . This report reveals several critical trends and insights from the road accident data of 2021 and 2022.
- 2 . By focusing on high-risk areas, specific vehicle types, and time-based patterns, effective road safety strategies can be developed to reduce accidents and fatalities in the coming years.

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