**ROAD TRAFFIC ANALYSIS EXCEL PROJECT**

1. **Problem Definition and Key Questions**

**Problem Definition**

Road traffic accidents are a major safety concern in Addis Ababa, with significant social, economic, and health impacts. The goal of this project is to analyze historical road traffic accident data (2017–2020) to uncover patterns, trends, and key risk factors that contribute to accidents. By identifying these factors, stakeholders can take data-driven actions to reduce accidents, improve road safety, and minimize casualties.

**Key Objectives:**

1. To identify the most common causes of road traffic accidents.
2. To analyze the temporal patterns of accidents (day, and seasonality).
3. To understand how driver demographics (age, gender, and education level) correlate with accident severity.
4. To evaluate the impact of environmental and vehicle-related factors on accidents.
5. To generate actionable insights for stakeholders to improve safety.

**Key Questions**

1. What are the total number of casualties per cause category in Addis Ababa?
2. What is the distribution of accidents by severity (minor, serious, fatal)?
3. Which day(s) of the week report the highest number of accidents?
4. How do road surface conditions (e.g., wet, dry) influence accident rates?
5. Which driver age group is most involved in accidents?
6. What is the relationship between driving experience and accident severity?
7. Which vehicle types are involved in the most accidents?
8. How does the weather affect the frequency of accidents?
9. What areas report the highest number of accidents?
10. How does light condition (e.g., daytime, nighttime) impact accident casualties?
11. What percentage of accidents involve pedestrians, and how severe are these cases?
12. What is the gender distribution of drivers involved in accidents?
13. How do defects in vehicles correlate with accident severity?
14. What patterns can be observed regarding the number of vehicles involved in accidents?

**Requirements:**

1. **Number of Accidents per Day of the Week**: Helps identify peak accident days.
2. **Accident Severity Distribution**: Proportion of Slight, serious, and fatal accidents.
3. **Most Frequent Causes of Accidents**: Top 3 causes contributing to accidents.
4. **Driver Age Band Involvement**: Percentage of accidents by driver age groups.
5. **Accidents by Time of Day**: Total accidents during morning, afternoon, evening, and night.

**Secondary KPIs:**

1. **Weather Condition Impact**: Number of accidents under specific weather conditions (rainy, sunny, foggy).
2. **Vehicle Defect Contribution**: Percentage of accidents caused by vehicle defects.
3. **Accidents by Type of Vehicle**: Frequency of accidents based on vehicle type (e.g., car, motorcycle, truck).
4. **Road Surface Impact**: Accident count based on road alignment and surface type.
5. **Casualty Severity by Class**: Distribution of casualties by pedestrians, passengers, and drivers.