#### ****1. Introduction****

This project aims to analyse road accident data to identify trends and patterns in casualties based on various factors such as road type, month, road surface conditions, urban versus rural settings, and time of the day. The insights gained from this analysis can inform road safety measures and policies to mitigate accidents and reduce casualties.

#### ****2. Key Findings****

##### **2.1. Casualties by Road Type**

* **Single Carriageway**: The highest number of casualties occurred on single carriageways, with approximately 309.7K casualties.
* **Dual Carriageway**: Dual carriageways accounted for 67.4K casualties.
* **Roundabout**: Roundabouts saw 26.8K casualties.
* **One-Way Streets**: Reported 7.4K casualties.
* **Slip Roads**: The least number of casualties occurred on slip roads, at 4.7K.
* **Total Casualties**: 415,961 across all road types.

##### **2.2. Monthly Casualties (2021 vs. 2022)**

* A decline in casualties was observed from 2021 to 2022 for most months:
  + **January**: 18,172 (2021) to 13,163 (2022).
  + **February**: 14,648 (2021) to 14,804 (2022) (an increase).
  + **March to December**: Consistent reduction in casualties over the two years.
* **Highest Casualties**: October (20,109 in 2021).
* **Lowest Casualties**: February 2021 (14,648).

##### **2.3. Casualties by Road Surface**

* **Dry Roads**: The majority of casualties occurred on dry roads, total 279,445.
* **Wet Roads**: Accidents on wet roads resulted in 115,261 casualties.
* **Frost Roads**: The fewest casualties were recorded on frost-covered roads, at 22,780.

##### **2.4. Casualties in Urban vs. Rural Areas**

* **Urban Areas**: A significant majority of casualties (255.9K) were reported in urban settings.
* **Rural Areas**: 162.0K casualties were recorded in rural regions.
* **Total Casualties**: 417,882.

##### **2.5. Time of Day**

* **Daylight**: Most accidents occurred during daylight, accounting for 305.0K casualties.
* **Dark Conditions**: 112.9K casualties occurred during dark conditions.
* **Total Casualties**: 417,882.

#### ****3. Observations****

1. **Road Type**: Single carriageways pose the highest risk, highlighting the need for improved infrastructure or safety measures in these areas.
2. **Seasonal Trends**: Casualties tend to decrease during colder months (e.g., January, February) and spike in October.
3. **Road Conditions**: Dry roads account for the highest number of casualties, possibly due to higher traffic volumes under favorable conditions.
4. **Urban Areas**: Urban areas experience significantly more casualties, likely due to higher vehicle and pedestrian traffic density.
5. **Daylight vs. Darkness**: The majority of accidents occur during daylight hours, suggesting that visibility is not the sole factor contributing to accidents.

#### ****4. Recommendations****

1. **Infrastructure Improvements**: Prioritize safety enhancements on single carriageways and in urban areas.
2. **Seasonal Awareness Campaigns**: Focus on driver education and awareness during high-casualty months like January and October.
3. **Road Surface Maintenance**: Regular maintenance to reduce hazards on wet and frost-covered roads.
4. **Time-Specific Interventions**: Implement measures targeting accidents during daylight hours, such as stricter speed enforcement and traffic flow management.

#### ****5. Conclusion****

The analysis underscores critical factors contributing to road accidents and casualties. By addressing these factors through targeted interventions, policymakers and stakeholders can significantly enhance road safety and reduce casualties.