1. Refined Ideas

The primary goal of our group project is to conduct a spatial analysis to identify traffic crash hotspots in Wellington, New Zealand. The study will focus on understanding the relationship between car crashes and road types, as well as the role of population density in influencing crash frequency. To achieve this, we utilize multiple spatial datasets that provide detailed information on traffic incidents, road geometry, and population distribution.

1. Data Description
2. Crash Analysis System (CAS) Dataset

The first dataset we use is the Crash Analysis System (CAS) dataset from the New Zealand Transport Agency (NZTA). Since the CAS contains detailed records of all reported traffic crashes in New Zealand which including several important attributes such as time, speed limit, weather condition and intersection, this data serve as the foundation for identifying spatial patterns of crashes in Wellington. Each crash record has precise geolocation coordinates which make it possible to map the crashes and analyze spatially.

1. Road Section Geometry Dataset

The second dataset is the Road Section Geometry were obtained from the Land Information New Zealand (LINZ) database. This dataset includes geometric data of Wellington’s Road network, classifying roads by type such as accessway, roadway, service lane and other. This dataset provides useful information to determine the influence of road types on traffic crash occurrences. As this data also includes the line geometry, we can map it and combine it with crash data for analyze.

1. Population Density by Statistical Area 2 (SA2)

Additionally, we will incorporate population data by Statistical Area 2 (SA2) from Statistics New Zealand. This dataset contains population figures for small geographic areas within Wellington, by including the population data we can assess how population density in different areas influences the frequency and severity crashes.

1. Conclusion

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| Dataset Name | Source | Spatial Component | Purpose | Access Method |
| Crash Analysis System (CAS) Dataset | New Zealand Transport Agency (NZTA) | Geolocation (coordinates of crashes) | Identify and map traffic crash incidents in Wellington for hotspot analysis. | Publicly available via NZTA website. |
| Wellington Road Section Geometry | Land Information New Zealand (LINZ) | Geolocation (road segments and classifications) | Analyse the relationship between road types and crash occurrences. | Retrieved from LINZ spatial data infrastructure. |
| Population Data by Statistical Area 2 (SA2) | Statistics New Zealand | SA2 boundaries (mapped population areas) | Assess the influence of population density on crash frequency and severity. | Publicly available from Statistics New Zealand. |