Crashspot Research – Week 2 Report

This document summarizes progress for Week 2 of the Crashspot Research Project. The focus of this week was cleaning and exploratory mapping of crash data for Louisiana and Monroe.

# 1. Data Cleaning & Standardization

- Loaded cleaned GeoJSON outputs from Week 1 (Louisiana + Monroe).  
- Converted YEAR, MONTH, DAY, HOUR into numeric values.  
- Created a DATE column from those fields.  
- Standardized coordinate system to WGS84 (EPSG:4326).

# 2. Exploratory Summaries

- Computed crash counts by YEAR, MONTH, HOUR, and COUNTY.  
- Identified temporal patterns (seasonal and hourly trends).

# 3. Visualization Outputs

- Created bar charts:  
 • Louisiana crashes by month (2022–2023)  
 • Monroe crashes by hour (2022–2023)  
- Generated a Kernel Density Estimation (KDE) heatmap for Monroe crashes showing crash hotspots.

All figures are saved in outputs/figures/ and may be included in the final presentation.

# 4. Preparation for Week 3

- Download Louisiana OSM road data from Geofabrik.  
- Place extracted shapefiles into data\_raw/osm\_roads/.  
- These will be used for overlay and correlation analysis in Week 3.

# 5. Conclusion

Week 2 expanded on the data foundation built in Week 1. We now have standardized datasets, initial temporal summaries, and visualizations including a heatmap. This exploratory analysis provides the basis for deeper spatial analysis in Week 3.