Project Title

Optimizing Cyclist Safety in Boston: A Weather, Time, and Road Condition Analysis for Vision Zero Goal

Description

Cycling has emerged as an increasingly popular mode of transportation due to its affordability, health benefits, and reduced environmental impact. The increased availability of shared services, dedicated bike lanes, and parking facilities further establishes its accessibility. The rise in cyclist numbers, however, underscores the importance of adhering to safety measures, particularly in avoiding roads with higher accident risks and navigating through adverse weather conditions that could precipitate accidents.
In Boston, a city at the forefront of cycling adoption, the Vision Zero initiative represents a commitment to eliminate all traffic fatalities and severe injuries while increasing safe, healthy, equitable mobility for all. This project, inspired by Boston's Vision Zero initiative, aims to identify the correlation between weather conditions, road types, and cycling accidents. By analyzing the patterns that lead to accidents, we aim to minimize injury risks and support the city's transition to this sustainable form of transport.

Data Sources (Initial Exploration)

- Bike Accident Data: Vision Zero Crash Records
- Weather Data: OpenWeatherMap API, WeatherAPI.com

Front-end and Interactivity

- **Dynamic Selection:** weather conditions (rain/sunny), time of day (morning/night).
- **Heatmap Visualization:** frequency of accidents at different locations, utilizing longitude and latitude data.
- **Data-driven Recommendations:** advise cyclists on safest times and conditions to travel, tailored by current or forecasted weather conditions.
- **Statistics:** accident trends for specific locations when selected.
- **Overall breakdown:** most common types of cycling accidents to raise awareness among the biking community.