

NavSafe

A Safer Way To Get Around

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NavSafe Objective

NavSafe seeks to meet the following objective:

- ▶ Determine the safest route for a person to travel on based on data of collisions in the Seattle area.

Scope

Features required to accomplish this project:

- ▶ Fast sorting and searching algorithms
- ▶ Custom edge-weighted graph (bidirectional)
 - Vertices = Intersection
 - Edges = Path between pair of intersections
 - Weight of an edge/vertex based on cumulative severity indices
- ▶ Shortest path algorithm (i.e., Dijkstra) to find safest route

Motivation

- ▶ Vehicle collisions
 - ▶ They happen.
 - ▶ Potential risk of **injury** or **death**

Dataset(s) Used

- ▶ Collisions dataset from the Seattle GIS Open Data site.
- ▶ Intersections dataset from the City of Seattle's data site

Requirements Specification

- ▶ Functional Requirements
 - ▶ Read Module
 - ▶ Collision ADT Module
 - ▶ Intersection ADT Module
 - ▶ Graphing Module
 - ▶ Sort Module
 - ▶ Searching Module
- ▶ Non-Functional Requirements
 - ▶ Reliability
 - ▶ Accuracy of Results
 - ▶ Performance
 - ▶ Human-computer Interface Issues
 - ▶ Constraints

Design Specification

Verification and Validation

Demo

We will now demonstrate our implementation.