

PSG Hackathon May 2022

Team members

Roll no	Name	Degree	Year
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Chosen problem statement

P2. Data Science: Crime Analysis & Safety recommendation

Proposed solution

Overview

First we perform exploratory data analysis on the given crime data then this data will be exported into the database for querying purposes. Then we use a standard navigation api to get the start (A) and end (B) destination thus we get the route from the point A to B. Now we get the reverse latitude from the points present in between A and B. For each and every point we perform caching so as to increase performance. Now that we got the latitude for every intermediate point we also have to get the crime's location's latitude. We perform K nearest neighbors for each point then display the results and ask for the user to change route if the route found has more crime as compared to other paths.

Implementation details

The major features are that the analysis obtained can be further be displayed to the user like each crime in the intermediate area sorted based upon the recent to the oldest one. Tips for user to prevent the crime. Re-route if crime are less in alternative route. As we use K nearest neighbor instead of dijkstra for decreasing complexity. We use caching for every route until the database is updated/added by the admin. So this reduces complexity by a lot.

Tools & Technologies

- Python as the implementation language.
- Openrouteservice's api for getting the Direction between two points (i.e) source and destination.

- openstreetmap and requests for the location to latitude and longitude conversion.
- K nearest points's Algorithm for finding the closest crime for each intermediate point.
- Streamlit / Tkinter / Kivy is to be used for GUI based on the complexity of each window.