

Chicago Crime Analysis

Team Members

Kei Irizawa, Adam Oppenheimer, Swayam Sinha, Shyamsunder Sriram

Description and Goals

The South Side of Chicago is notorious for being home to some of the most dangerous areas of Chicago. However, does most of the South Side live up to its reputation? The goal of this project is to identify which neighborhoods of Chicago are more dangerous than others and to what extent, as well as to protect our residents from these areas.

We will visually give data that compares crime of Chicago to other countries. We will score the safety of a block based on our algorithm. Based on this score, we will provide the best route to go from destination A to B. We will also plot graphs that will describe the safety of different locations.

Data Sources

Chicago Data Portal:

<https://data.cityofchicago.org/Public-Safety/Crimes-2001-to-present/ijzp-q8t2/data>

- Provides data on incidents of crime in Chicago from 2001 to present (updated daily)
- Provides date and time of crime
- Provides crime type such as assault, theft, battery, etc.
- Provides location of crime in terms of block name, community area, latitude/longitude

World Bank API

- World development indicators: population dynamics, education, economic statistics etc.

Google Maps API

- Directions API: provides directions from destination A to destination B
- Distance Matrix API: travel distance from destination A to destination B
- Geocoding API: converts geographic coordinates into address

Knomea: <https://knoema.com/atlas/topics/Crime-Statistics>

- Provides time series data on crime statistics of the world

Tasks

- 1) **Web Scrape** crime data in CSV format from **Chicago Data Portal** (update dataset with daily crime updates).
- 2) Based on this data, we can use **SQL** or **Pandas** to score the safeness of blocks (Chicago Crime data reports location of crime with block name). We can score safety based on simple algorithm such as robbery 1, theft 2 etc.
- 3) Based on this score or other location data, we can create a density map etc. using **pyplot** to give visual information (Chicago Data Portal has latitude and longitude data).
- 4) Using **Pandas**, we can aggregate number of certain crimes at specific community area. Chicago Data Portal provides location of crime in terms of community area.
- 5) We can find crime rate at community area and compare this with crime rate of another country using **World Bank API Data** and **Knomea**. Comparison can be done through **SQL**.
- 6) Create a map where if we click a specific location, it gives us a country with similar crime rate and other information for comparison.
- 7) Based on our safety score of blocks, we can use **Google Maps API**, to tell us the safest route to go from destination A to destination B that satisfies a certain time threshold. We will have to **web scrape** the necessary information from Google Maps API.
- 8) We will use **Django** to pull all of these cool ideas into a website.

Completion Timeline

- **01/30: Proposal Presentation**
- 01/28 - 02/03 (Week 4): data scraping, score indexing, community area crime aggregation (Kei, Adam, Sway) (Shyam busy)
- 02/04 - 02/10 (Week 5): score indexing, country comparison using World Bank API and Knomea (Shyam) (Kei, Adam, Sway busy)
- **02/11: Progress Check-in 1**
- 02/11 - 02/17 (Week 6): Data Analysis Pyplot, Google Maps API (Kei, Adam) (Shyam, Sway busy)
- 02/18 - 02/24 (Week 7): Google Maps API (Sway) (Shyam busy)
- **02/25: Progress Check-in 2**
- 02/25 - 03/03 (Week 8): Django website creation (Kei, Adam, Sway, Shyam)
- 03/04 - 03/10 (Week 9): Django website creation (Shyam) (Kei, Adam busy)
- 03/11 - 03/18 (Week 10): Django website creation (Kei, Adam)
- **03/13: Final Presentation**
- **03/18: Completed Software**