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Summary

- Among the whole crime dataset, Aggravated crime was extracted and analyzed.
- Direction Search function's test related to Google API was completed.
- The abstract and introduction parts draft was written. And the related works part draft will be written by next week.

What Chasing FOX completed this week:

- **Data analysis**
 - Combined Chicago crime data [1] and Chicago homicide data [2].
 - Extracted the data that has a description 'Aggravated'.
 - Plotted the crime density and found correlation between crime density and distance to the facility [3] - [7] or service request location [8] - [13].
 - Through the extracting data, the result showed that crime which has the description 'aggravated' occurs more frequently in west and south of Chicago (Fig 1).

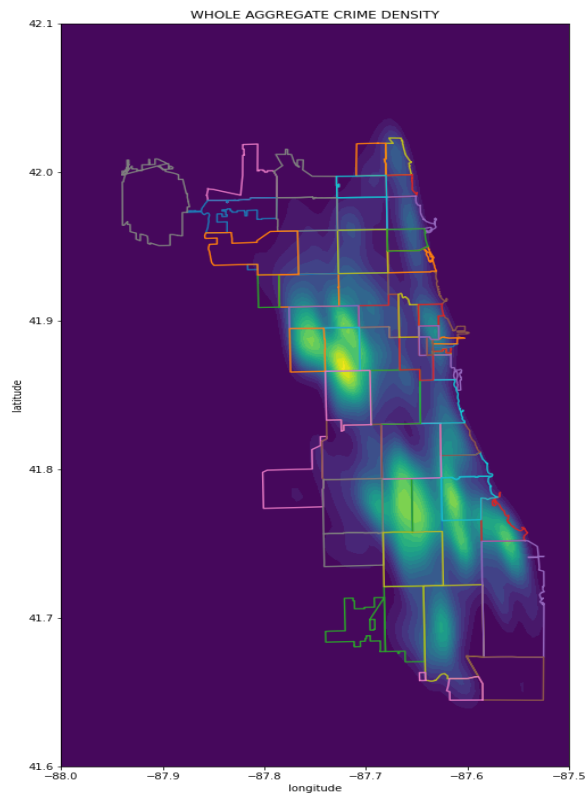


Fig 1. Aggravated crime density contour map.

- By using euclidean distance to facility [3] - [7] or service request [8] - [13] in Chicago, correlation was calculated. However it seems not that changed from last week (Fig 2).

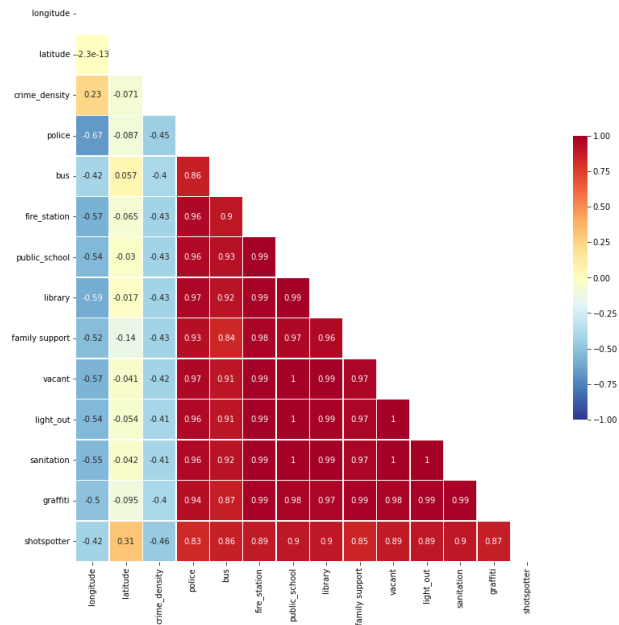


Fig 2. Correlation between aggravated crime density and euclidean distance of facility and service request.

- There was one interesting discovery. Location for the vacant building report data [13] was pretty similar to the contour map of aggravated crime density (Fig 3).

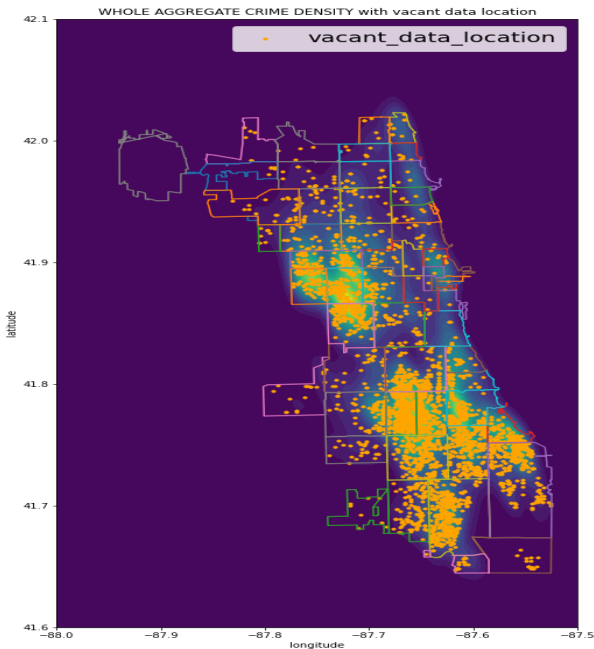


Fig 3. Aggravated crime density contour map with scatter plot of vacant building report data.

- **Front-end**
 - Google-Search function test of Prototype Application was successfully completed using GooglePlacesAutocomplete API.
 - The way points of the safety area are limited to 9 way points because Google API only limits up to 9 way points [14].
- **Paper**
 - The abstract and introduction parts were written. And this draft received feedback from RA Minji.

Things to do by next week

- Completing the related works part of the paper, and getting feedback.
- Connecting VSCode terminal with Ubuntu VM server (F22SafetyServer) by SSH.
- UX design about the application's process will be completed.
- Analyze the correlation between density of violent crime and density of facility and service request.

Problems or challenges:

- Navigation function requires a lot of time and high-quality development skills. Therefore, this function is decided to use Google map Application.
- Existing facility [3] - [7] data didn't give the expected result. Therefore, the data analysis team tried to find the new data, but It is difficult to find it such as surveillance camera data etc.

References

- [1] *Crimes - Map*, Chicago Data Portal, Sep 15, 2011. [Online]. Available: <https://data.cityofchicago.org/Public-Safety/Crimes-Map/dfnk-7re6>
- [2] *Violence Reduction - Victims of Homicides and Non-Fatal Shootings*, Chicago Data Portal, Sep 15, 2022. [Online]. Available: <https://data.cityofchicago.org/Public-Safety/Violence-Reduction-Victims-of-Homicides-and-Non-Fa/gumc-mgzi>
- [3] *CTA Bus Stops*, Chicago Data Portal, Feb 28, 2017. [Online]. Available: <https://data.cityofchicago.org/Transportation/CTA-Bus-Stops/hvnx-qtky>
- [4] *Police Stations*, Chicago Data Portal, June 10, 2016. [Online]. Available: <https://data.cityofchicago.org/Public-Safety/Police-Stations/z8bn-74gv>
- [5] *Fire Stations*, Chicago Data Portal, Apr 18, 2019. [Online]. Available: <https://data.cityofchicago.org/Public-Safety/Fire-Stations/28km-gtjn>
- [6] *Chicago Public Schools - School Locations SY2021 - Map*, Chicago Data Portal, Jan 10, 2022. [Online]. Available: <https://data.cityofchicago.org/Education/Chicago-Public-Schools-School-Locations-SY2021-Map/9ybt-s3ms>
- [7] *Libraries - Locations, Contact Information and Usual hours of Operation*, Chicago Data Portal, Oct 28, 2021. [Online]. Available: <https://data.cityofchicago.org/Education/Libraries-Locations-Contact-Information-and-Usual-/x8fc-8rcq>
- [8] *Violence Reduction - Shotspotter Alerts*, Chicago Data Portal, Sep 15, 2022. [Online]. Available: <https://data.cityofchicago.org/Public-Safety/Violence-Reduction-Shotspotter-Alerts/3h7q-7mdb>
- [9] *Family and Support Services Delegate Agencies*, Chicago Data Portal, Oct, 7. 2015. [Online]. Available: <https://data.cityofchicago.org/Health-Human-Services/Family-and-Support-Services-Delegate-Agencies/jmw7-ijg5>

- [10] *311 Service Requests - Street Lights - All Out - No Duplicates*, Chicago Data Portal, Apr, 17, 2019. [Online]. Available:
<https://data.cityofchicago.org/Service-Requests/311-Service-Requests-Street-Lights-All-Out-No-Dupl/756k-itxx>
- [11] *311 Service Requests - Sanitation Code Complaints - Historical*, Chicago Data Portal, Mar 7, 2019. [Online]. Available:
<https://data.cityofchicago.org/Service-Requests/311-Service-Requests-Sanitation-Code-Complaints-Hi/me59-5fac>
- [12] *311 Service Requests - Graffiti Removal - Historical*, Chicago Data Portal, Mar 7, 2019. [Online]. Available:
<https://data.cityofchicago.org/Service-Requests/311-Service-Requests-Graffiti-Removal-Historical/hec5-y4x5>
- [13] *311 service requests - vacant and abandoned buildings reported - historical*, Chicago Data Portal, Mar, 7, 2019. [Online]. Available:
<https://data.cityofchicago.org/Service-Requests/311-Service-Requests-Vacant-and-Abandoned-Building/7nii-7srd/data>
- [14] “Get Started.” Google Maps Platform.
<https://developers.google.com/maps/documentation/urls/get-started?hl=eng#directions-action> (accessed Sep 29, 2022).