

Hate Crime Maps

By Facebook Data for Good

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Opportunity

I am a Data Scientist at Facebook Data for Good, the team at the heart of Facebook's mission to use data to address some of the world's greatest social and humanitarian issues. Hate crimes in the United States are characterized by major underreporting both by victims and witnesses and by a significant lack of tracking, and therefore data, at the administrative level. Also, as we noticed in the past year, individuals now tend to share and report instances of hate crime on social media - representing a huge behavioral shift with respect to the past. This presents a compelling opportunity for a big tech firm like Facebook which - even in an unstructured way - collects way more data than the police on hate crimes.

In the wake of the [passing of the AAPI Bill](#) and mindful of the greatly positive impact already created by the [Disaster Maps](#), I have decided to put forward a new idea to the management team: the creation of *Hate Crime Maps* to identify trends in hate crimes and to support first responders in the appropriate resource allocation to fight hate crimes.

Impact Hypothesis

The collection and analysis of user-generated content about hate crime will allow first responders to react faster to instances of hate crime and to allocate the most appropriate resources to each neighbourhood.

Solution Path

By adopting a combination of text/image recognition and NLP we will be able to identify posts and stories as a report of hate crime. This will allow the creation of *Hate Crime Maps*, the new Facebook product that will boost transparency on hate crimes and will provide more information to police and other organizations involved in fighting hate crimes.

As a first step, we need to be able to identify hate crime-related content on Facebook and Instagram. This will probably involve a combination of text/image recognition techniques and the implementation of a hate crime-specific hashtag (first iteration) or a more salient form of CTA (second iteration) that will allow the user to classify the content as hate crime-related while sharing it.

By characterizing and differentiating hate crimes by neighbourhoods, these maps will allow first responders to allocate the appropriate resources to each neighbourhood. Finally, since the information will be shared by users in real time, my hypothesis is that *Hate Crime Maps* will shorten the first responders' reaction time.

Data

In 2020 hate crimes have increased at a national scale, [mostly in NYC and LA](#).

LAPD data is quite unstructured. So, despite the lack of data surrounding hate crimes, I will use [data provided by the NYPD](#):

1. Geo Scope: hate crimes in New York City
2. Time Scope: 2017 to 2021, knowing that data in the 2017-2019 period is way less detailed than the data collected in the last year

Methodology

I used Google Sheets for data cleaning and preliminary data exploration.

By manipulating the dataset, I have also created a new table to show data by NYPD precinct for the 76 precincts that reported a hate crime in the Jan 2019 - Mar 2021 period. This allowed me to isolate relevant information at a precinct level.

In order to build the hate crime maps of NYC, I pulled the addresses from the [NYPD website](#) and used a combination of pandas and Google API to pull the latitude and longitude data for all precincts.

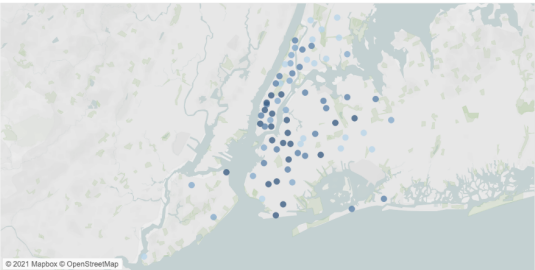
Finally, I used Tableau for data visualization. I created two dashboards on hate crime maps:

- **The four facets of hate crime in NYC** characterizing the 76 precincts by number of complaints, law code violations, arrests, and bias type.
- **Number of Hate Crimes by Offence Type** presenting the distribution of the six most recurrent offence types across the 76 NYPD precincts that reported at least one hate crime complaint in the Jan 2019-Mar 2021 period.

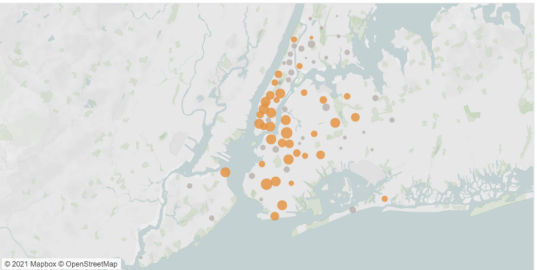
See the preliminary versions of the dashboard below images below.

The four facets of hate crime in NYC (2019-2021)

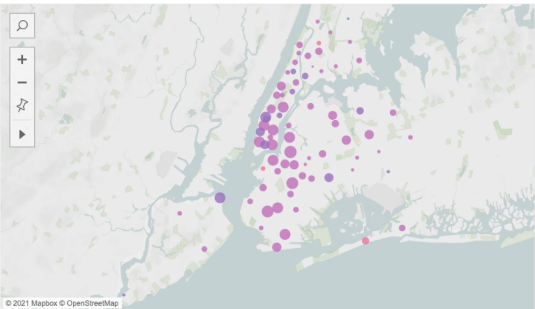
Hate Crime Complaints



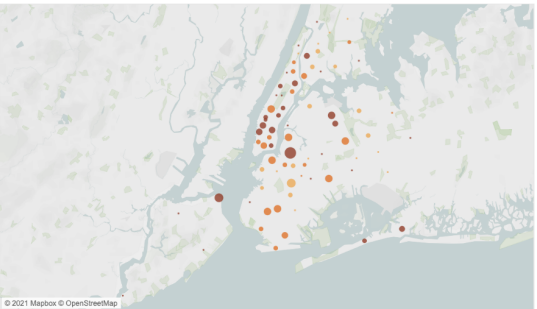
Law Code Violations



Hate Crime Bias



Hate Crime Arrests



Filters

Borough Name

(All)

Complaint Precinct Code

(All)

Hate Crime Complaints

Hate Crime Bins

☐ Halves

☐ Tertiles

☒ Quartiles

Crime Level

(All)

High

Medium High

Medium Low

Low

Law Code Category

Felony

Needs Addressing

Not a Priority

Main Bias Type

(All)

Gender

Race

Religion

Sexual Orientation

Hate Crime Arrests

Time to Arrest

High

Medium

Low

Number of Hate Crimes by Offence Type (2019-2021)

TOTAL
OFFENCES

746

Filters

Borough Name

(All)

Complaint Precinct Co..

(All)

Criminal Mischief

0 10

Miscellaneous Penal L..

0 12

Felony Assault

0 5

Robbery

0 2

Assault 3

0 12

Offenses Against Publi..

0 5

Description

This set of maps presents the distribution of the six most recurrent offence types across the 76 NYPD precincts that reported at least one hate crime complaint in the Jan 2019-Mar 2021 period.

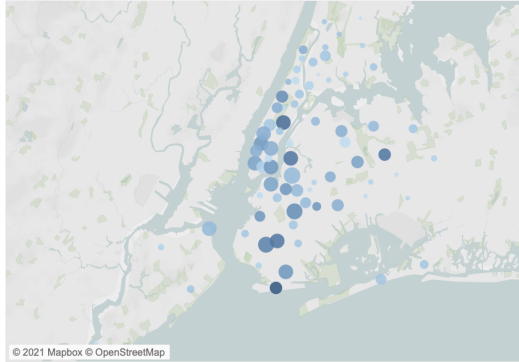
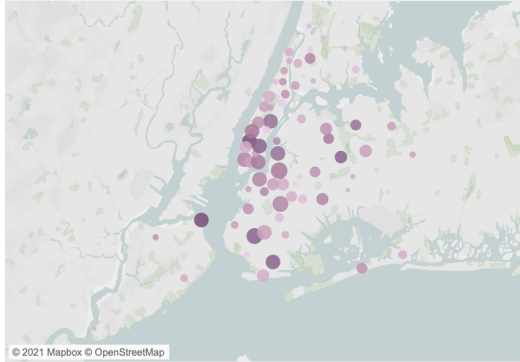
In particular:
- Criminal Mischief
- Miscellaneous Penal Law
- Assault 3
- Offences against public order and sensibilities
- Felony Assault
- Robbery

Criminal Mischief

244

Miscellaneous Penal Law

226

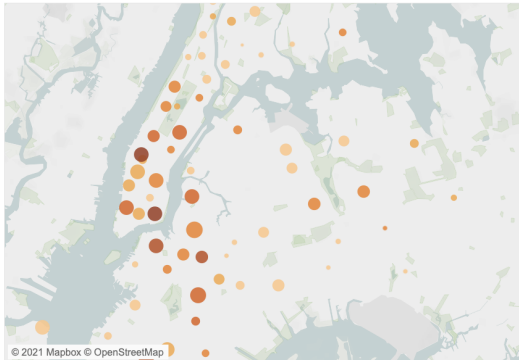
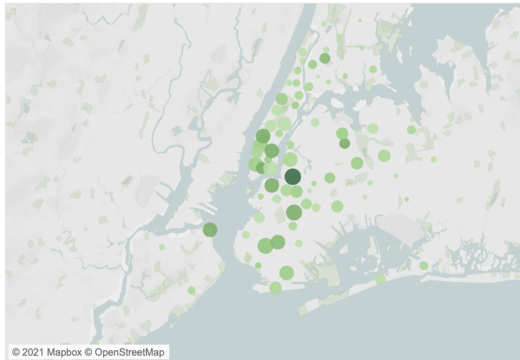


Assault 3 and Related Offences

108

Offences Against Public Order

86

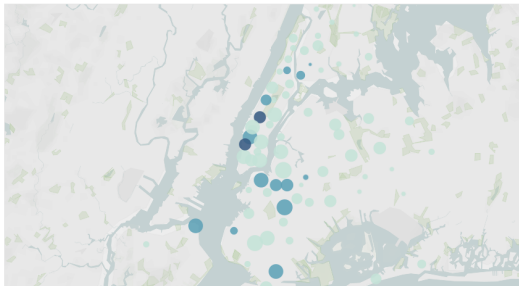
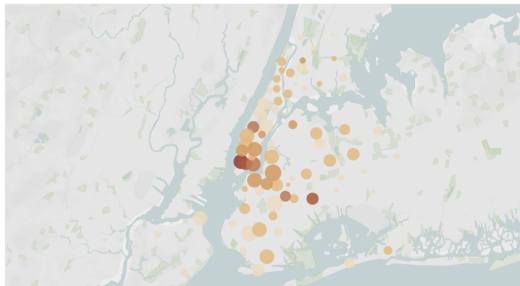


Felony Assault

65

Robbery

17



Next Steps

To bring the project to completion I am planning to:

- Build more visualizations in Tableau and build a **Precinct Profile**
- Refine solution Path
- Incorporate bias minimization strategy