Should I stay or should I go? Know the safest venues in Atlanta

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Introduction

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- Criminality in Atlanta is a big issue.
  - The city is only safer than 2% of all cities US
  - Chances of a person become a victim of violent or property crime in Atlanta is one to 17[1].

- Visiting dangerous increases the chances of getting somehow assaulted.

- Pinpointing venues in less dangerous areas could help locals and tourists avoiding unsafe places.

- This project aims to comprehend the crime profile in the last ten years (2009-2019) and offer venue options in less dangerous places in Atlanta - GA.

[1]https://www.neighborhoodscout.com/ga/atlanta/crime#description

Data collection

The data was collected from

Atlanta Police
Department

Atlanta's Department
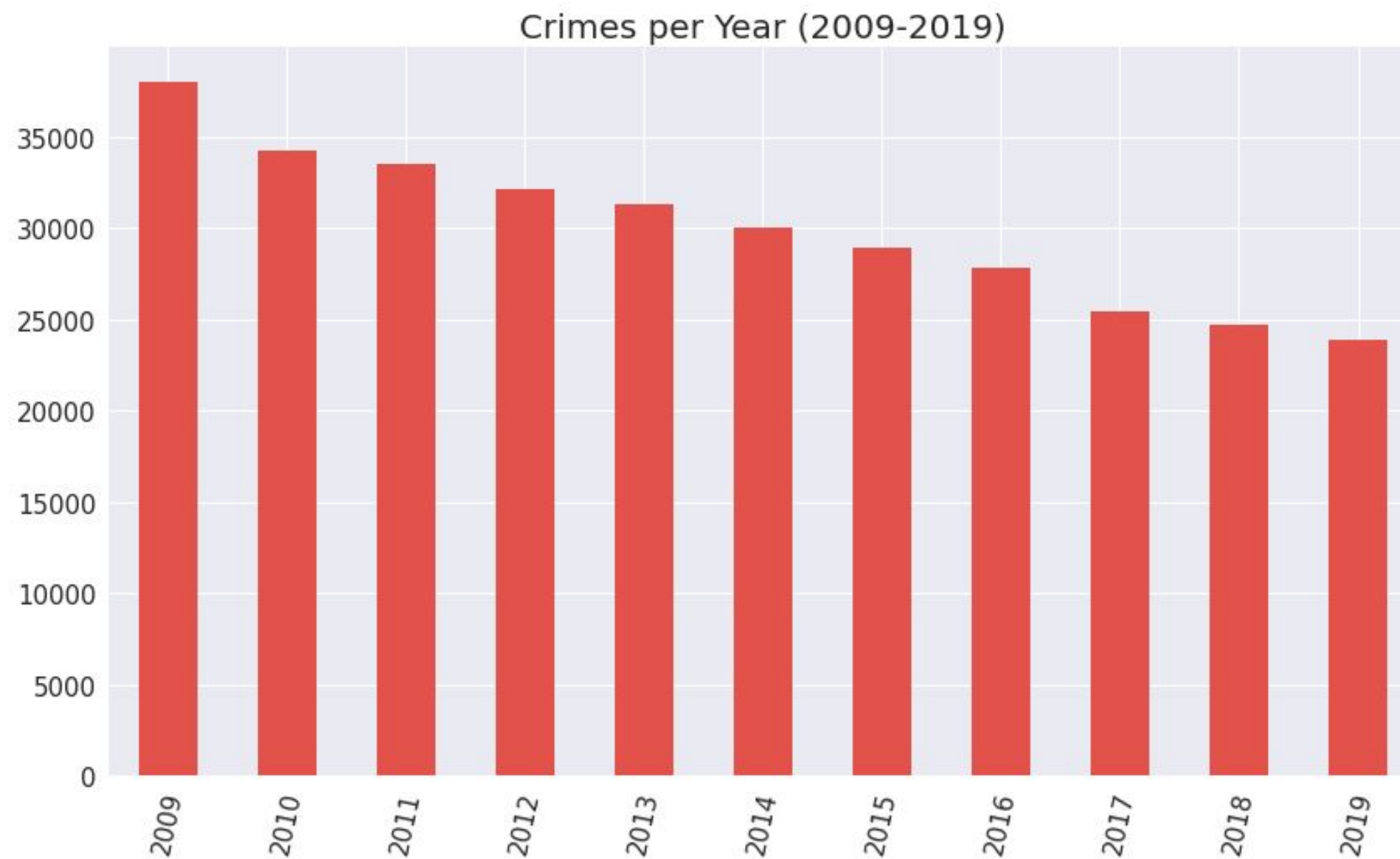of City Planning

Foursquare

Methods

Data Cleaning

- I selected 7 attributes from the Atlanta Police Department original data;

- Rows that were duplicated, had missing neighborhoods or events that happened before 2009, were excluded;

- The dataset was validated: columns had their errors fixed when needed.
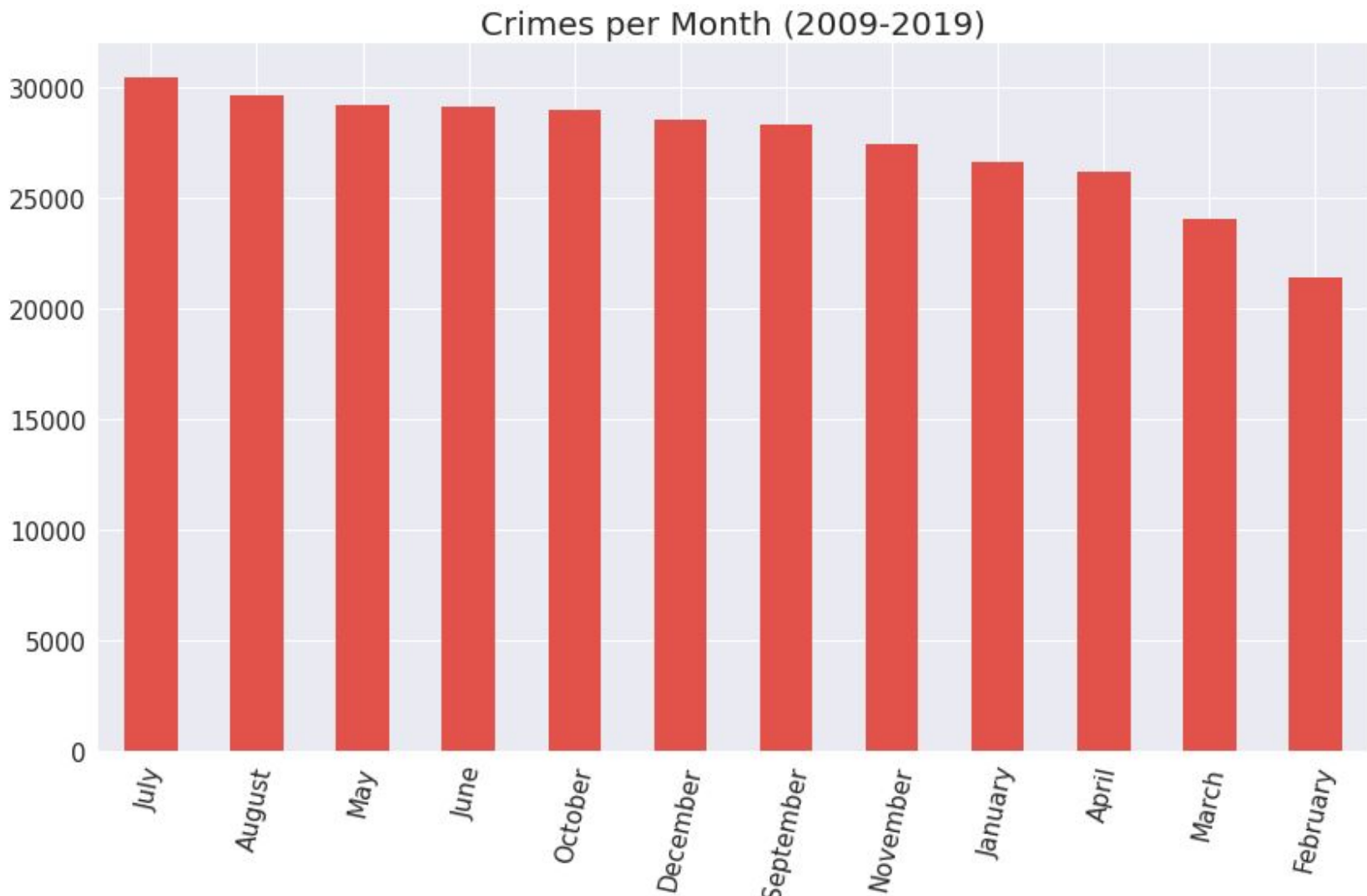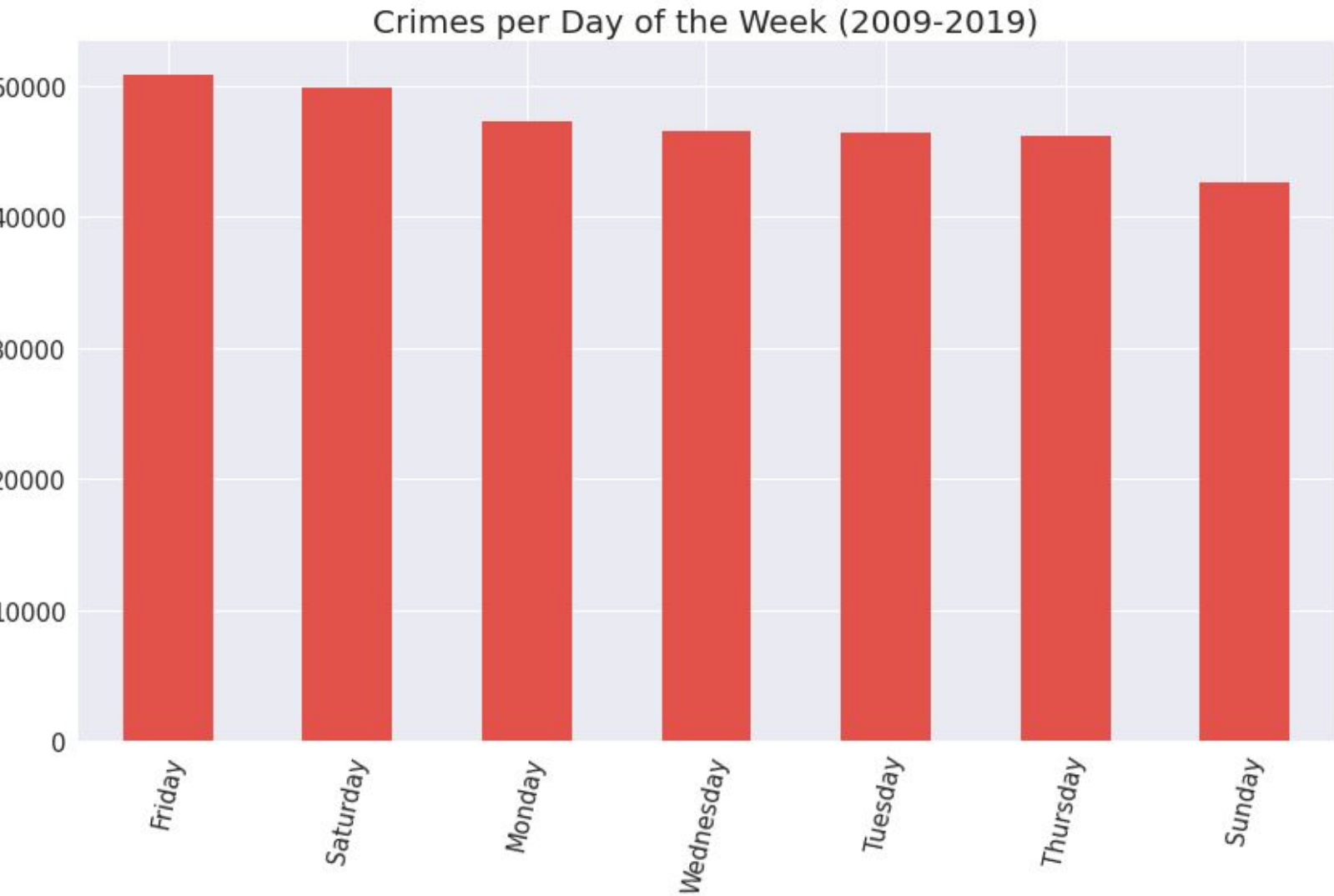
Data Analysis

- Analysis was done using *pandas* and *geopandas* libraries;

- I validated the number of neighborhoods. There were 243 neighborhoods;

- Points of interest: which neighborhoods are safer or more dangerous; the crime tendencies over the years, months and days of the week; what crimes are most frequent; and, how much the frequent crimes affect the most dangerous neighborhoods;

- Finally, I compared the venues found by the Foursquare API in the safest and most dangerous neighborhoods.

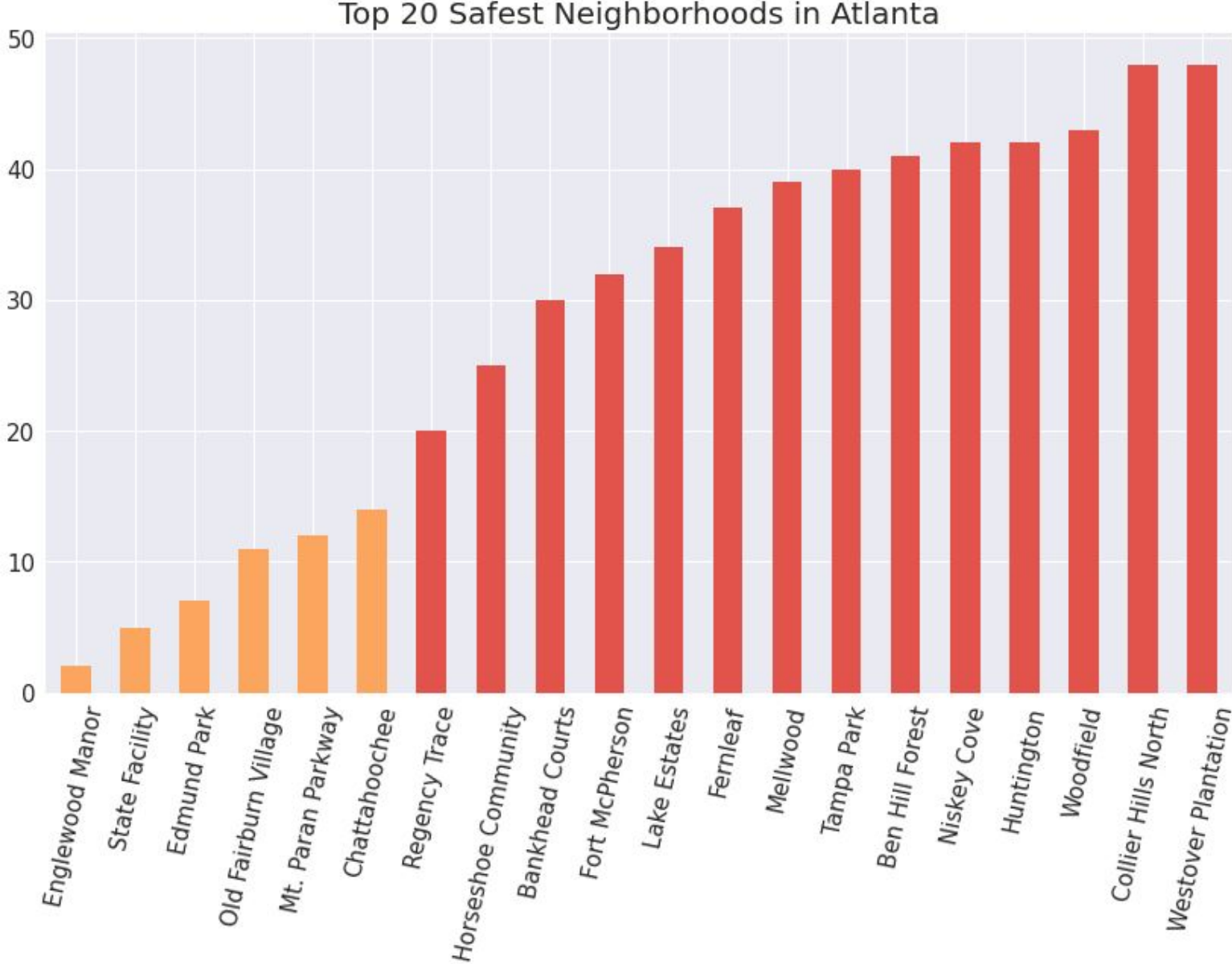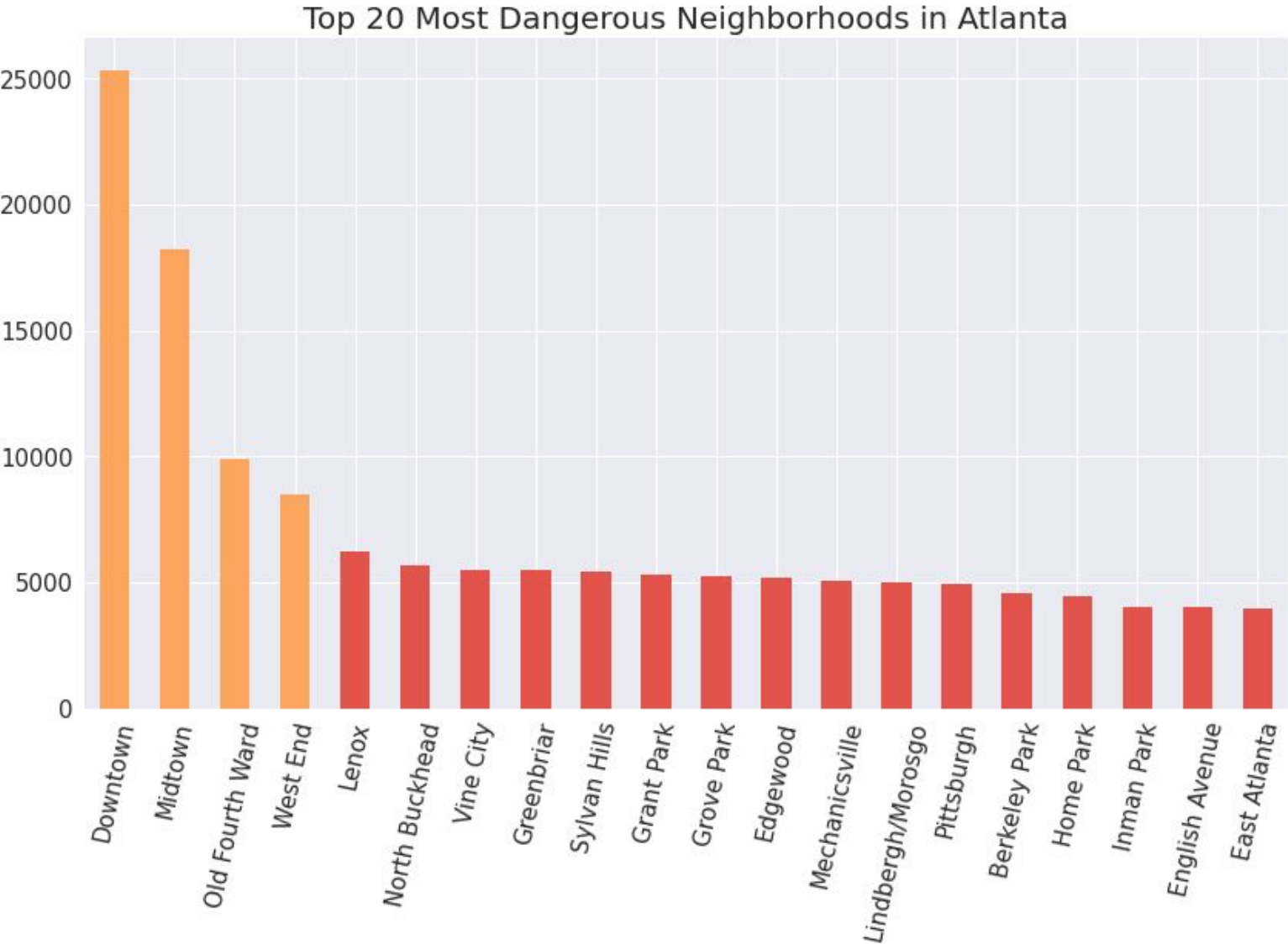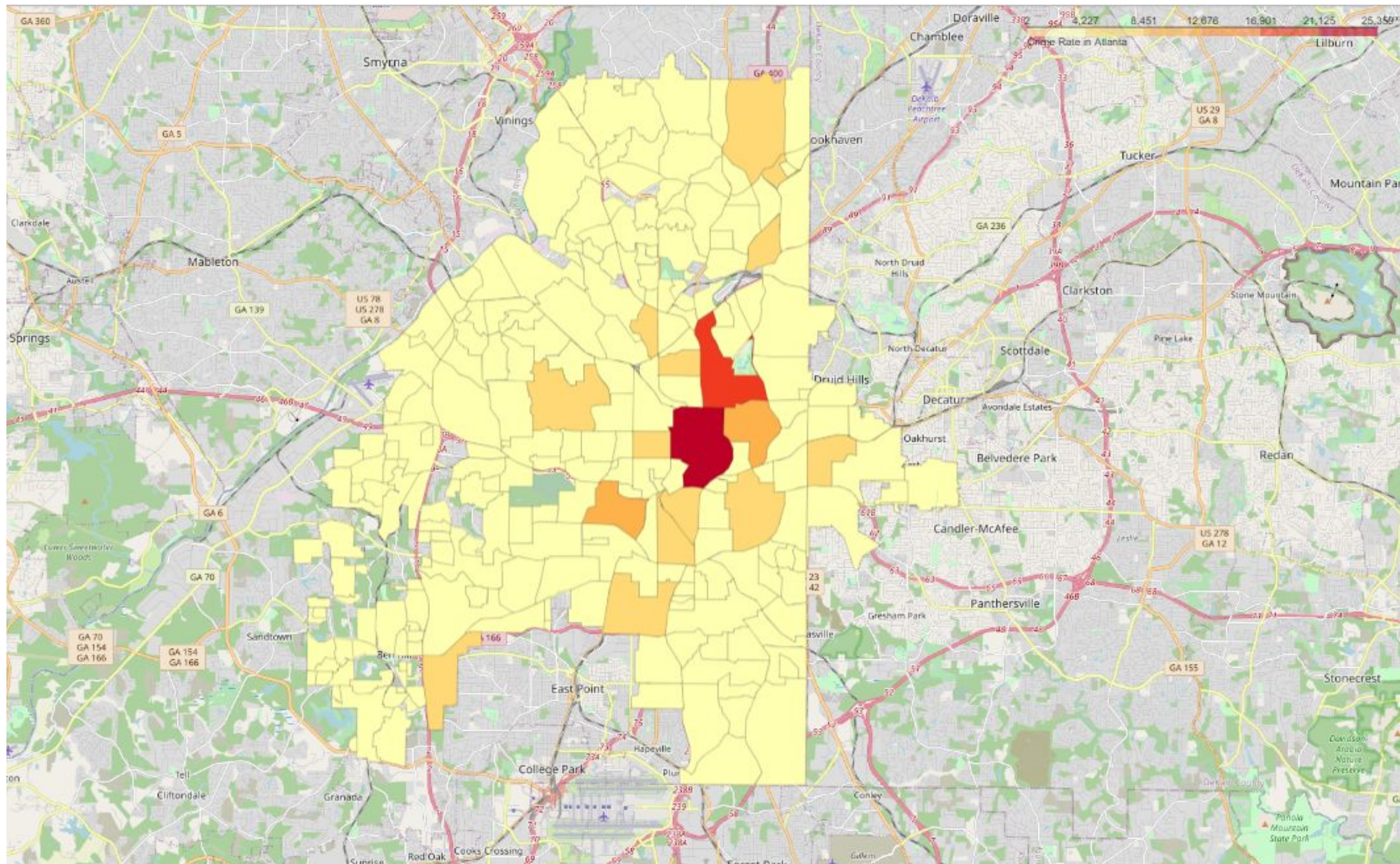# Results

Crimes per Year (2009-2019)

The crime rate has been dropping for the past ten years. In 2009, Atlanta had over 35,000 crime events. In 2019, there were less than 25,000 events.

Crimes have a slightly better chance to occur on Fridays and Saturdays. In terms of months, July has been the month with the most significant criminal record from 2009 to 2019, with 30,444 occurrences. February had the smallest crime record, with 21,381 events.

Crimes per Day of the Week (2009-2019)
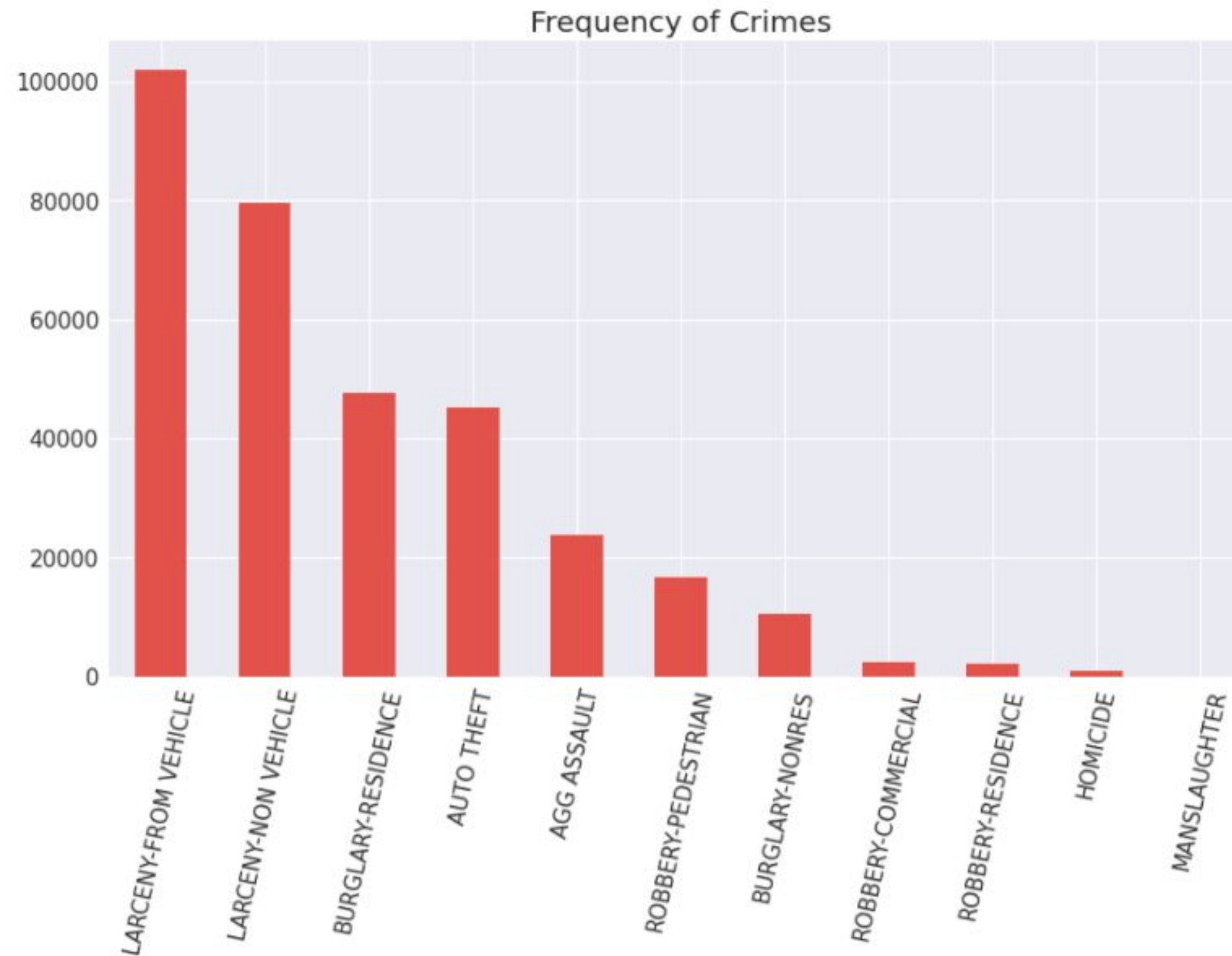

Crimes per Month (2009-2019)

As for the most dangerous neighborhoods, we had Downtown, Midtown, Old Fourth Ward, and West End, with an occurrence number of 25,350, 18,213, 9,924, and 8,492, respectively. The safest ones were Englewood Manor, State Facility, Edmund Park, Old Fairburn Village, Mt. Paran Parkway, and Chattahoochee, with less than 15 crime occurrences.

Top 20 Most Dangerous Neighborhoods in Atlanta

Top 20 Safest Neighborhoods in Atlanta

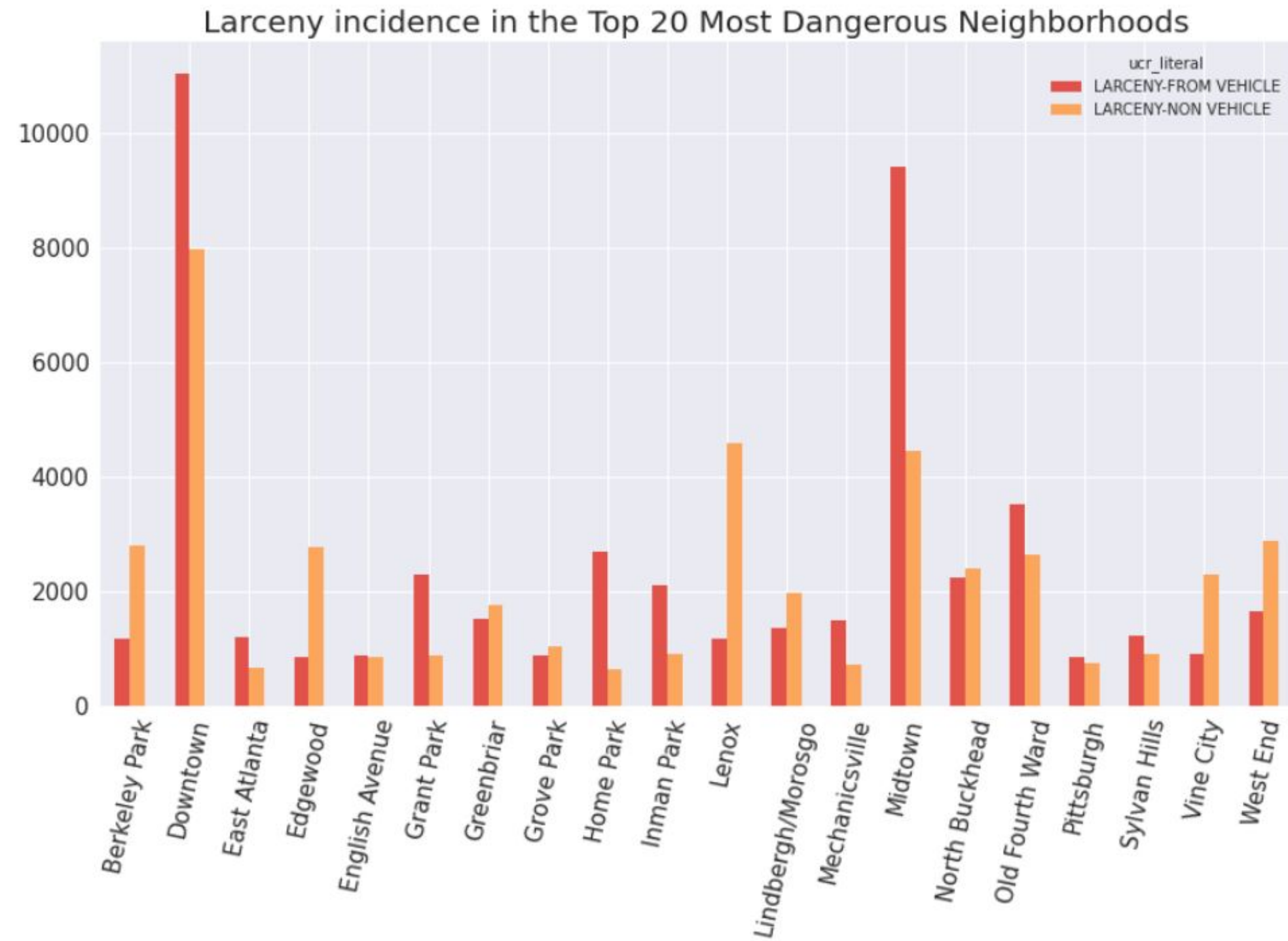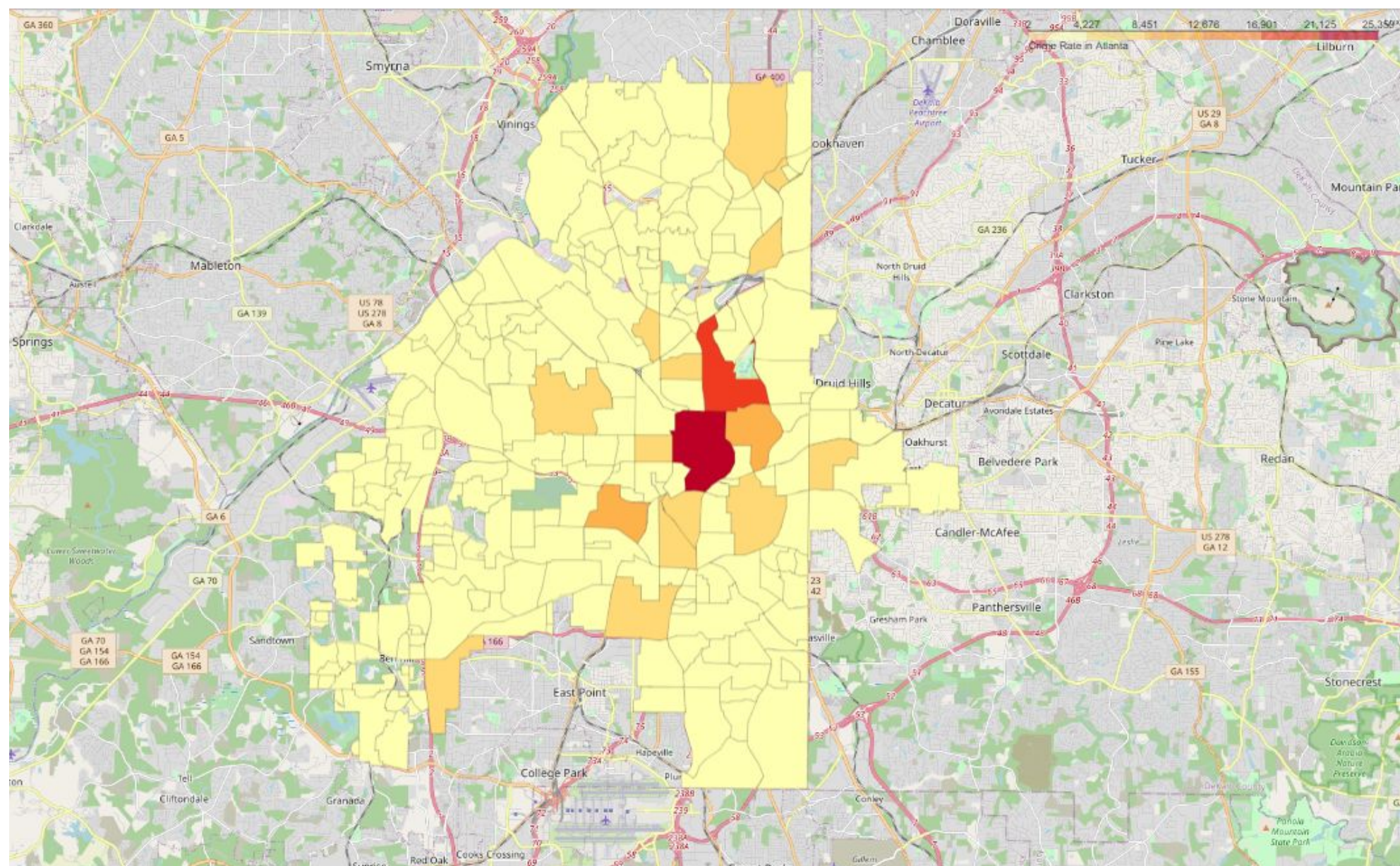Choropleth Map of crime rate per neighborhood in Atlanta. The darker the area, the more dangerous it is. Those in the darkest shades of red are Downtown and Midtown.

Frequency of Crimes

The most common crime was larceny, both from vehicle and non-vehicle. Right after, we had burglary in residences and auto theft. The less common crime was Manslaughter, having only three occurrences in ten years.

Larceny incidence in the Top 20 Most Dangerous Neighborhoods

In Downtown and Midtown, larceny from vehicle and non-vehicle represented over 74% of the crimes.

- Downtown, as a central neighborhood, has most of its venues focused on bars, restaurants, and tourist places.
- The safest communities have a wider variety of venues, like stores, nature-related places (parks, trails, etc.), restaurants.

- The types of venues between groups of neighborhoods are very similar.

Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
Bankhead Courts	Intersection	Gas Station	Pizza Place	Breakfast Spot	American Restaurant
Ben Hill Forest	Carpet Store	Cosmetics Shop	Gym	Gas Station	Zoo
Chattahoochee	Park	Rental Car Location	Discount Store	Gas Station	Breakfast Spot
Collier Hills North	Mexican Restaurant	Park	Pizza Place	American Restaurant	Burrito Place
Edmund Park	Park	Trail	Gym	BBQ Joint	American Restaurant

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Berkeley Park	Sandwich Place	Mexican Restaurant	Pizza Place	Pet Store	Gym / Fitness Center
Downtown	History Museum	Bar	Café	Music Venue	Cocktail Bar
East Atlanta	Trail	Coffee Shop	Restaurant	Bar	New American Restaurant
Edgewood	Trail	Bar	Coffee Shop	Restaurant	Taco Place
English Avenue	Pizza Place	Coffee Shop	American Restaurant	Aquarium	Art Gallery

Fragments of venue tables for the safest (left) and most dangerous (right) neighborhoods. The whole data frame can be accessed in https://github.com/anaflvss/Coursera-Capstone/blob/master/05_Capstone_Atlanta.ipynb

Conclusion

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- The crime rate has been dropping.

- Tourism and leisure
  - Visit, but be careful: Downtown, as the central area of Atlanta,
  - Safer options: Collier Hills North and Fort McPherson.

- Nature-related
  - Safe: Chattahoochee, Edmund Park, Englewood Manor, and Lake States
  - Not as safe: East Atlanta, Edgewood, and Vine City.

- For future analysis:
  - evaluate if crime rates continue to drop and predict future rates, using a regression model.