NYC Park Crime Visualization Project

Author: Phuc (John) Nguyen, Nisha Gupta, Mia Khan

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# Overview:

This project presents a series of interactive and static visualizations that explore the distribution and patterns of crime in public parks across New York City using data from 2023 and 2024. The visualizations are designed to support urban planners, policymakers, and citizens in understanding crime dynamics in NYC parks.

# Visualizations:

## 1. Crime Trends Over Each Quarter of NYC Parks in 2023 & 2024 (Line Chart)

The line chart tracks how different crime types have evolved across eight quarters from Q1 2023 to Q4 2024. Each line corresponds to a specific crime type, making it easy to observe seasonal fluctuations, emerging spikes, or drops over time. For instance, crimes like robbery or assault may rise during summer months when park usage is high. This time-based view is valuable for recognizing trends and aligning safety initiatives with expected seasonal activity.

## 2. Crime Trends in NYC Public Parks by Quarter, Borough, & Crime Type (2023-2024) (Interactive Dashboard made with Altair)

Using Altair, the dashboard enables users to dynamically filter crime data by borough and crime type. Once filters are selected, the dashboard updates to show a focused line chart of quarterly trends. This makes it a powerful tool for drilling down into the data to examine how robbery in the Bronx differs from larceny in Queens, for example. The interactivity and flexibility of this dashboard provide a more personalized experience for users looking to answer specific questions.

## 3. NYC Park Choropleth Map Colored through Crime Count (Interactive Choropleth Map)

The geospatial map uses Leaflet to display parks shaded according to the total number of crimes reported. With filters for borough, year, crime type, and park category, users can explore crime across both space and time. The map’s dark basemap and red color gradient make hotspots stand out, while interactive popups provide detailed park-level data. This visualization is ideal for spatially aware users such as urban planners and public safety officials to assess regional crime patterns and deploy interventions accordingly.

## 4. Park Size vs. Crime Count (Scatter Plot)

The scatter plot explores the relationship between the size of a park and the number of crimes it experiences. Each dot represents a park, sized by its total crime count and colored by borough. While there’s a general trend that larger parks tend to have more crime, the plot shows that size isn’t the only factor. Some large parks are safe, while some smaller parks report unexpectedly high crime rates. This chart highlights the complexity of park safety and suggests that elements such as location, design, and foot traffic may also play significant roles.

## 5. Top 10 Most Dangerous Parks Identification (Horizontal Bar Chart made with D3)

The interactive horizontal bar chart, created using D3, highlights the 10 NYC parks with the highest total crime counts. Each bar represents a park, with its length proportional to the number of reported crimes. The color intensity is mapped using a red gradient, which reflects the severity of crime in each park. When using the hover feature, users can view tooltips with exact values, offering both visual and numerical insight. This chart is ideal for quickly identifying high-risk areas and informing park safety priorities.

## 6. Park Crime Types Per 100,000 Residents by Borough (Stacked Bar Chart made with Altair)

The stacked bar chart, created with Altair, visualizes the total number of crimes by type across various categories such as borough or quarter. Each bar is broken down into segments representing different crime types (e.g., robbery, rape, grand larceny), allowing users to see both the overall volume and the composition of crimes in each segment. This visualization is essential for understanding not only where crime is occurring but also what kind of crime is most prevalent. It reveals how certain crime types are more concentrated in specific areas or quarters, highlighting the diverse nature of public safety concerns in parks.

# Live Website:

<https://mia-khan.github.io/NYC_Crime/index.html>

# Conclusion:

Each visualization in this dashboard serves a unique purpose, from identifying the most dangerous parks to analyzing long-term crime trends and investigating whether park size influences safety. Together, they offer a comprehensive and actionable understanding of crime in NYC’s public parks, helping inform decisions around public safety, urban planning, and community engagement.