PROGRESSION OF HATE CRIMES IN THE STATE OF NEW YORK

EAS503 PROJECT REPORT

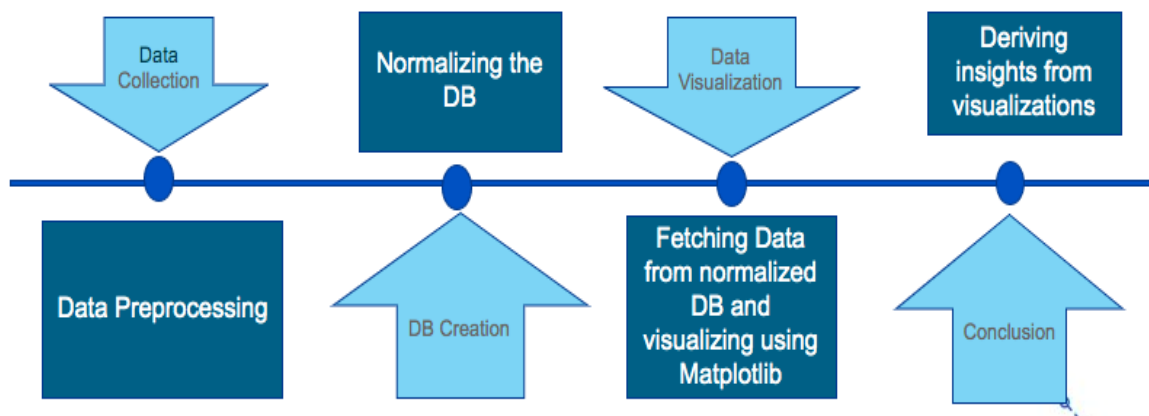Sanat Bhargava   Saumya Buliya   Kshitij Vijayvergiya   Naman Bansal

MOTIVATION

A hate crime is a criminal act motivated (in whole or in part) by the perpetrator's hatred of a specific group, such as race, religion, disability, sexual orientation, ethnicity, gender, or gender identity. Investigating and prosecuting these crimes to better understand and prevent hate crimes is now important due to their increasing frequency and severity in the modern world. Because the presence of motives varies from case to case, it can be difficult to determine with certainty whether a crime was the result of criminal prejudice. Law enforcement investigations provide sufficient information in this dataset for a reasonable and prudent person to conclude that some or all the offender's actions were motivated by prejudice. Only offenses committed are included. We plan to explore the evolution of hate crimes in upstate New York because it is particularly useful for students seeking higher education in a quite different society.

PROJECT OUTLINE

ABOUT THE DATASET

Date: The date on which the crime occurred.
County: The county in which the crime occurred.
State: The state to which the county belongs.
Region: The region of the United States the state belongs to.

Location: The location of the crime.
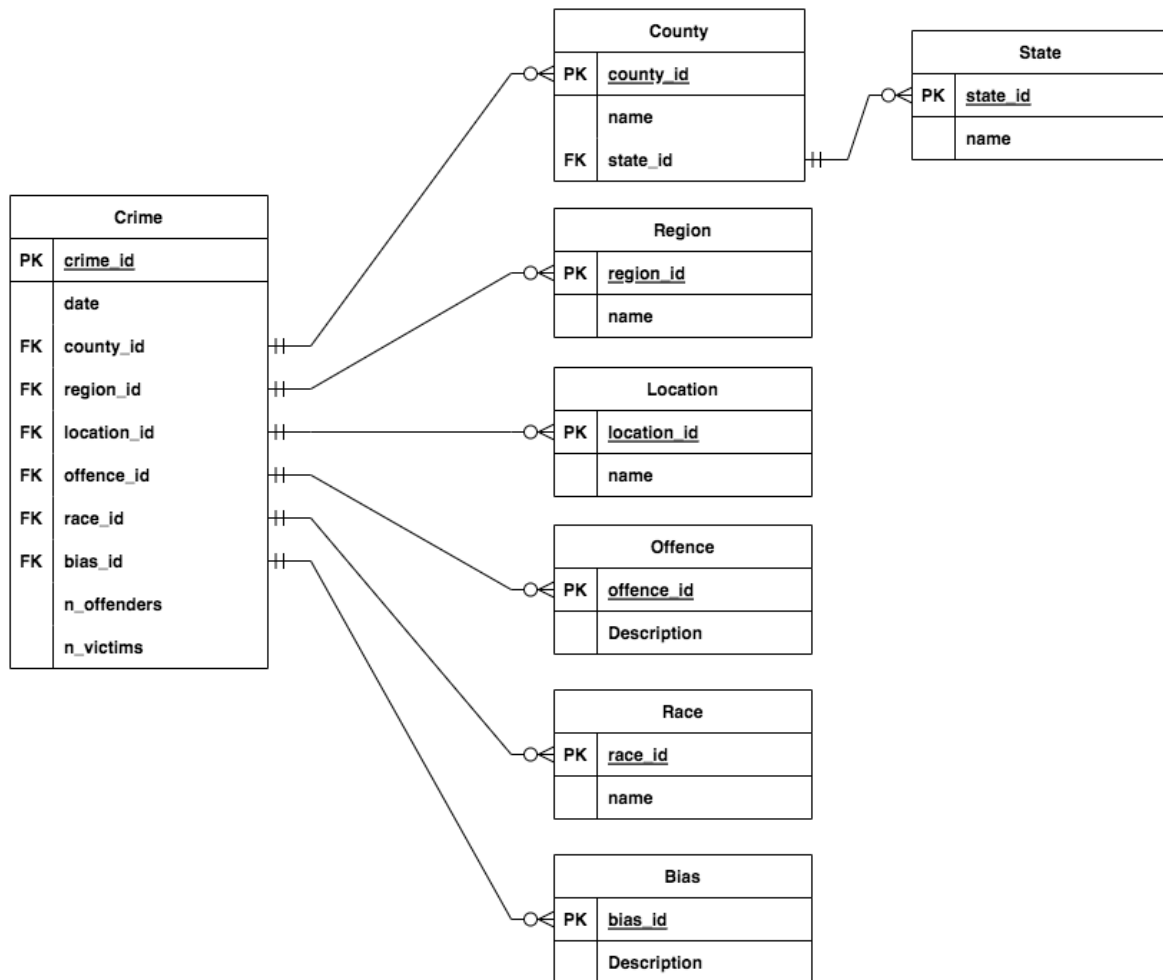
Offence: The type of offence.

Off_race: The race of the offender.

Bias: The bias of the offender.

N_off: Number of offenders.

N_vic: Number of victims.
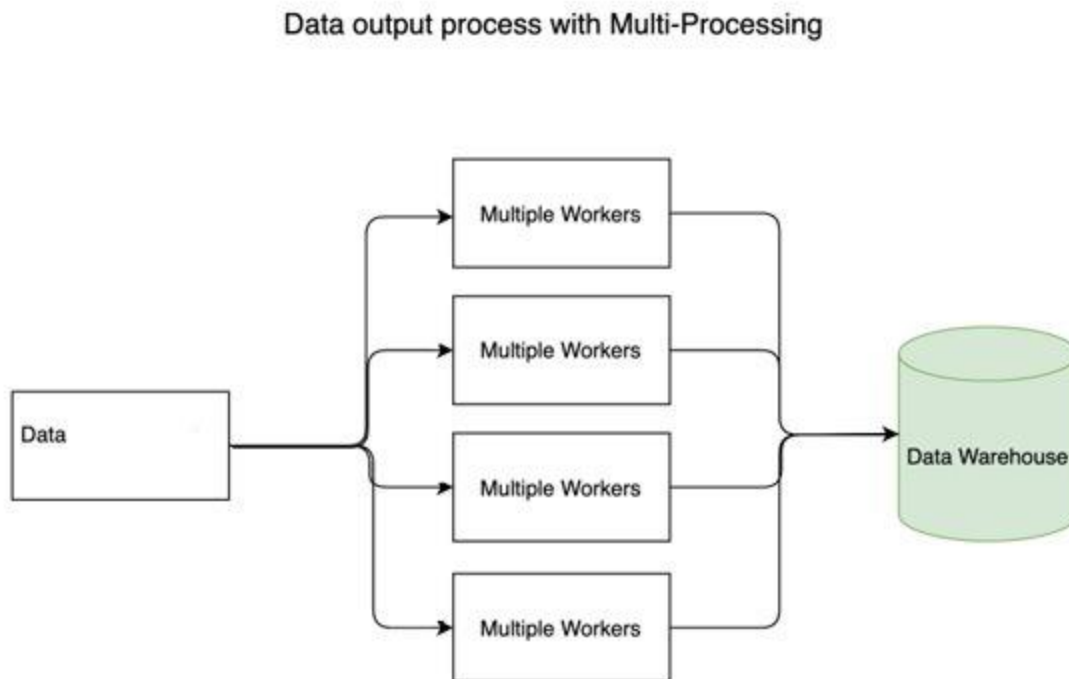
ER DIAGRAM

INSERTING THE DATA

We have 219,578 entries of hate crimes from 1991-2020 to insert into the database. All the tables except the Crime table contain unique ID-value pairs, so only a small subset of the total entries is

inserted into these tables (not a slow process). However, the crime table contains all 219,000+ entries, and inserts take a long time. Our goal is to reduce this time using Python's multiprocessing capabilities.

DATA OUTPUT PROCESS WITH MULTI-PROCESSING

Data output process with Multi-Processing

INSERTING THE DATA WITH MULTIPROCESSING

Most modern CPUs have multiple cores (although not as many cores as GPUs). Most desktop PCs come with 6, 8, or 12 cores. Each of these cores has two threads, each capable of executing a set of instructions. A subprocess is defined as: Extracts and processes the information related to the crime table from her given CSV file and populates the crime table. We use the Pool() function from the Multiprocessing module to split the original CSV file into chunks and run these subprocesses simultaneously on 7 CPU cores.

Benchmarking:
Time required to insert data into crime table without multiple operations: 3 hours 17 minutes
Time required to insert data into crime table with multiprocessing: 7 minutes 51 seconds.

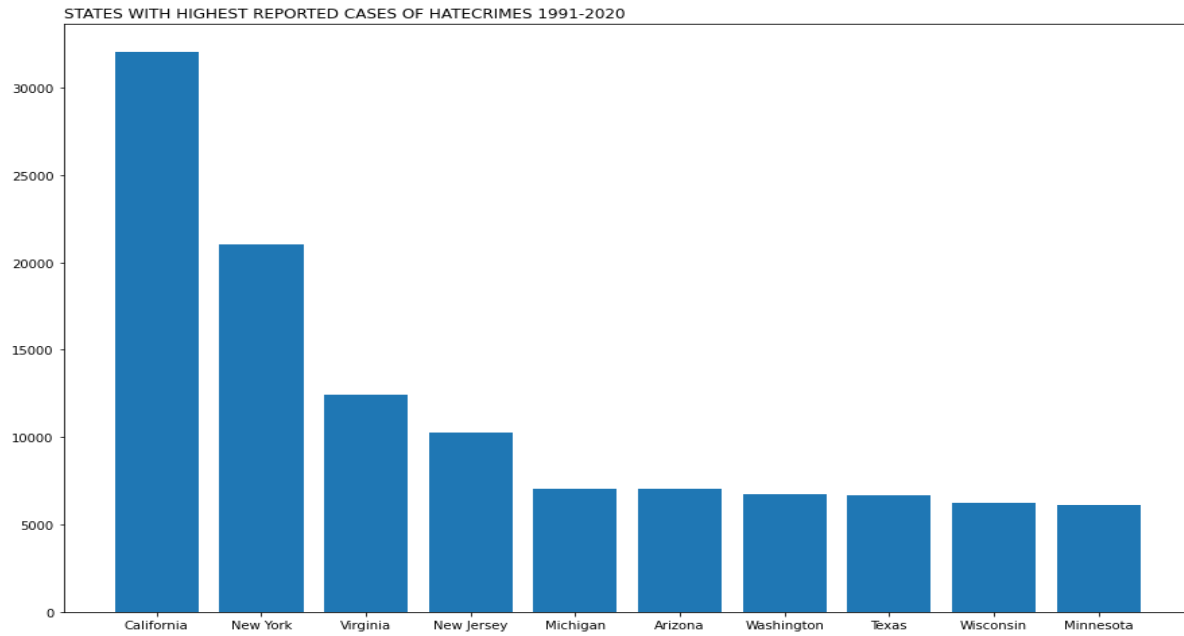## RESULTS AND FINDINGS
1. Best and Worst States

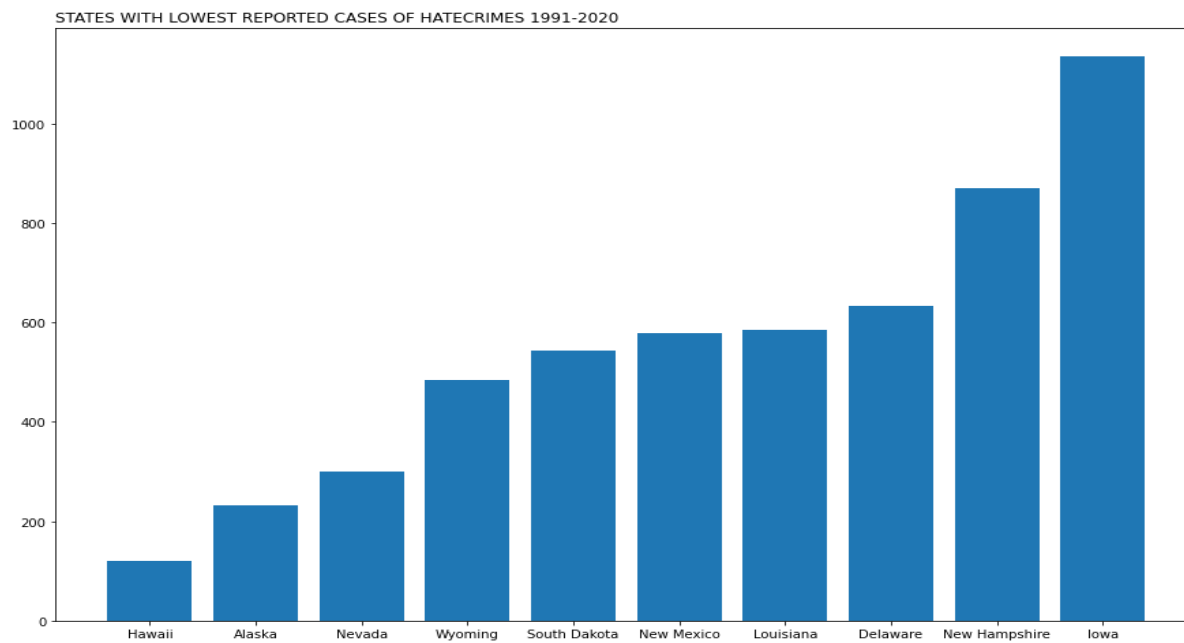Figure1: States with Highest Reported Cases of Hate Crimes from 1991-2020

Figure2: States with Lowest Reported Hate Crimes from 1991-2020
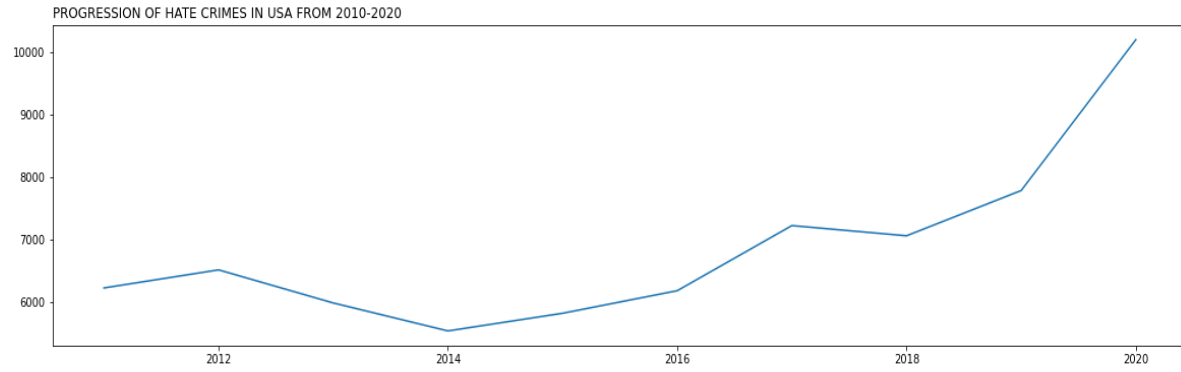
2.   Recent Progression of Hate Crime
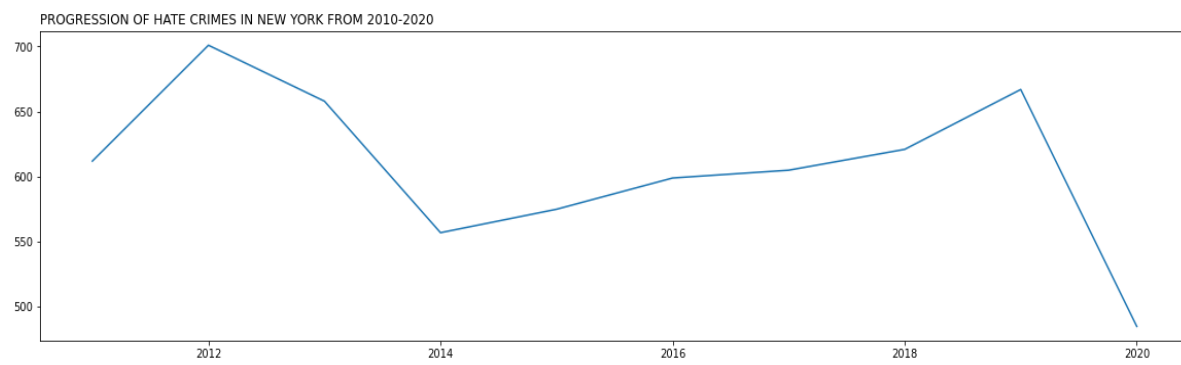
PROGRESSION OF HATE CRIMES IN USA FROM 2010-2020

Figure3: Progression of Hate Crime in USA from 2010-2020

PROGRESSION OF HATE CRIMES IN NEW YORK FROM 2010-2020

Figure4: Progression of Hate Crime in New York from 2010-2020

3. Distribution of Bias

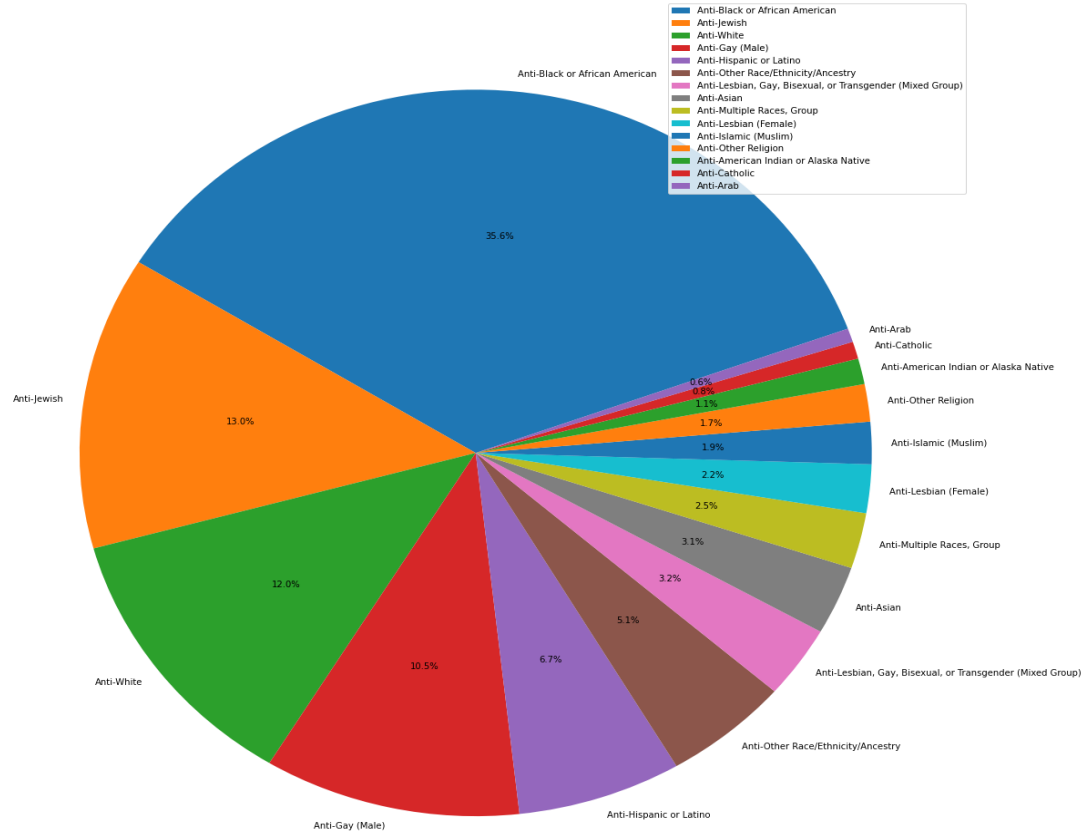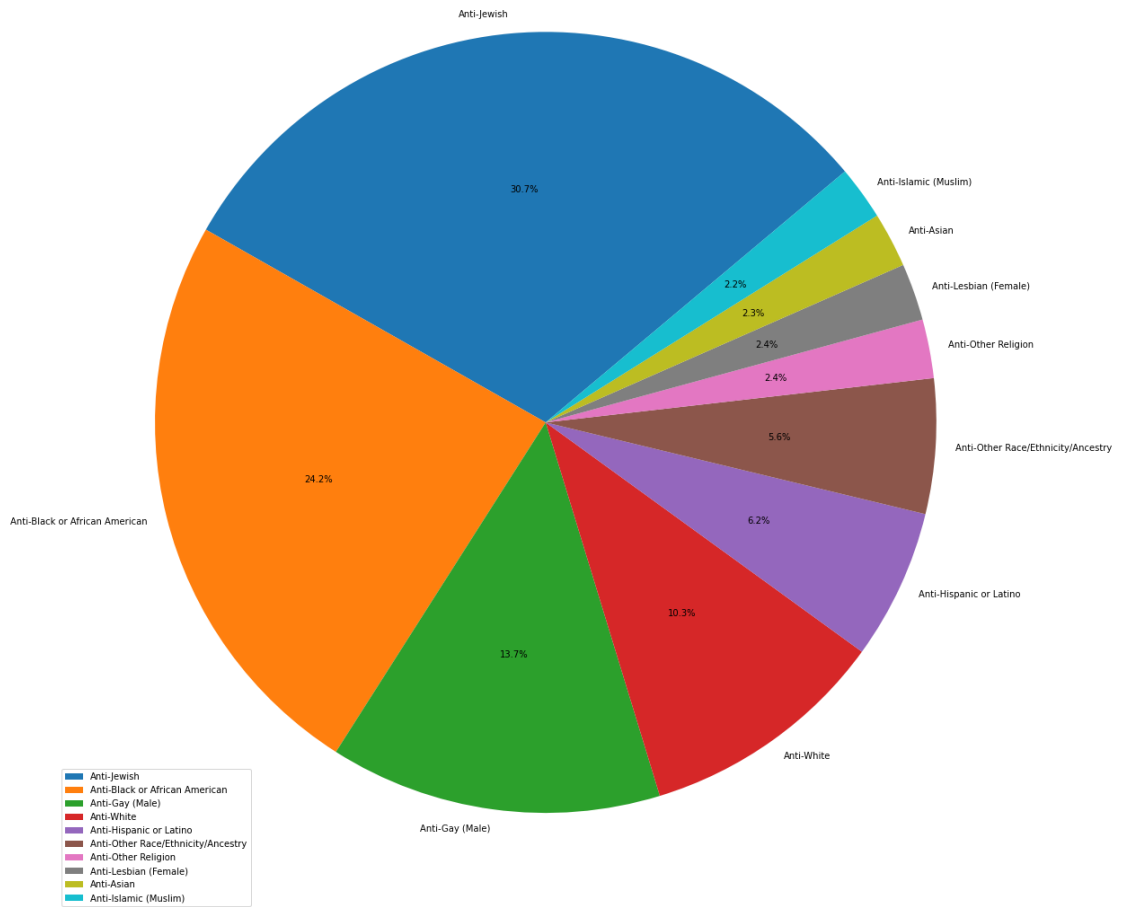Figure5: Distribution of Bias in United States
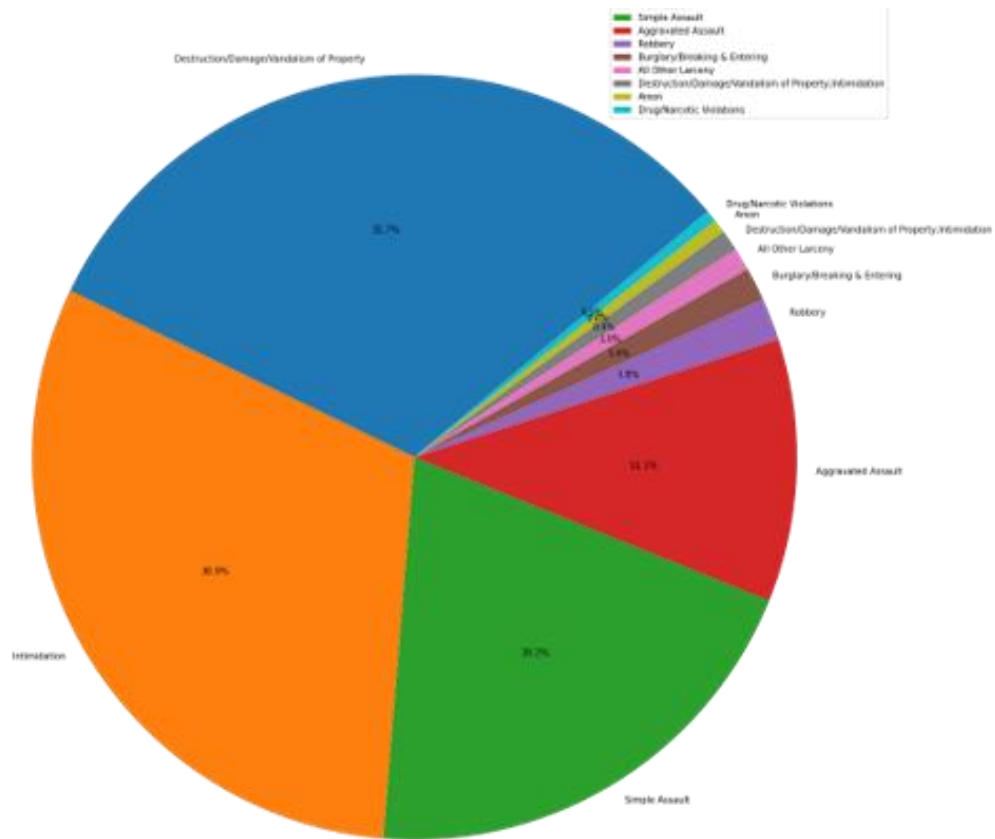
Figure 6: Distribution of Bias in New York

4.   Types of Crimes

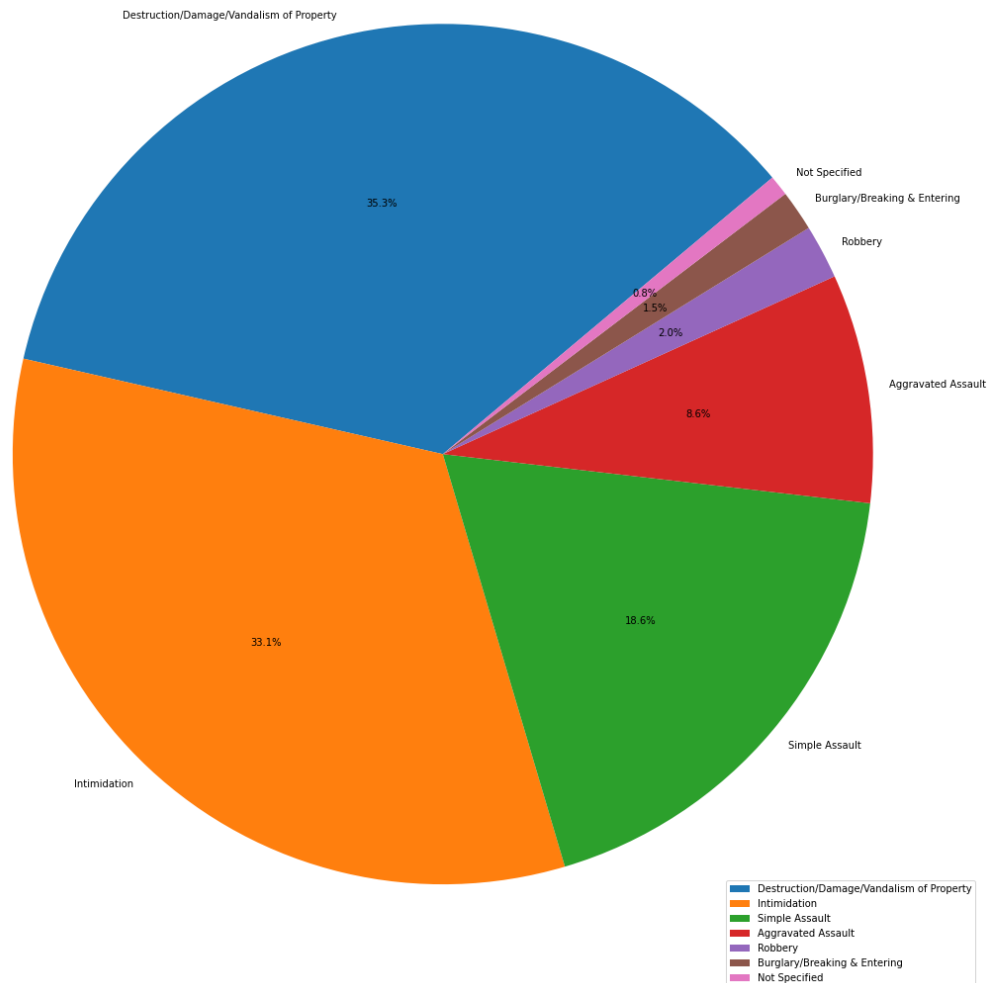Figure 7: Types of Crime in United States

Figure 8: Types of Crime in New York

CONCLUSION

- Since 1991, hate crimes have never been as prevalent as they are now.
- Most hate crimes are conducted against African American, Jewish, and LGBTQ+ communities.
- In New York, property damage, intimidation, and violence are the three main crimes committed against victims of hate crimes.
- Most hate crimes occur in popular culture hotspots like California and New York.