# Adult Arrests 18 and Older by County: Beginning 1970

Prof.Michael Eagle, AIT-580-005, George Mason University

Keerthana Cheruvu, Data Analytics Engineering, kcheruvu@gmu.edu, George Mason University

*Abstract*— The data set is about the adult arrests of 18 years and above in different counties from the year 1970, which happened due to different fingerprintable crimes they committed such as felony, misdemeanor. The data considered in the different counties in New York state is derived from the computerized criminal history where the arrests are described in each county for the years beginning 1970 consists of different data types. Here, I considered the felony and misdemeanor total crimes occurred in different counties over the years, and the total crimes occurred. Using Python, R the visualizations of the data are performed, and SQL used for analyzing the data statistically. From the analysis it is observed that maximum number of crimes are occurred in New York County.

**Keywords—SQL, Python, R**

## I. INTRODUCTION

The arrests that occurred in different counties of New York state are considered from the dataset derived from an open-source data of the New York state reports of the history of fingerprint accessible reports. A clear understanding of the arrests can be achieved by analyzing the data, which will help to know the seriousness of the crimes that are occurring in the different counties to the people and the government to take proper actions in order to reduce the crimes occurring over a region. I have created the following research questions that helps to analyze the data of the crimes occurring in the counties over the years.[1]

- Changes occurred in the Felony with Misdemeanor Cases over the counties and years.
- The county recorded maximum number of crimes.
- Maximum number of felony and Misdemeanor drug crimes recorded over the years.

From the above obtained questions, we observe the crime-cases occurring with maximum arrests in the felony and the misdemeanor cases.

First and foremost, the rate of change in total felony and misdemeanor cases over time can be observed to draw conclusions about changes in felony and misdemeanor cases in various counties over time. Then maximum number of cases in a county can be derived, as mentioned in the second research question. Finally, we look at the highest number of drug felony and drug misdemeanor offenses over the years.

## II. LITERATURE REVIEW

Likewise, the arrest's dataset selected, there are many crimes related data available over the internet made for the visualization of the crime data for the understanding of these crimes for the sake of the public, which are discussed as below help to interpret the data.

A. Women's Crime: Gendered Criminology Theory Essay

In this publication, female criminals are often treated differently and viewed as a pernicious force to be reckoned with. More recently, voyeurism research (Klein & Kress, 1976, p. 155), which they consider to be a major theme, especially of female criminals. Moreover, criminal women are perceived by the public as emotional, irrational, incapable of taking full responsibility for their crimes and actions, due to their biological nature. [2].

The gender theory in criminology aims to increase public awareness of both male and female criminal activity. Feminization theories differ from gender theories in that they suggest patterns of criminal conduct in females that are distinctly different from those in males. Therefore, by understanding how disparities in men's and women's lives influence the various histories of male and female crime, it may be possible to assess male and female crimes effectively.[2].

B. Violent Crime Rate

This publicly available dataset details violent crime rates (crimes per 1,000 people) for counties, cities, regions, and communities in California. The Federal Criminal Police Service's Crime Statistics Division is where you get your crime statistics. It integrates data from local colleges, states, counties, tribes, and federal law enforcement agencies. The Office for Health Equity Office Healthy Communities Data and Indicators Project contains several indicators including tables. Young adults aged 15 to 44 in California account for 10% of all homicides. In 2010, he had 1,809 murders, 8,331 rapes and over 95,000 assaults in California. In California, an African American is 11 times more likely to be murdered or assaulted than a white man. [3].

C. Rising Share: Hispanics and Federal Crime

The study estimates that the influx of illegal immigrants and tightening immigration controls have significantly changed the racial composition of those sentenced by the courts. In 2007, more than three times as many Latinos (40%) as her of the total adult population in the United States were convicted. The Pew Hispanic Center, a subsidiary of the Pew Research Center, examines United States Sentencing Commission (USSC) statistics and finds that the percentage of all convicted felons who are Hispanic has increased from 24% in 1991. found an increase of 35% in 2007 [4].

The fact that, unlike most other criminal prosecutions, immigration violations are the sole jurisdiction of federal courts, not state or local courts, is one reason all these numbers have risen so dramatically. Between 1991 and 2007, the total number of defendants convicted by federal courts more than doubled. More than half (54%) of the overall increase in convicted offenders over the period was due to nearly four times the number of convicted offenders from Spain. [4].

## III. DATA OVERVIEW, METHODS AND TOOLS

The data set is retrieved from the DATA.GOV where the punishable crimes occurred which are recorded in their data using finger printable access that occurred in the newyork state for different counties. The dataset consists of 13 columns and 3255 rows. The univariate analysis of the variables used in the data set is shown below:

| Column | NOIR Datatype |
|---|---|
| County | Nominal |
| Year | Ordinal, Interval |
| Total | Ratio |
| Felony Total | Ratio |
| Drug Felony | Ratio |
| Violent Felony | Ratio |
| DWI Felony | Ratio |
| Other Felony | Ratio |
| Misdemeanor Total | Ratio |
| Drug Misdemeanor | Ratio |
| DWI Misdemeanor | Ratio |
| Property Misdemeanor | Ratio |
| Other Misdemeanor | Ratio |

Table 1: Univariate Analysis of the variables.
Methods and Tools Used:

The methods and tools used for analyzing the dataset are listed below:

R:

- Load data
- Correlation Matrix, Scatter plot, bar graph, line graph.

Python:

- Load data
- Regression, histograms, line graph

SQL:

- Load data
- Queries for distinct years, violent felony, Drug Felony cases.

## IV. RESULTS

A. Using SQL:

Using SQL, performed few queries related to the number of arrests, such as loading the dataset, size of the data, distinct values, number of adult felony and misdemeanor arrests over the years, top 25 county has reported the highest number of Drug felony till now, which country recorded highest number of violent felony and has lowest number of Drug Felony which are shown below:

| County | Year | Total | Felony Total | Drug Felony | Violent Felony | DWI Felony | Other Felony | Misdemeanor Total | Drug Misdemeanor | DWI Misdemeanor |
|---|---|---|---|---|---|---|---|---|---|---|
| Albany | 1970 | 1032 | 563 | 90 | 155 | 4 | 314 | 469 | 179 | 47 |
| Albany | 1971 | 1566 | 693 | 119 | 199 | 6 | 369 | 873 | 179 | 111 |
| Albany | 1972 | 2604 | 864 | 181 | 215 | 8 | 460 | 1740 | 251 | 295 |
| Albany | 1973 | 3055 | 955 | 213 | 230 | 28 | 484 | 2100 | 298 | 491 |
| Albany | 1974 | 3587 | 1070 | 225 | 244 | 17 | 584 | 2517 | 354 | 610 |
| Albany | 1975 | 3526 | 1026 | 179 | 274 | 12 | 561 | 2500 | 327 | 453 |
| Albany | 1976 | 3907 | 1162 | 165 | 364 | 26 | 607 | 2745 | 295 | 565 |
| Albany | 1977 | 4109 | 1075 | 106 | 337 | 45 | 587 | 3034 | 224 | 832 |
| Albany | 1978 | 5030 | 1193 | 71 | 345 | 58 | 719 | 3837 | 132 | 1505 |
| Albany | 1979 | 5708 | 1339 | 131 | 409 | 65 | 734 | 4369 | 198 | 1805 |

Figure 1: Data loaded into showing the first 10 rows.

In the above figure the data was loaded into the SQL and showing the first 10 values in the dataset.

row_count
3255

column_count
13

Figure 2: Size of the dataset in counting the rows and columns

In the above figure, the number of rows and columns were calculated using the rowcount and columncount query.

| year | Total_arrests |
|------|---------------|
| 1970 | 155198 |
| 1971 | 186697 |
| 1972 | 219224 |
| 1973 | 209335 |
| 1974 | 233760 |
| 1975 | 241283 |
| 1976 | 258588 |
| 1977 | 267966 |
| 1978 | 270600 |
| 1979 | 273505 |

Figure 3: Distinct years with total arrests

In this figure, the total number of arrests occurred in each year has described.

| county | Drug_felony |
|--------|-------------|
| New York | 427464 |
| Bronx | 314003 |
| Kings | 283584 |
| Queens | 131447 |
| Erie | 50348 |
| Suffolk | 45193 |
| Nassau | 43609 |
| Westchester | 40830 |
| Monroe | 31312 |
| Richmond | 27786 |
| Onondaga | 23068 |
| Albany | 21523 |
| Orange | 19488 |
| Rockland | 9736 |
| Dutchess | 9729 |
| Broome | 9725 |

Figure 4: Drug felony cases in each county

The total drug felony arrests in each county in the newyork state is described.

| county | max(`Violent Felony`) | min(`Drug Felony`) |
|--------|-----------------------|--------------------|
| Albany | 778 | 71 |
| Allegany | 87 | 0 |
| Bronx | 9276 | 1024 |
| Broome | 396 | 24 |
| Cattaraugus | 135 | 8 |
| Cayuga | 107 | 3 |
| Chautauqua | 247 | 7 |
| Chemung | 165 | 5 |
| Chenango | 62 | 2 |
| Clinton | 128 | 7 |
| Columbia | 136 | 9 |
| Cortland | 94 | 2 |
| Delaware | 67 | 5 |
| Dutchess | 413 | 34 |

Figure 5: highest number of violent felony and lowest number of Drug Felony in each county

The highest number of violent felony cases and lowest number of Drug Felony cases recorder are described.
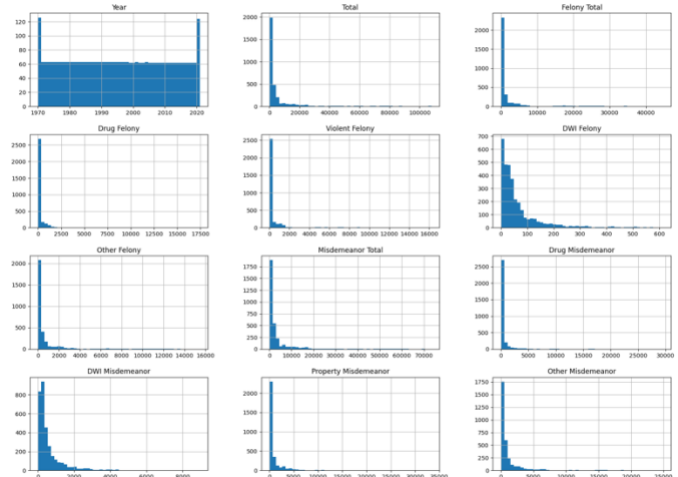
B. Using Python:



Figure 6: Visualizing the data using histograms

In the above figure using the histograms, an overview of the data has been described where we can see in each column maximum values can be easily understood.
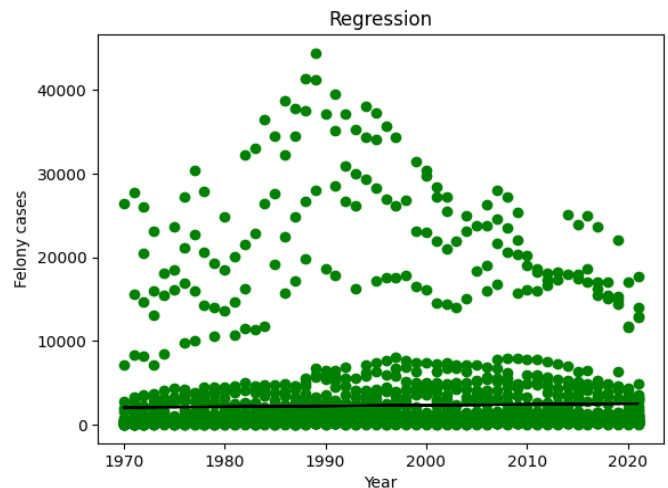


Figure 7: Regression model for the felony cases

In the above, the regression model for the felony cases over the years has been described, where the predicted value for the year 2022 of the felony cases has been calculated as 2505.

RESEARCH QUESTIONS RESULTS:

A. Changes occurred in the Felony with Misdemeanor Cases over the counties and years.

From the following figures, we can observe that the Misdemeanor Cases have recorded as maximum number over the years followed by the Felony cases.
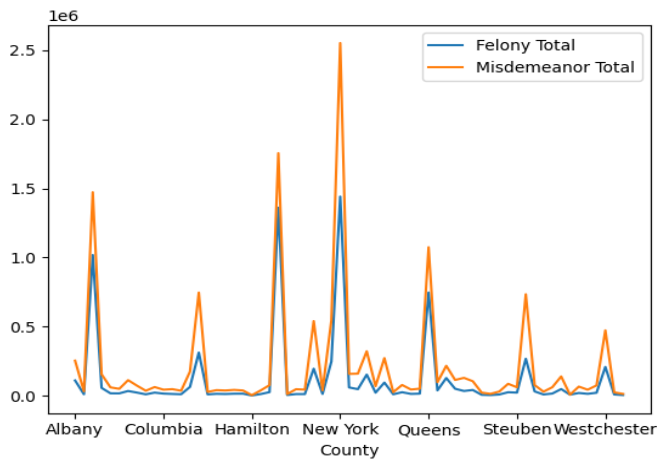
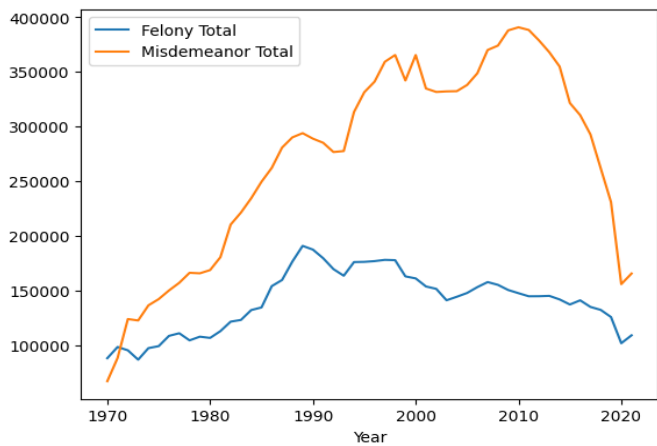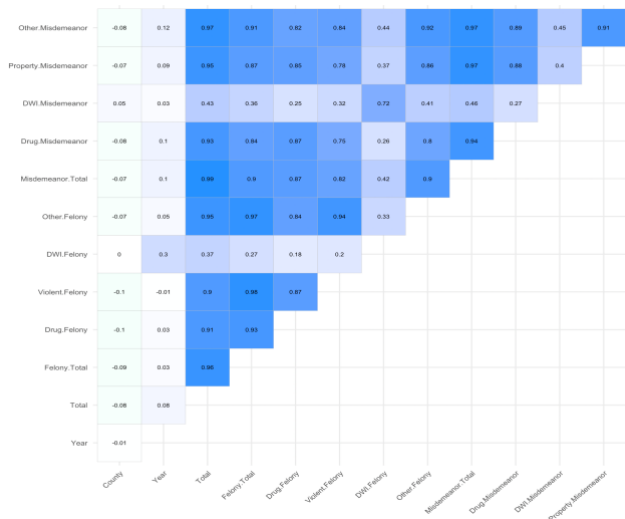Figure 8: Felony and Misdemeanor Cases over the counties

The correlation matrix has been drawn in the following figure, where we can see that maximum correlation is overserved between misdemeanor total and total cases followed by violent felony and felony total cases.
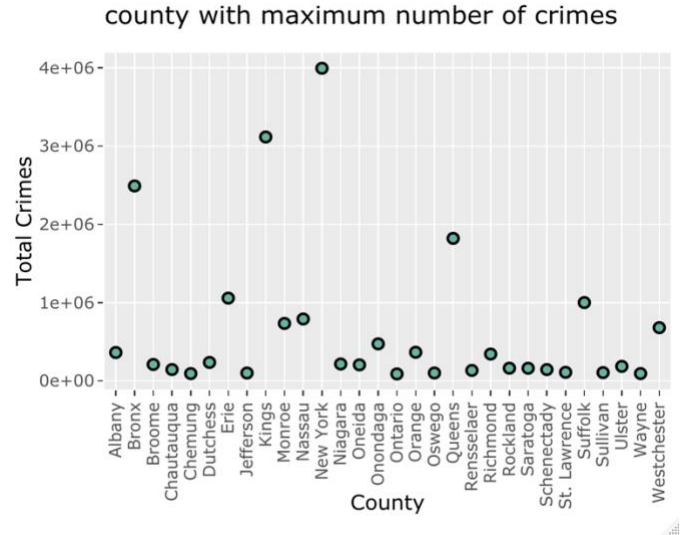
B.  The county recorded maximum number of crimes.



Figure 11: Maximum total crimes over the counties

From the above figure we can say that maximum number of the total crimes were recorded in New York County, followed by the Kings County.

C.  Maximum number of felony and Misdemeanor drug crimes recorded over the years.



Figure 9: Felony and Misdemeanor Cases over the years
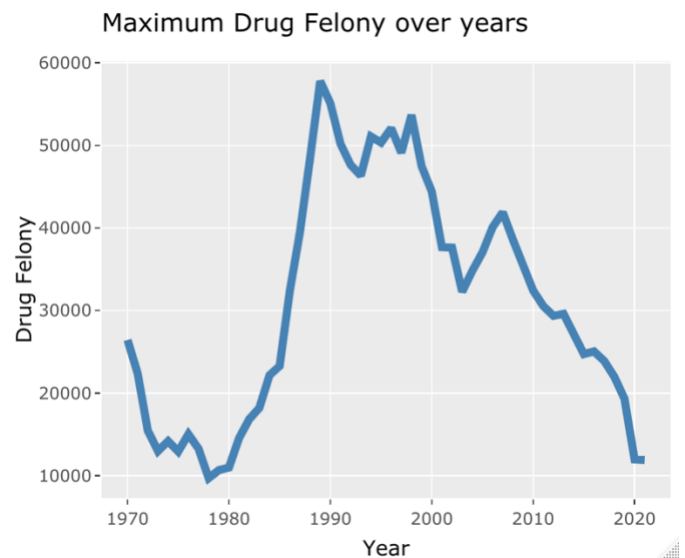
Using R:



Figure 10: Correlation Matrix



Figure 12: Maximum drug felony crimes over the years

It is clear from the above figure that the total drug felony crimes that occurred maximum in number is seen in the year 1989.
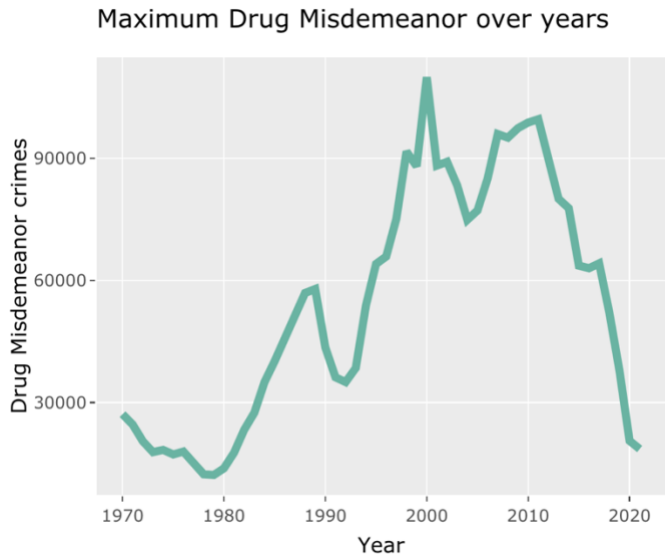


Figure 13: Maximum drug misdemeanor crimes over the years

From the above plot we can see that the maximum drug misdemeanor crimes were recorded in the year 2000.

## V. CONCLUSION

From the above visualizations that were drawn as mentioned above tells maximum cases occurred in the felony and misdemeanor drug crimes, the overall comparison of the cases that occurred in the felony and misdemeanor total cases over the years and the counties. The county recorded with maximum number of cases.

REFERENCES

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[3] Violent Crime Rate- Retrieved on December 11, 2022, from, https://catalog.data.gov/dataset/violent-crime-rate-8340c

[4] A Rising Share: Hispanics and Federal Crime - Retrieved on December 11, 2022, from https://www.pewresearch.org/hispanic/2009/02/18/a-rising-share-hispanics-and-federal-crime/