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CLASS : BE COMPS A
BATCH : ADV BATCH F

ADV EXPERIMENT 3

DATASET :
Stroke dataset - https://www.kaggle.com/datasets/vijeshh/crime-data

DATASET DESCRIPTION :

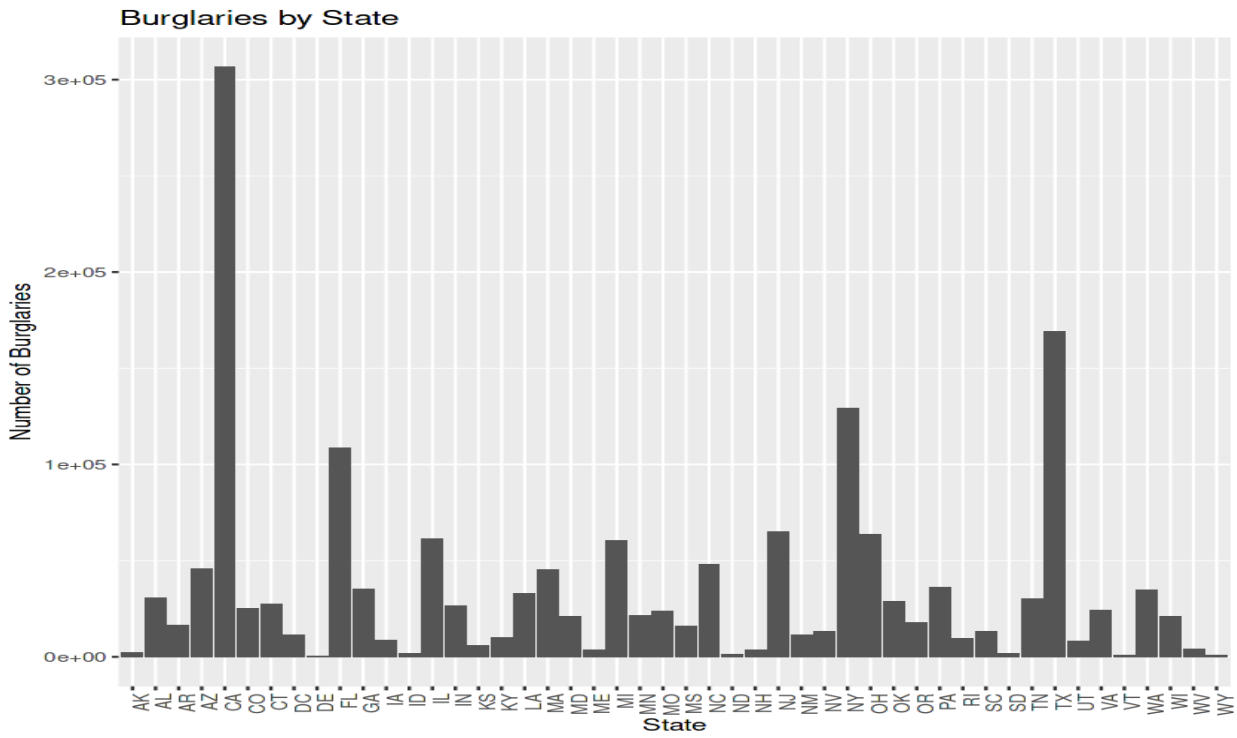
The dataset used in this analysis contains information about crime rates across different communities in the U.S. The dataset includes various demographic, economic, and social factors such as population size, household size, race distribution, and crime statistics (e.g., burglaries, larcenies, auto thefts, violent crimes, etc.).

Key Attributes:

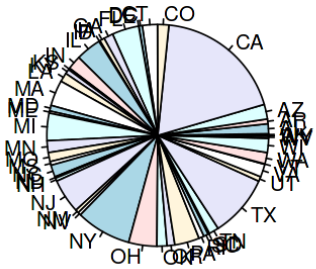
1) communityName: Name of the community.
2) state: U.S. state where the community is located.
3) countyCode, communityCode: Identification codes for the county and community.
4) population: Total population of the community.
5) householdsize: Average household size.
6) burglaries: Number of burglaries reported in the community.
7) autoTheft: Number of vehicle thefts.
8) violentCrimesPerPop: Violent crime rates per population.
9) nonViolPerPop: Non-violent crime rates per population.

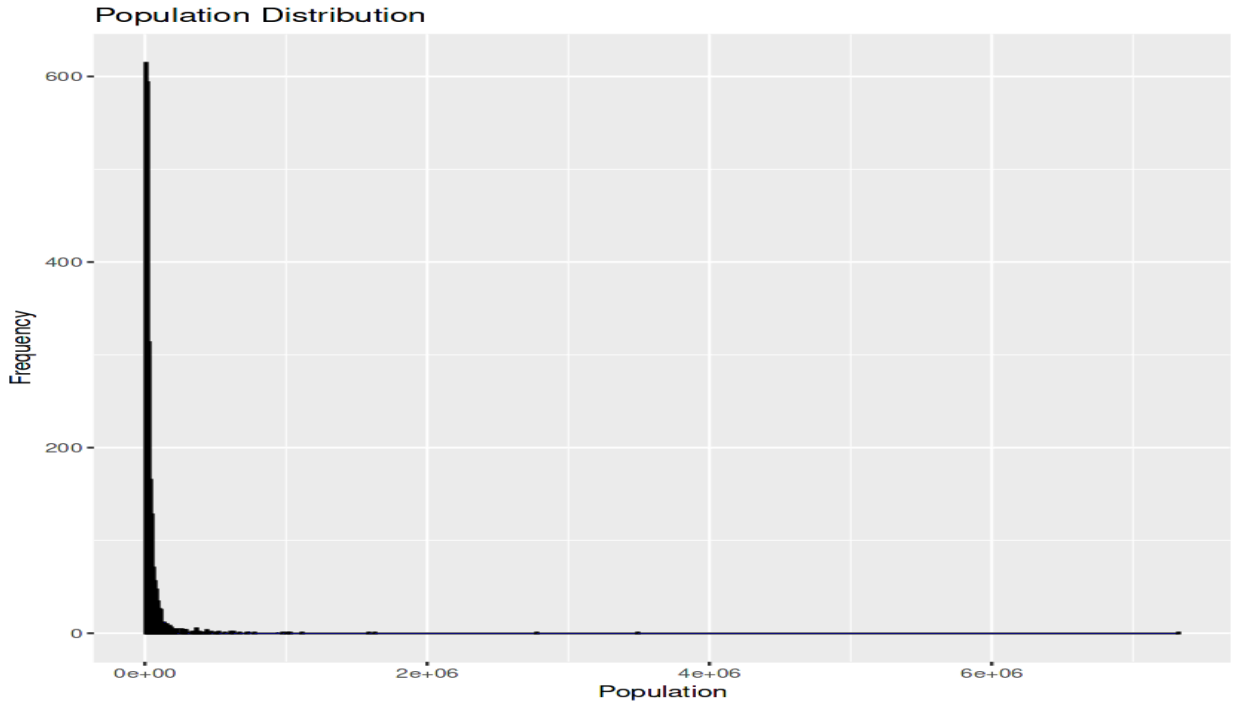
…and more

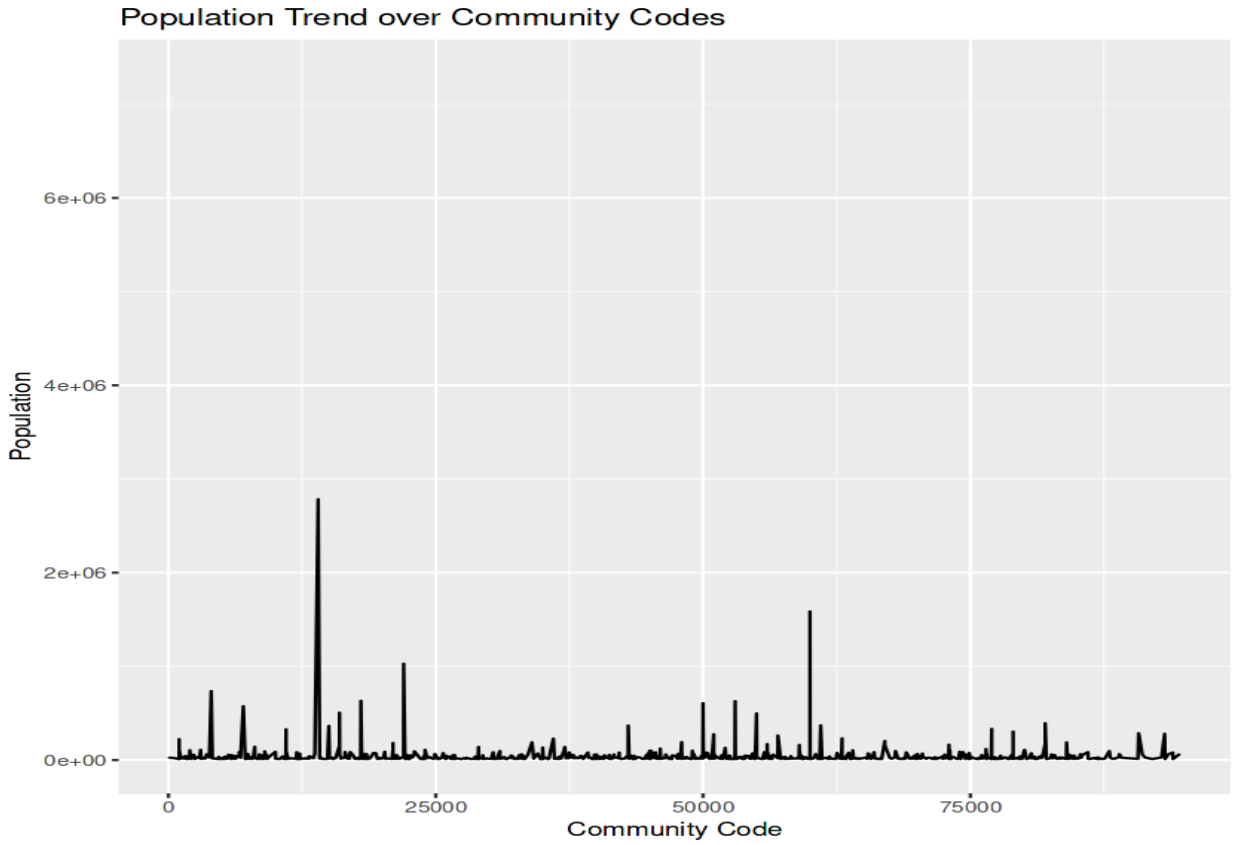
REPORT :

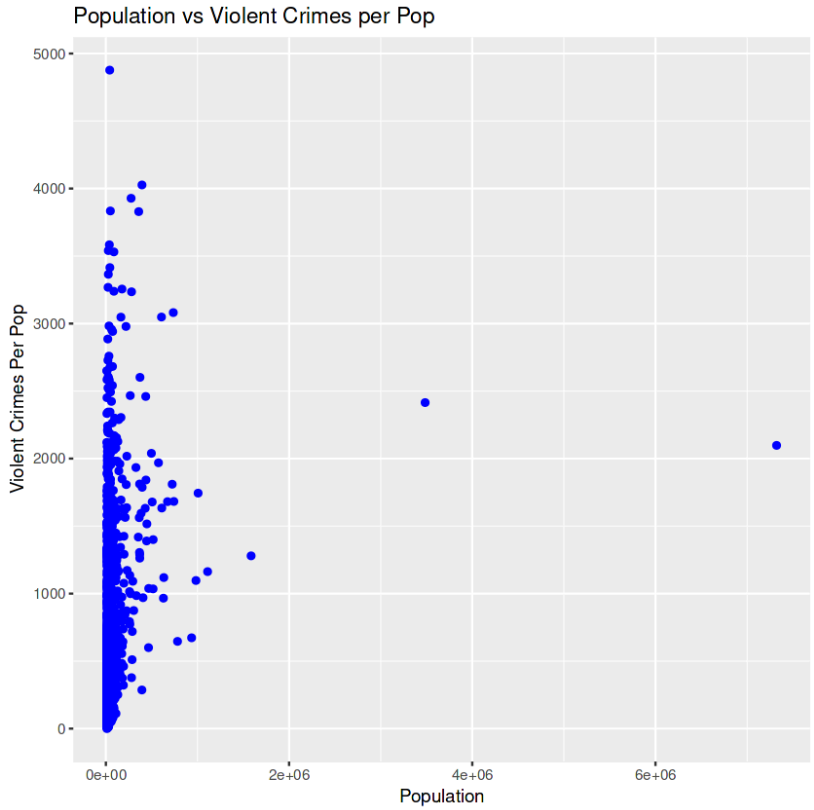


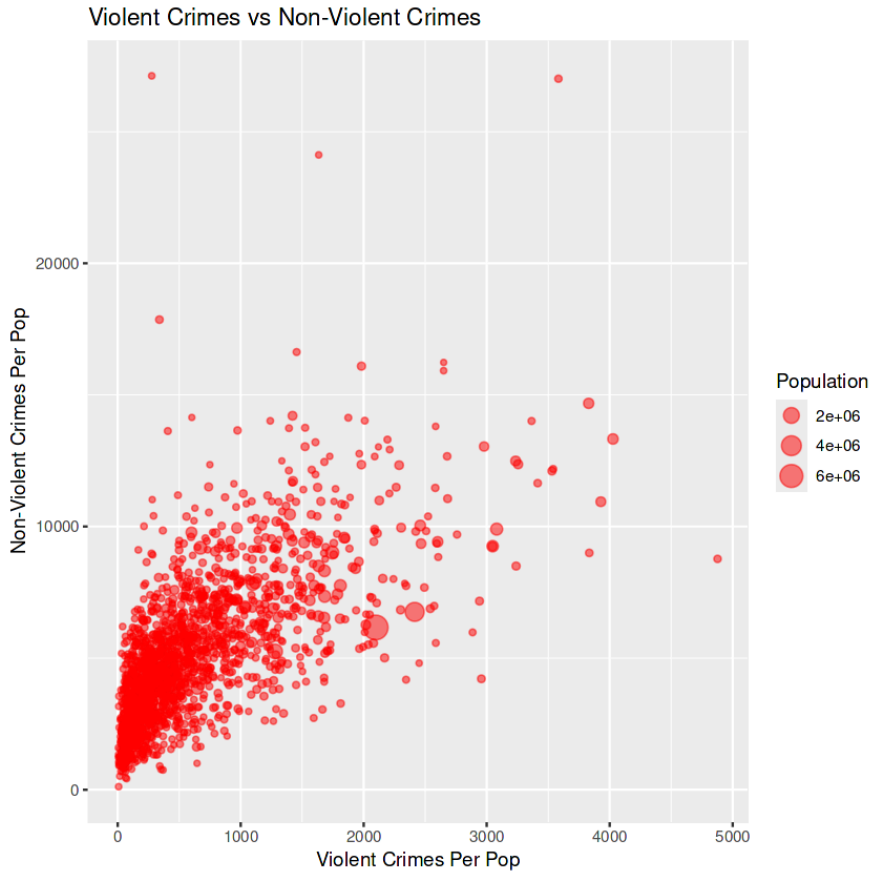
Population Distribution by State




Population Distribution
600
400
200
0
Frequency
0e+00
2e+06
4e+06
6e+06
Population


Population Trend over Community Codes
6e+06
4e+06
2e+06
0e+00
Population
0
25000
50000
75000
Community Code


Population vs Violent Crimes per Pop
Violent Crimes Per Pop
5000
4000
3000
2000
1000
0
0e+00
2e+06
4e+06
6e+06
Population


Violent Crimes vs Non-Violent Crimes
Non-Violent Crimes Per Pop
20000
10000
0
0
1000
2000
3000
4000
5000
Violent Crimes Per Pop
Population
2e+06
4e+06
6e+06

Q. What can be inferred from the number of burglaries across different states?
Ans. The bar chart reveals that certain states, such as Oregon and New York, have a significantly higher number of burglaries compared to other states like New Jersey or Pennsylvania. This suggests a regional concentration of burglary incidents.

Q. What does the population distribution by state indicate?
Ans. The pie chart shows that the population is unevenly distributed across states, with larger populations in some states like Oregon, contributing to higher crime rates. Communities with larger populations may require more resources to prevent crimes.

Q. What is the relationship between population size and violent crime rates?
Ans. The scatter plot shows a moderate positive correlation between population size and violent crime rates. Communities with larger populations tend to have higher violent crime rates, possibly due to denser populations and more urbanization.

Q. How does auto theft compare to other crime types across communities?
Ans. The plot shows that communities with higher rates of auto theft also tend to have higher rates of non-violent crimes. The size of the bubbles, representing population size, indicates that more populated areas are more prone to both auto theft and non-violent crimes.

Q. What does the histogram of population size tell us?
Ans. The histogram reveals that the majority of communities have populations between 10,000 and 30,000. This insight highlights the concentration of mid-sized communities, which may explain the distribution of certain crime types in the dataset.

Q. What can be inferred from the trend of population over community codes (as a proxy for time)?
Ans. The time line chart shows that population sizes vary greatly across different community codes, which could be related to different stages of urban development. Some communities have seen significant growth, correlating with higher crime rates.

CONCLUSION :

- The analysis of crime data through various visualizations reveals key insights about how population size and crime rates are interconnected.
- States like Oregon and New York have higher burglary rates, suggesting a need for targeted interventions in these regions.
- Communities with larger populations generally report higher violent and non-violent crime rates, indicating that crime prevention strategies must scale with population growth.
- Auto theft and non-violent crime rates appear to be correlated, with larger communities being more vulnerable to these types of crimes.
- These insights can help policymakers and law enforcement prioritize resources for crime prevention in communities most at risk.