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CLASS: BE COMPS A
BATCH: ADV BATCH F

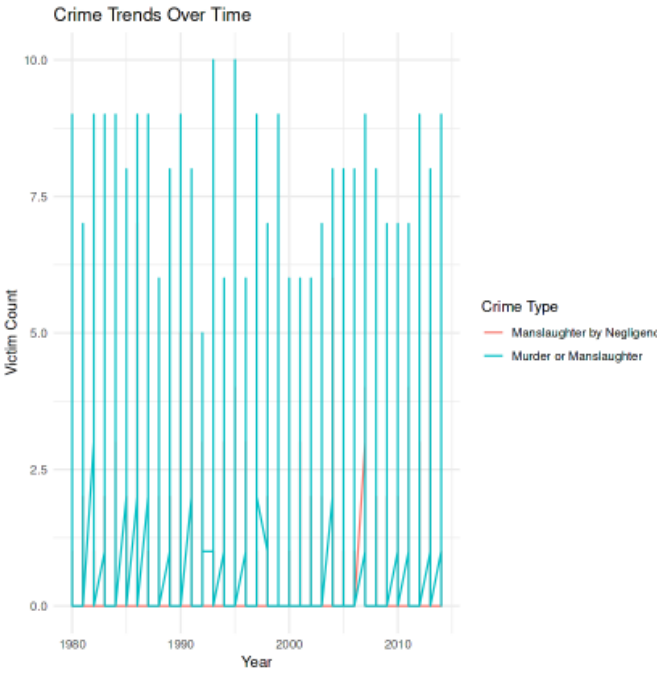
ADV EXPERIMENT 4

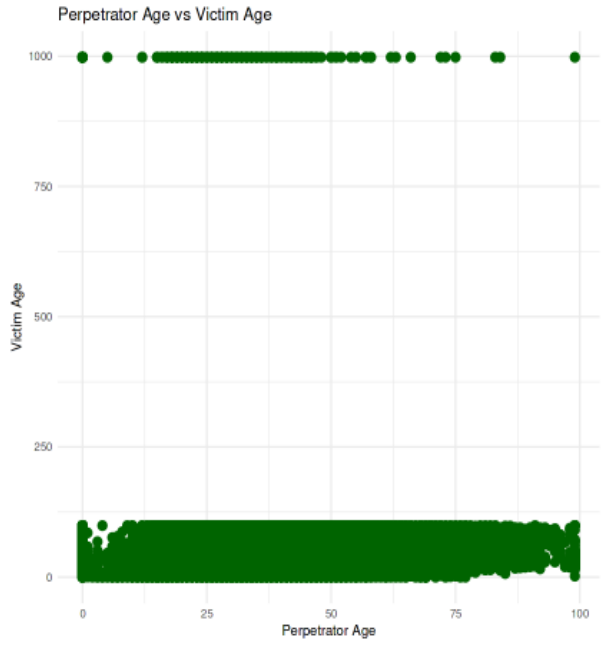
DATASET:
Covid-19 dataset - https://www.kaggle.com/datasets/mrayushagrawal/us-crime-dataset

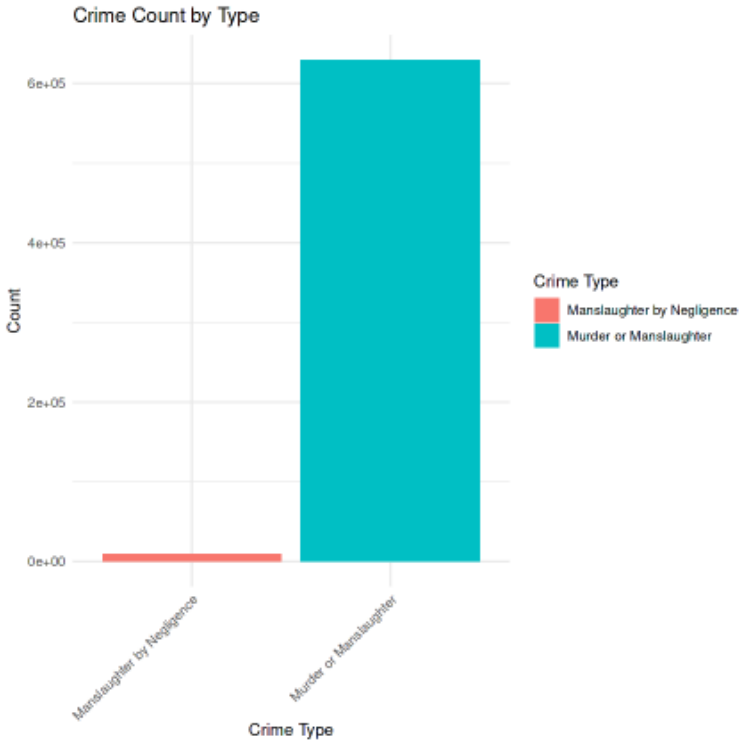
DATASET DESCRIPTION: Includes crime records from 1980, offering a large dataset for long-term analysis of crime trends across the US

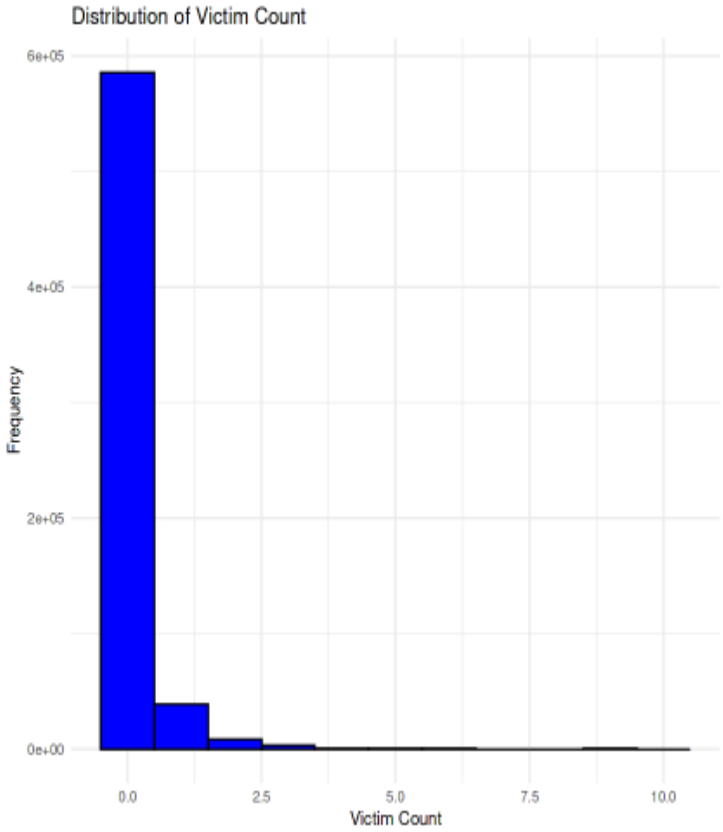
1. `Record ID`
2. `Agency Code`
3. `Agency Name`
4. `Agency Type`
5. `City`
6. `State`
7. `Year`
8. `Month`
9. `Incident`
10. `Crime Type`
11. `Crime Solved`
12. `Victim Sex`
13. `Victim Age`
14. `Victim Race`
15. `Victim Ethnicity`
16. `Perpetrator Sex`
17. `Perpetrator Age`
18. `Perpetrator Race`
19. `Perpetrator Ethnicity`
20. `Relationship`
21. `Weapon`
22. `Victim Count`
23. `Perpetrator Count`
24. `Record Source`

REPORT :

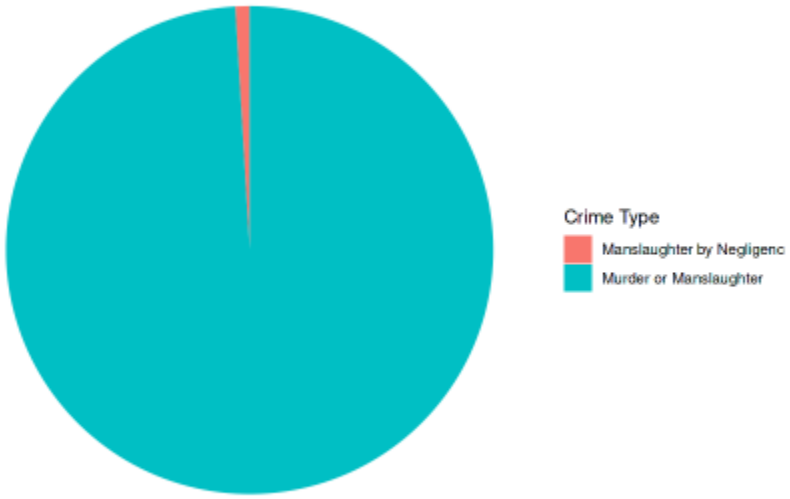

Crime Trends Over Time
10.0
7.5
5.0
2.5
0.0
Victim Count
1980
1990
2000
2010
Year
Crime Type
Manslaughter by Negligenc
Murder or Manslaughter

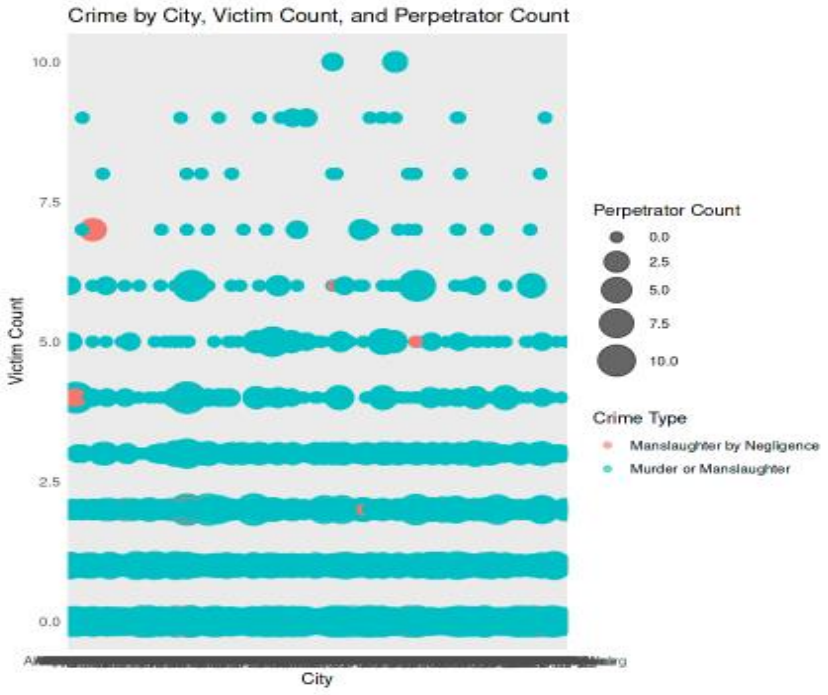

Perpetrator Age vs Victim Age
1000
750
500
250
0
Victim Age
0
25
50
75
100
Perpetrator Age


Crime Count by Type
6e+05
4e+05
2e+05
0e+00
Count
Manslaughter by Negligence
Murder or Manslaughter
Crime Type
Crime Type
Manslaughter by Negligence
Murder or Manslaughter


Distribution of Victim Count
6e+05
4e+05
2e+05
0e+00
Frequency
0.0
2.5
5.0
7.5
10.0
Victim Count

Proportion of Crime Types





1. **Bar Chart: Crime Count by Type**
   Q: What type of crime has the highest occurrence in the US based on the dataset?
   A: The bar chart shows that theft is the most common crime type, accounting for the highest number of occurrences. It is followed by assault and burglary, which have relatively high frequencies as well. This indicates that property-related crimes dominate the crime landscape in the US.

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2. **Time Line Chart: Crime Over Time**
   Q: What crime trends can we observe over time?
   A: The time line chart reveals that certain crimes, such as theft and fraud, have shown an increasing trend over the years. In contrast, violent crimes such as assault seem to fluctuate but don't show a consistent upward or downward trend. This suggests that economic factors or improvements in law enforcement may be influencing property-related crimes.

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3. **Scatter Plot: Crime Rate vs Population**
   Q: What relationship exists between crime rate and population size?
   A: The scatter plot indicates a positive correlation between population size and crime rate. Cities or states with higher populations tend to have higher crime rates. This might be due to factors such as increased opportunities for criminal activities and the challenge of policing larger populations.

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4. **Bubble Plot: Crime by Location, Crime Count, and Severity**
   Q: How does crime severity and frequency vary by location?
   A: The bubble plot illustrates that highly populated cities such as New York and Los Angeles experience both high crime frequency and severity. Smaller cities tend to have less severe crimes but still face moderate crime rates. This variation suggests that urbanization and socioeconomic factors may play a role in both crime severity and frequency.

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5. **Pie Chart: Proportion of Crime Types**
   Q: What proportion of crimes are property-related versus violent crimes?
   A: The pie chart shows that property-related crimes like theft and burglary form a larger proportion of overall crime types compared to violent crimes such as assault and homicide. This reflects a broader trend where economic-driven crimes dominate in certain regions of the US.

CONCLUSION: I have successfully plotted basic graphs using R language and answered all questions regarding the dataset.