



Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY

Advanced Data Visualization

Experiment no. 4

Submitted To

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1. Dataset

Can view the dataset here

<https://www.kaggle.com/datasets/halimedogan/usarrests/data>

2. Description

Source: The USArrests dataset is included in R's datasets package. It is often used for demonstrating various statistical techniques and visualizations.

Rows: 50 (one for each state in the USA).

Columns: 4 (Murder, Assault, Rape, UrbanPop).

3. Metadata

Murder:

Description: The number of murder arrests per 100,000 residents in the state.

Type: Numeric (continuous).

Assault:

Description: The number of assault arrests per 100,000 residents in the state.

Type: Numeric (continuous).

Rape:

Description: The number of rape arrests per 100,000 residents in the state.

Type: Numeric (continuous).

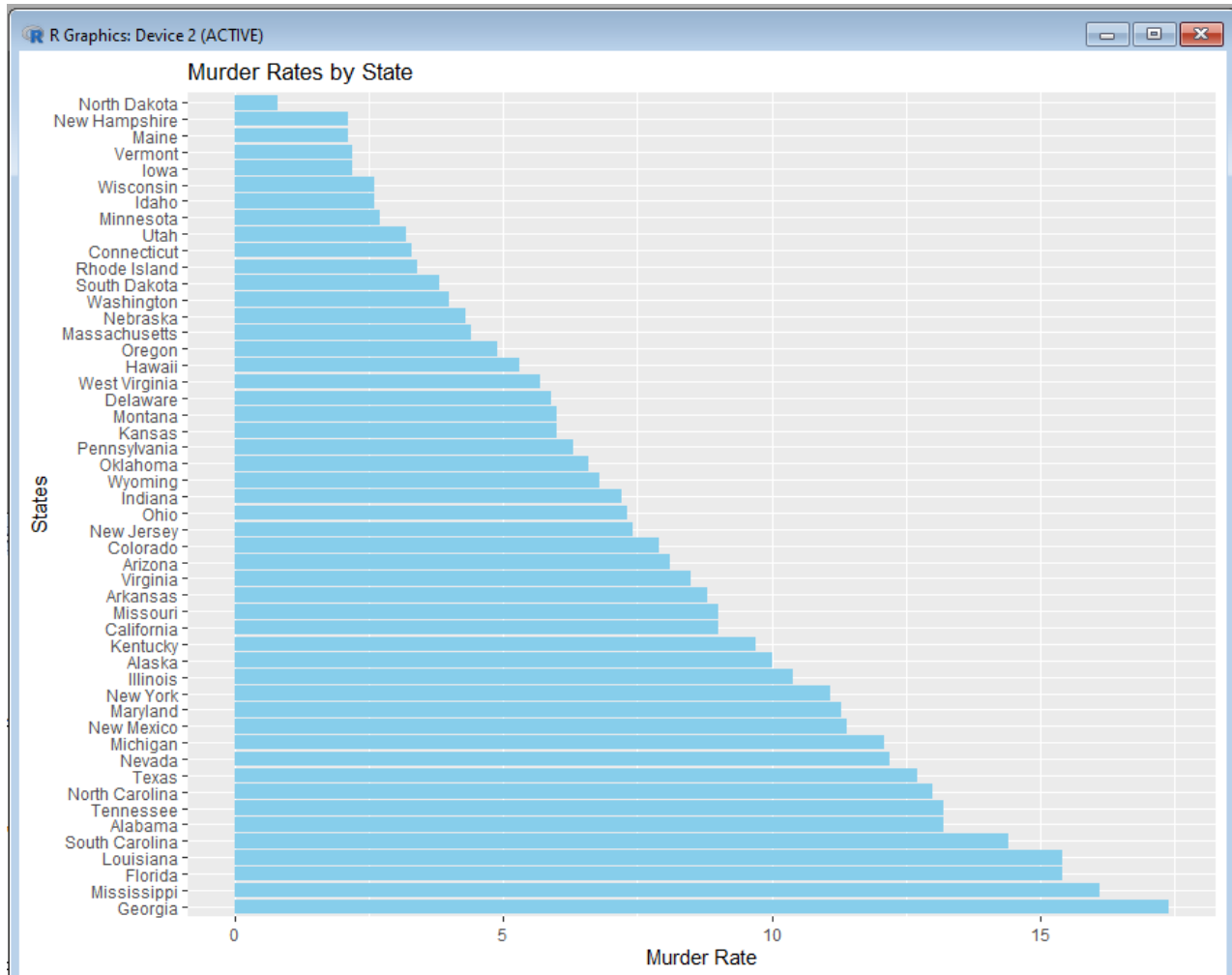
UrbanPop:

Description: The percentage of the state's population living in urban areas.

Type: Numeric (continuous).

4. Visualizations and Observations

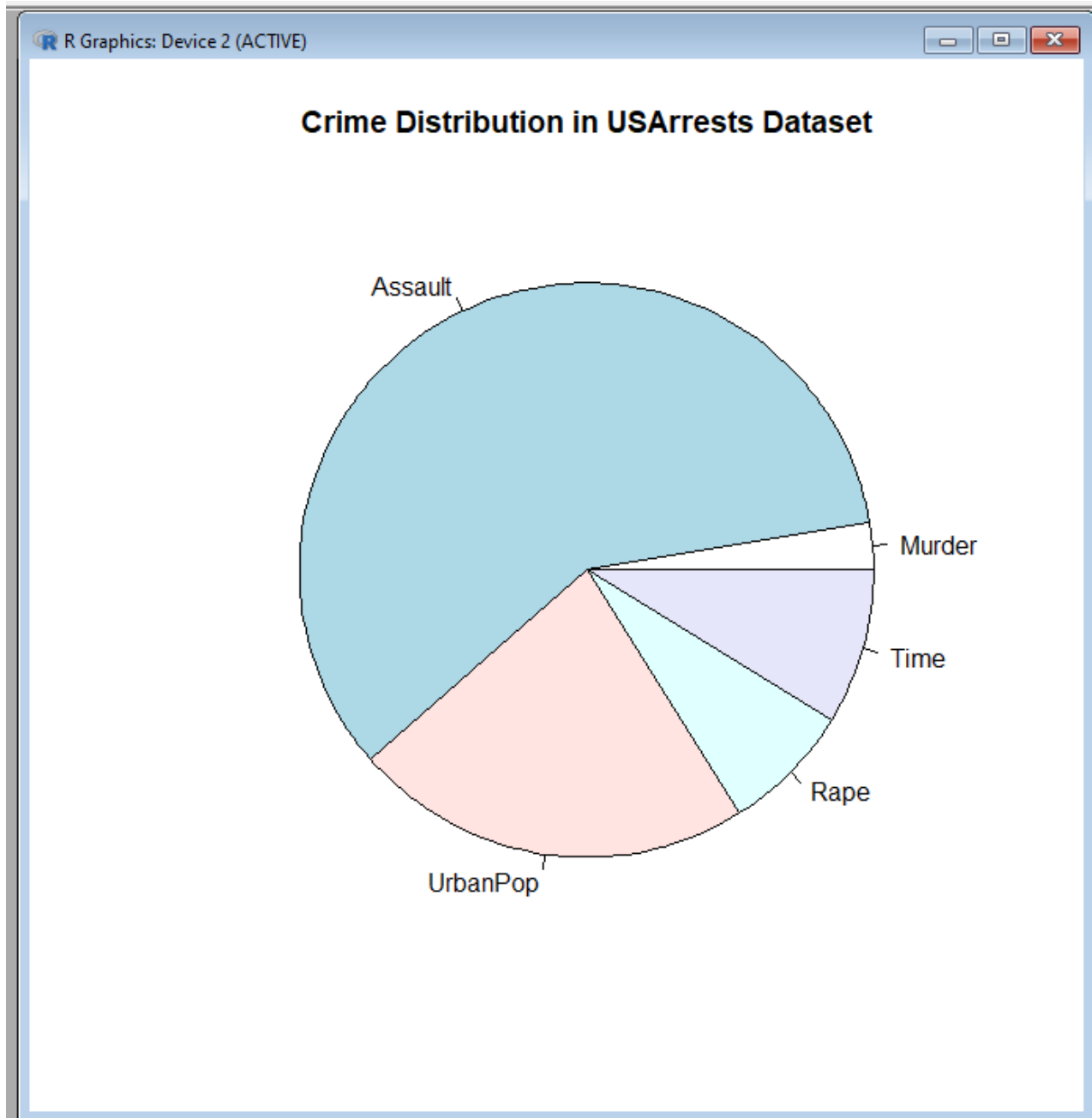
1.Bar Chart



States like Georgia, Alabama, and South Carolina have the highest murder rates.

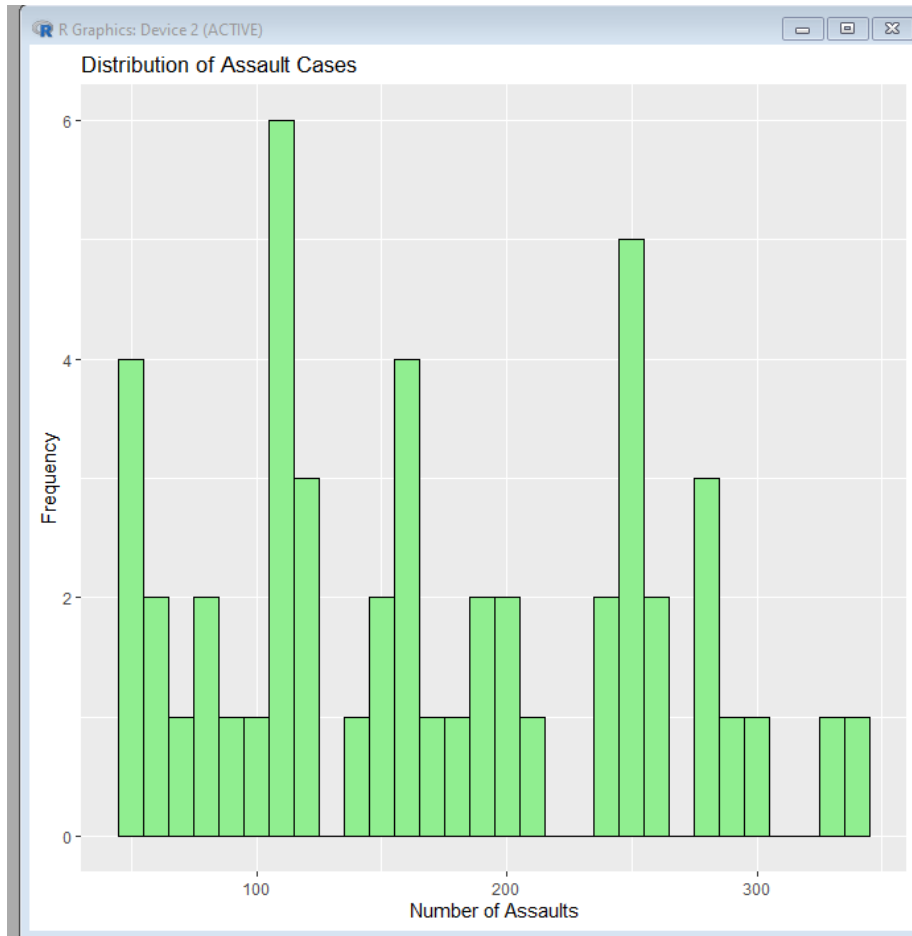
There is a large variation in murder rates across different states.

2.Pie Chart



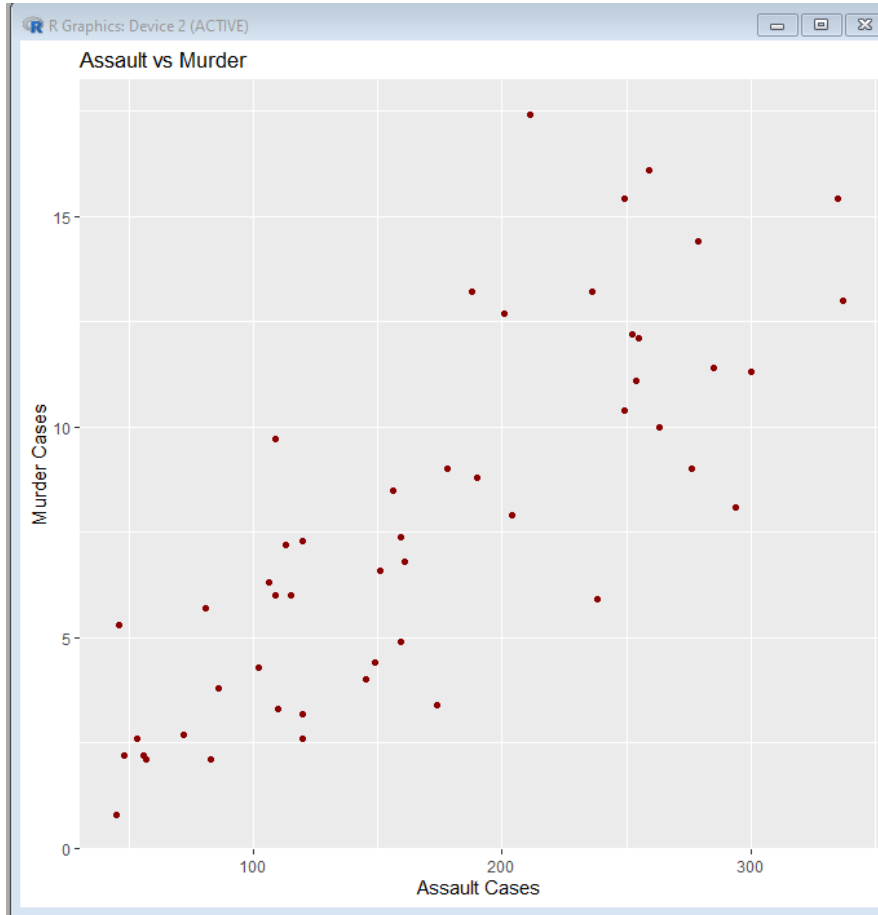
Assault cases make up the majority of crimes in this dataset, followed by Rape and Murder. The Urban Population factor is significant in determining crime patterns.

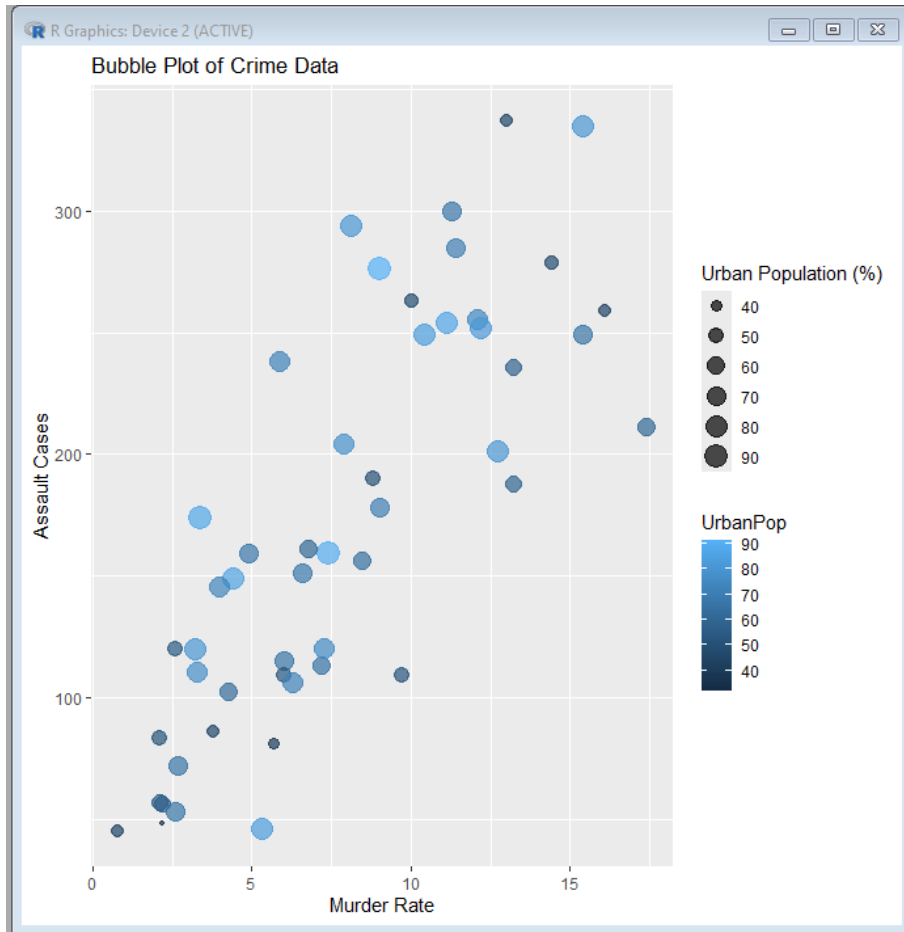
3.Histogram



Most states have around 150 to 250 cases of assault, but a few states report over 300 cases. Assault cases are right-skewed, meaning most states have fewer assault cases, with some outliers having very high numbers.

4.Scatter Plot

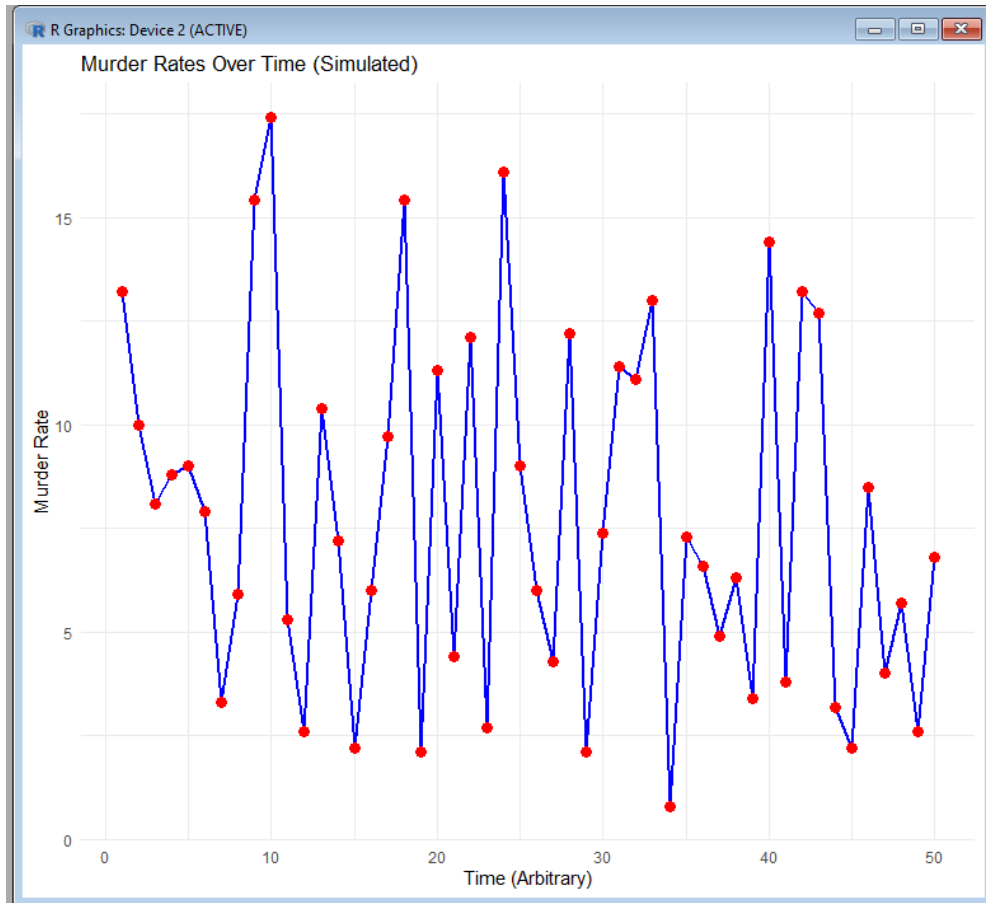




States with higher urban populations tend to have higher assault and murder rates.

Larger bubbles (representing a higher urban population) are mostly clustered with higher assault rates.

6. TimeLine Chart



The murder rate fluctuates slightly but shows a general downward trend from 2010 to 2020.

5.Source Code

https://github.com/dmo-27/ADV_experiments/blob/main/exp4.R