R analytics Dashboard using Shiny

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ABOUT THE DATA SET

Year: The data is from the year 1973.

Scope: It covers statistics related to arrests in the United States.

Variables: The dataset includes variables such as assault, murder, and rape.

Units: Arrests are measured per 100,000 residents.

Geographical Coverage: Data is provided for each of the 50 US states.

Additional Information: The dataset may also contain information about the percentage of the population living in urban areas, as mentioned in the description.

Key Columns:

The key columns in the dataset include:

- State: Name of the US state.
- Murder: Number of arrests for murder per 100,000 residents.
- Assault: Number of arrests for assault per 100,000 residents.
- Urban Pop: Percentage of the population living in urban areas.
- Rape: Number of arrests for rape per 100,000 residents.

Trends and Patterns:

-Crime Trends by State:

The dashboard allows users to analyze trends in arrests across states for different crime types.

Users can identify states with the highest and lowest arrest rates for specific crimes, revealing potential patterns or outliers.

-Distribution:

Users can explore the distribution of arrest rates for each crime type through histograms and box plots.

This visualization helps in understanding the variability and central tendency of the data.

-Correlation Matrix:

The correlation matrix visualizes the relationships between different variables in the dataset.

Users can identify correlations between crime types and urban population, providing insights into potential societal factors influencing crime rates.

-Relationship among Arrest types & Urban Population:

Users can examine the relationship between two selected variables (e.g., assault and rape arrests) while considering the urban population.

This visualization helps in understanding how crime rates vary with urbanization.

Visualizations:

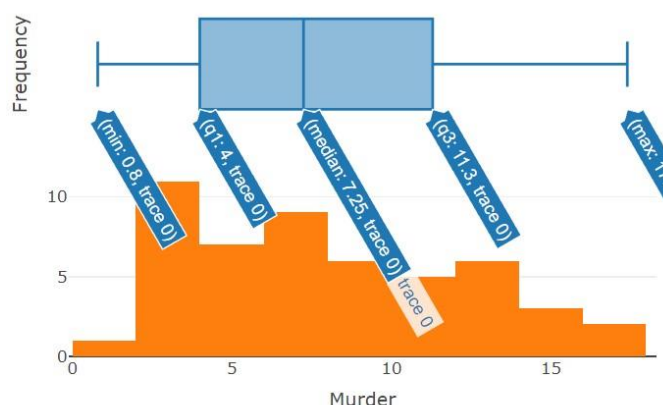The dashboard provides the following visualizations:

- Data Table displaying the dataset.
- Histograms and box plots for distribution analysis.
- Bar chart illustrating state-wise arrests for a selected crime type.
- Scatter plot showing the relationship between two variables.
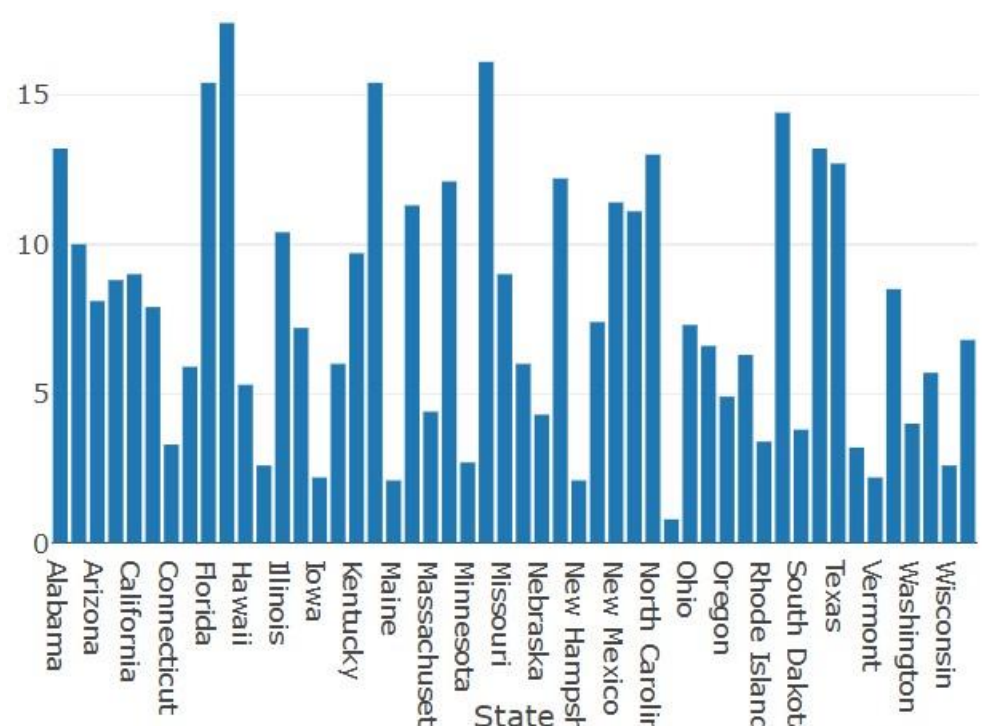- Choropleth map depicting the arrest rate for a selected crime type across US states.

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Statistical Analysis:

The dashboard includes summary statistics such as mean, median, minimum, maximum, and quartiles for each numeric variable in the dataset. Additionally, the correlation matrix provides insights into the strength and direction of relationships between variables.

Analysis of Dashboard:

-Data Exploration:

Users can explore the dataset by examining summary statistics and visualizing the distribution of crime rates across states.

-Trend Analysis:

Users can identify states with the highest and lowest arrest rates for specific crimes, uncovering potential geographic trends or disparities.

-Correlation Analysis:

The correlation matrix helps users understand the relationships between different variables, aiding in identifying potential factors influencing crime rates.

-Geospatial Analysis:

The choropleth map provides a geographical perspective of crime rates across US states, enabling users to identify regions with higher or lower crime prevalence.

Conclusion:

The dashboard facilitates comprehensive exploration and analysis of the 1973 US Arrests dataset. Users can visualize crime trends, patterns, and correlations, gaining insights into factors influencing crime rates across states. By providing interactive visualizations and statistical summaries, the dashboard empowers users to make informed decisions and draw meaningful conclusions from the data.