Boston Housing Price Analysis Dashboard Documentation

A. Dataset Name :

Boston Housing Dataset

B. Problem Statement :

To analyze the factors affecting housing prices in Boston and understand how socio-economic and infrastructure-related variables influence median house values using Tableau visualizations.

C. Data Description :

The dataset consists of housing-related attributes for different areas in Boston, including median house price, crime rate, education ratio, population status, and accessibility to highways. Key fields used are MEDV, LSTAT, CRIM, PTRATIO, RAD, and CHAS.

D. Visualizations Used :

1. Distribution of Median House Prices (Histogram) -
Used to understand the spread and frequency distribution of median house prices across different areas in Boston.

2. House Value vs Lower Status Population (Scatter Plot) -
Used to analyze the relationship between median house value and the percentage of lower status population, highlighting correlation patterns.

3. Average House Price by Crime Rate (Vertical Bar Chart) -
Used to compare average house prices across different crime rate levels to observe how crime impacts property values.

4. Average House Price by Pupil–Teacher Ratio (Vertical Bar Chart) -
Used to examine the effect of education quality (pupil–teacher ratio) on average house prices.

5. Average House Price by Highway Accessibility – RAD (Vertical Bar Chart) -
Used to analyze how accessibility to major highways influences average house prices in different regions.

E. Dashboard Summary :

The dashboard presents an overall view of housing price trends in Boston by combining distribution analysis with comparative and relationship-based visualizations. It helps identify how factors like crime rate, education quality, infrastructure accessibility, and socio-economic status impact property values.

F. Tools and Techniques Used :

- Tableau for data visualization
- Aggregation techniques (average values)
- Histogram for distribution analysis
- Scatter plot for relationship analysis
- Bar charts for category-wise comparison
- Dashboard layout and formatting for clarity

G. Conclusion :

The analysis indicates that median house prices in Boston are strongly influenced by socio-economic conditions and infrastructure factors. Areas with lower crime rates, better pupil–teacher ratios, and improved accessibility tend to have higher housing values. The dashboard effectively communicates these insights through clear and structured visualizations.