Project Documentation:

Data Visualization for Regression and Classification

Overview

This project focuses on visualizing data from regression and classification tasks using various types of plots to enhance data understanding.

Data Types

- **Regression Data**: Predicting continuous outcomes
- **Classification Data**: Predicting categorical outcomes

Visualization Types

1. Categorical Visualizations

- **Bar Charts**: Display frequency counts of categories.
- **Pie Charts**: Show proportions of categories.
- **Stacked Bar Charts**: Visualize distributions within subcategories.

2. Distributional Visualizations

- **Histograms**: Show data distribution across bins.
- **Box Plots**: Summarize data with quartiles and medians.
- **Violin Plots**: Combine box plots and density plots.

3. Relational Visualizations

- **Scatter Plots**: Display relationships between two continuous variables.
- **Pair Plots**: Show scatter plots for multiple pairs of variables.
- **Heatmaps**: Visualize correlations between variables.

Tools and Libraries

- **Python**: Programming language for analysis and visualization.
- **Pandas**: Data manipulation and analysis.
- **Matplotlib & Seaborn**: Plotting libraries for creating visualizations.

Conclusion

The visualizations provide insights into data patterns, relationships, and distributions, aiding in decision-making for regression and classification tasks.