Guide and Discussion: Multiple Linear Regression Analysis for E-commerce Sales

Introduction

Welcome to the Multiple Linear Regression Estimation Dashboard! This tool empowers you to analyze and predict monthly sales volume for your e-commerce business. This combined user guide and discussion will guide you through the functionalities of the application, its utility, and potential limitations.

Step 1: Enter Data

Navigate to the "Enter Data" tab.

Upload your CSV file and customize the separator.

Click "Load Data" to preview and load your dataset.

Step 2: Explore Variable Correlation

Move to the "Variable Correlation" tab.

Select variables to explore their correlation.

Analyze the correlation plot and test results.

Step 3: Perform Multiple Linear Regression

Head to the "Regression" tab.

Choose dependent and independent variables.

Click "Estimate Regression" to get the equation and model summary.

Analyze regression coefficients and diagnostic tests.

Step 4: Make Predictions

After regression, use the "Prediction" section.

Enter values for predictors and click "Make Prediction."

Step 5: Refine the Model

Evaluate coefficient significance.

Follow instructions to perform backward elimination.

Discussion

Utility of the Application

Data-Driven Decision Making: The dashboard enables data-driven decision-making by providing insights into the relationships between variables and predicting sales volumes.

Predictive Analysis: Users can make predictions based on the established regression model, allowing for proactive planning and strategy formulation.

Diagnostic Tests: Autokorelasi, Homoskedastisitas, and Kolmogorov-Smirnov tests enhance the robustness of the model.

Limitations

Simplifying Assumptions: The model assumes linearity and absence of multicollinearity, which may not always hold in real-world scenarios.

Data Quality: Results heavily depend on the quality of input data. Outliers or missing values may impact the accuracy of predictions.

Interpretation: Users need a basic understanding of regression analysis to interpret results correctly. Misinterpretation might lead to flawed decisions.

Conclusion

Congratulations on exploring the Multiple Linear Regression Estimation Dashboard! Leverage its utility for strategic decision-making while being mindful of its limitations. Continuous refinement and validation are crucial for ensuring the reliability of predictions.

https://b4ae2o-rivana0marinda0p0wirahadi-0.shinyapps.io/project_UAS/