

Simple Linear Regression

Dataset - tvmarketing.csv

Forecast Sales based on 'TV' marketing budget. You need to build a linear regression model to predict 'Sales' using 'TV' as the predictor variable.

1. Import dataset and display first 5 rows
2. Check column data types
3. Check the shape of the Data Frame (rows, columns)
4. Look at summary statistics
5. Visualize the relationship between the features and the dependent variable using scatterplots
6. Prepare X (feature variables) and y (response variable)
7. Split Data into Training and Testing Sets (70%-Train 30%-Test) - X_train, y_train, X_test, y_test
8. Print the shape of train data and test data
9. Perform Linear Regression (on train data) without using any library and print the coefficients values
10. Create the model using the calculated coefficients and make predictions on the testing set
11. Perform Linear Regression using library(sklearn)
12. Print the intercept and coefficients
13. Make predictions on the testing set - y_pred
14. Plot train data and the model
15. Plot test data and the model
16. Print Mean Squared Error and R Squared Value
17. Calculate and print R Squared and Adjusted R Squared values without any library