



Advertising Analysis Dashboard

Linear Regression Model for Sales Prediction

1. Analyze

2. Clean

3. Visualize

4. Train

5. Test

6. Predict

Click on a step above to begin analysis



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Step 1: ANALYZE - Dataset Exploration

TOTAL ROWS

200

TOTAL COLUMNS

5

MISSING VALUES

0

Column Information

Column	Data Type	Non-Null Count	Null Count
ID	int64	200	0
TV	float64	200	0
Radio	float64	200	0
Newspaper	float64	200	0
Sales	float64	200	0



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Step 2: CLEAN - Data Preprocessing

ORIGINAL ROWS

200

ROWS AFTER CLEANING

200

ROWS REMOVED

0

DUPLICATES REMOVED

0

Columns: ID, TV, Radio, Newspaper, Sales



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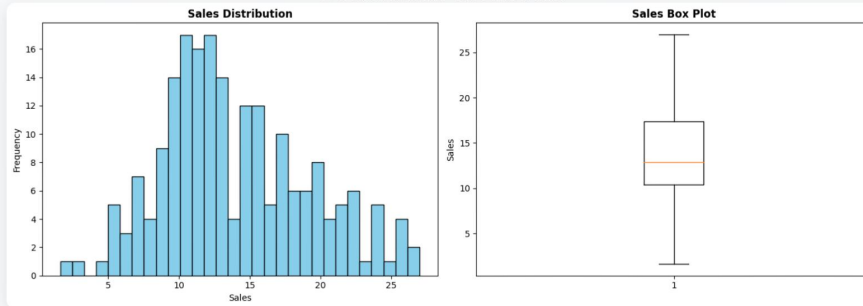
6. Predict

Step 3: VISUALIZE - Data Exploration

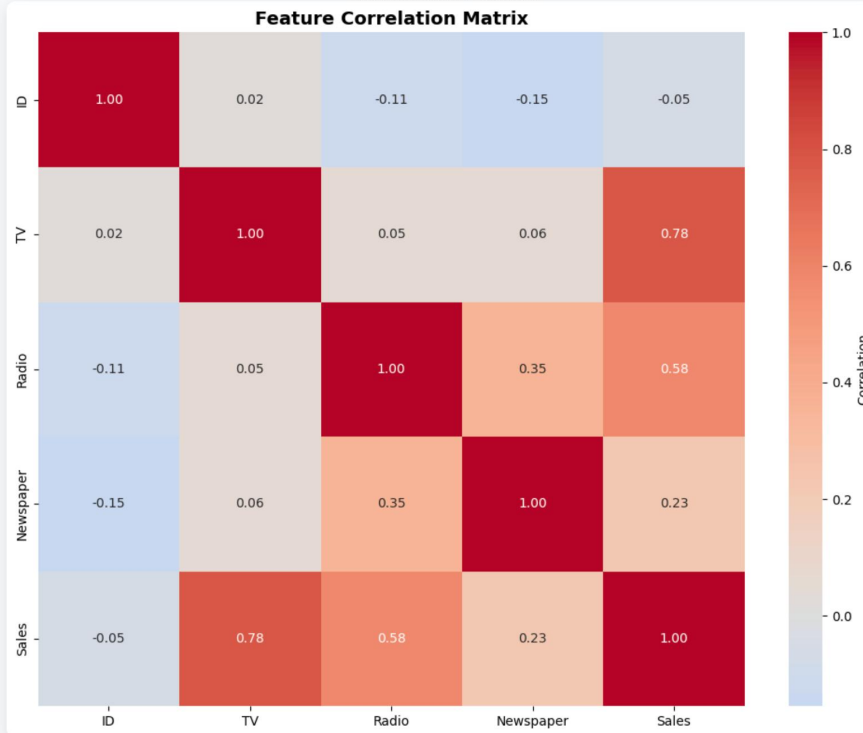
Target Column: Sales

Feature Columns: ID, TV, Radio

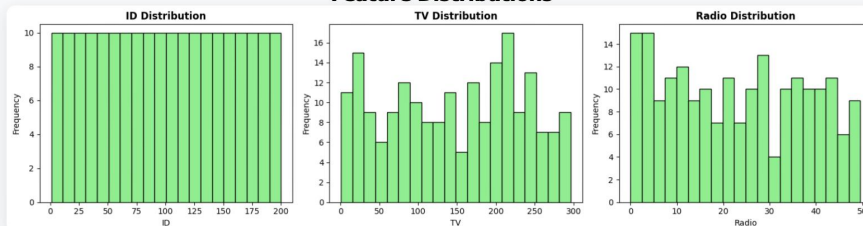
Distribution & Box Plot



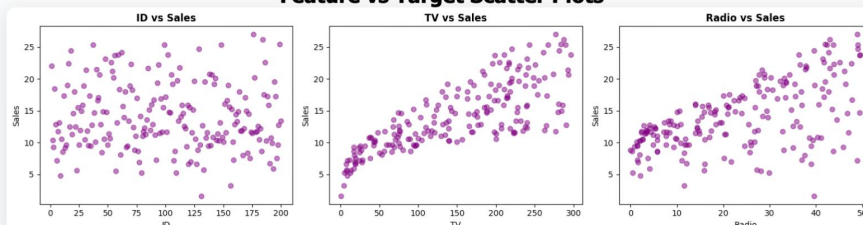
Correlation Matrix



Feature Distributions



Feature vs Target Scatter Plots





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Step 4: TRAIN - Model Development

TOTAL SAMPLES

200

TRAINING SAMPLES

134 (67%)

TESTING SAMPLES

66 (33%)

NUMBER OF FEATURES

4

Model Coefficients

Feature	Coefficient
ID	0.0534
Newspaper	-0.1710
Radio	2.8081
TV	3.6380

Intercept: 13.8224



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Step 5: TEST - Model Evaluation

Training Metrics

MSE

2.276458

RMSE

1.508794

MAE

1.180455

R² SCORE

90.65%

Testing Metrics

MSE

4.15802

RMSE

2.039122

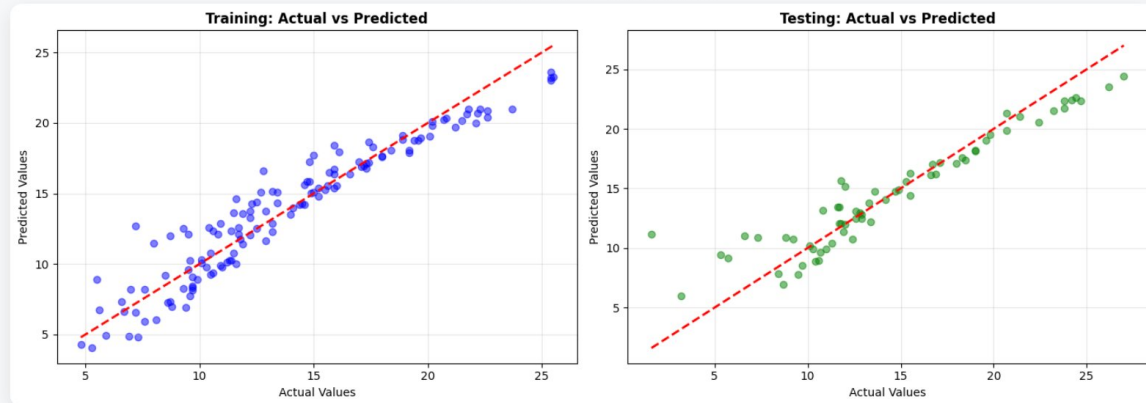
MAE

1.402556

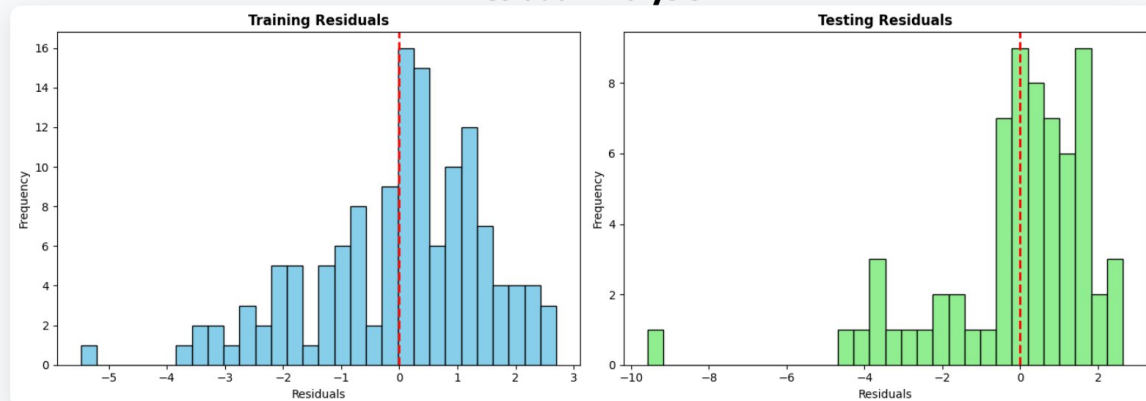
R² SCORE

87.16%

Actual vs Predicted



Residual Analysis





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Step 6: DEPLOY - Make Predictions

Enter advertising spend values to predict sales:

ID

TV

Radio

Newspaper

 Predict Sales



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Step 6: DEPLOY - Make Predictions

Enter advertising spend values to predict sales:

ID

5

TV

50

Radio

60

Newspaper

300

 Predict Sales

Prediction Result

Predicted Sales: \$27.34

Input Values:

Feature	Value
ID	5
Newspaper	50
Radio	60
TV	300