Advertising Sales Prediction Report

1. Objective

Build a machine learning model to forecast product sales based on advertising spend across different media.

2. Dataset Description

- Total Entries: 200

- Features: TV, Radio, Newspaper (in $000s)

- Target: Sales (in $000s)

3. Model Training and Evaluation

Project Overview:

This project predicts product sales based on advertising budgets across TV, Radio, and Newspaper using a linear regression model.

Dataset Summary:

- Records: 200

- Features:

  - TV Advertising Spend

  - Radio Advertising Spend

  - Newspaper Advertising Spend

- Target: Sales

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Model Summary:

- Model: Linear Regression

- R² Score: 0.90

- RMSE: 1.69

- Insights:

  - TV and Radio spends are highly predictive.

  - Newspaper has weak correlation with sales.

Visualizations Summary:

- TV and Radio vs. Sales: Strong positive trends

- Newspaper vs. Sales: Weak correlation

- Residual plot: Random spread confirms good fit

Conclusion:

TV and Radio advertising significantly influence sales. The model is effective for marketing decision-making.

Newspaper ads show lesser impact and may not justify high spend.

4. Conclusion

The linear regression model provides high accuracy for predicting sales. Insights from this model can guide

ad budget allocation. TV and Radio spending are recommended focus areas for maximizing returns.