Sales Prediction using Python

Task 4

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Problem :

Predicting product sales based on ad spending

Problem definition :

Given data on ad expenditure in mediums like TV, radio and newspaper, develop a model to predict expected sales of a product

Introduction

This machine learning regression project aims to predict sales for a product based on ad spending across three mediums. By applying a linear regression algorithm, the model establishes a relationship between advertising budget and sales.

Libraries Used

- NumPy
- Pandas
- Matplotlib
- Seaborn
- Scikit-learn

Dataset

The dataset contains 200 records with 4 columns - 'TV' (TV ad spend), 'Radio' (Radio ad spend), 'Newspaper' (Newspaper ad spend) and 'Sales' column showing sales for that budget allocation.

Data Preprocessing

Pairplots, histograms and statistical summary methods are used to visually explore correlations and data distributions.

Splitting Data

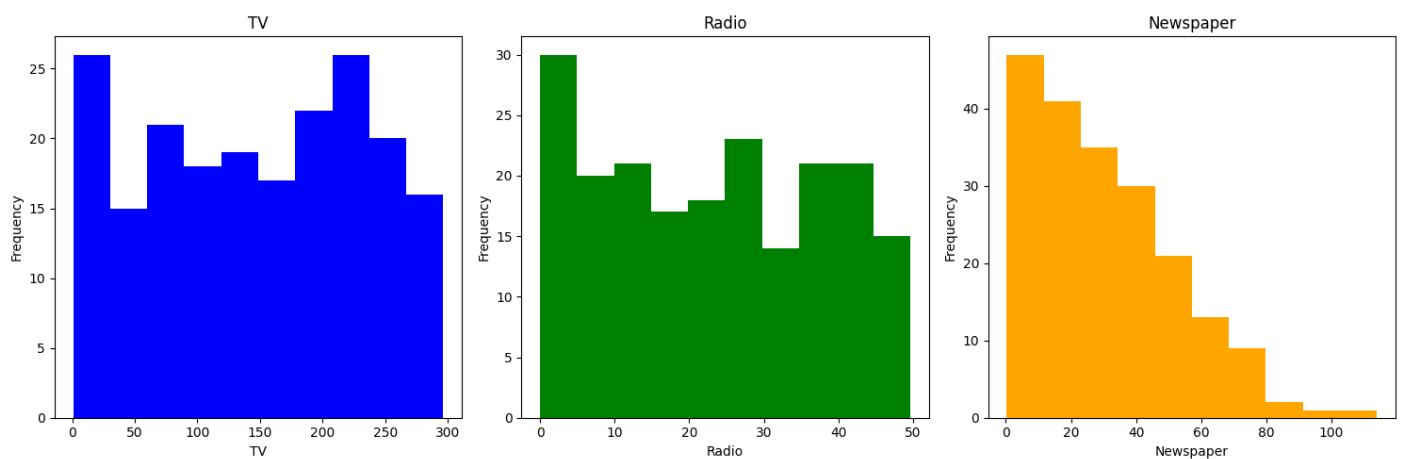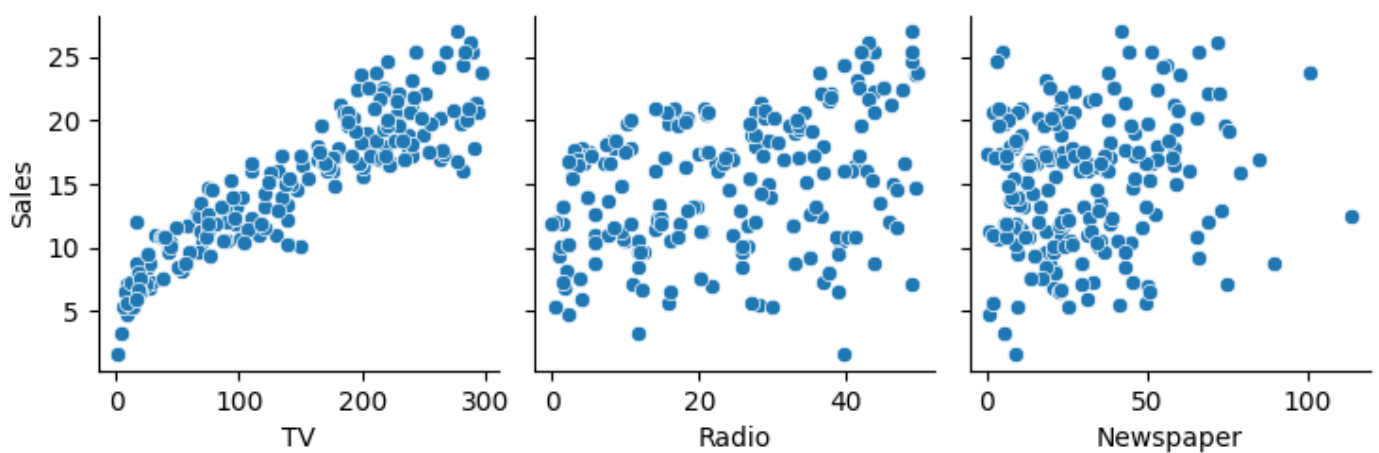25% data allocated to testing set for model evaluation.

Model Building

A linear regression model is trained to capture the linear relationship between ad spends and resultant sales.

Model Testing

The model achieves a good R-squared score demonstrating its prediction capabilities.

Plots

Output Sample

```
Python Code

x_input = [50, 30, 10]


>>> Predicted Sales : [10.50836737]
```

References

- Google
- Youtube
- Kaggle

Conclusion

The linear regression model can effectively predict expected sales given ad spending amounts across the three mediums. It can assist marketing teams in optimizing their ad budget allocation based on predicted sales.