**Future Sales Prediction**

**3.1 Short Explanation (Future Sales Prediction)**

* In this project, we aim to build a future sales prediction model. We have already loaded and preprocessed historical sales data. Now, our focus is on feature engineering, model training, evaluation, and further refinements to enhance the model's accuracy in predicting future sales.

**3.2 Algorithm**

* Step 1: Import Necessary Libraries
* Step 2: Load the Dataset
* Step 3: Data Preprocessing
* Step 4: Model Selection and Training
* Step 5: Make Prediction on the Test Set For Both Models
* Step 6: Evaluation
* Step 7: Print Linear Regression Metrices
* Step 8: Print Decision Tree Regression Metrices
* Step 9: Visualization

**3.3 Data Set Details**

* Dataset: 'CustomerData.csv'
* Features: Age, Income
* Add more features as needed for segmentation
* Dataset Link : [**https://www.kaggle.com/datasets/chakradharmattapalli/future-sales-prediction**](https://www.kaggle.com/datasets/chakradharmattapalli/future-sales-prediction)

**3.4 Details about Columns**

* Age: Customer's age
* Income: Customer's income
* Add more columns as needed for segmentation

**3.5 Libraries and Tools**

* Pandas: Data manipulation
* NumPy: Numerical operations
* Scikit-Learn: Machine learning tools
* Matplotlib: Data visualization

**3.6 Data Preprocessing, Training, and Testing**

* The dataset is loaded and preprocessed.
* Features for segmentation are selected (e.g., Age, Income).
* The number of clusters (K) for K-Means is chosen.
* K-Means clustering is applied to the data, and clusters are assigned to each data point.
* Visualizations are used to show customer segments based on Age and Income.

**3.7 Metrics for Accuracy Check**

* K-Means clustering is a method for unsupervised learning, so there are no traditional accuracy metrics. Clustering quality can be assessed visually and by the business relevance of the segments.

**3.8 Conclusion**

* This project introduces the concept of customer segmentation using data science techniques. By applying K-Means clustering to customer data, we can group customers with similar characteristics. Further analysis and marketing strategies can be developed for each segment to improve customer engagement and business outcomes.

**3.9 Program Link**

GitHub Link : <https://github.com/Kavinath17/Kavinath.git>