

DEMAND FORECASTING OF PRODUCTS

Group-1

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GOAL: Demand Forecasting is the process of predicting customer's future demand for products.

DATASET OVERVIEW

- Source: <https://archive.ics.uci.edu/ml/datasets/online+retail>
- Multivariate, sequential, and time-series dataset
- Contains all the transactions occurring between 2010 and 2011 for a UK-based and registered non-store online retail.
- The dataset is from online retail data of a gift shop.
- Attributes are InvoiceNo, StockCode, Description, Quantity, InvoiceDate, UnitPrice, CustomerID, and Country.
- Total 541909 entries with above mentioned 8 attributes.

PROBLEM DESCRIPTION:

In this project, we will be using a machine learning approach and forecasting methods to solve our business model and determine whether customers will demand the future purchase of the products based on our current and existing dataset.

PROCESS:

- The data is first clustered (clustering).
- Output from clustering is then used as labeled (with a cluster number) training data for classification.
- Then the number of sales is predicted on the basis of a regression model employing 'cluster number as one of the features. (Prediction)
- At last, we will forecast customers' future demand for products.

CONCLUSION:

- The data pre-processing phase facilitates the formation of the inputs to the models.
- The feature engineering process helps create new variables that bring additional value for demand interpretation.
- The three-step model involving clustering, classification, and prediction enables the company to further visualize the relationship between predictor variables.
- customizing the forecasting approaches accordingly.