



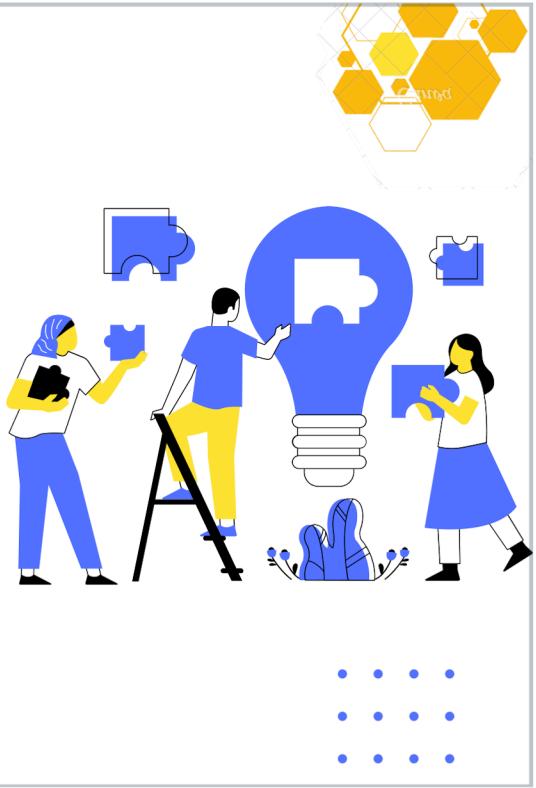
# AGENDA

- PROBLEM STATEMENT
- DESIGN THINKING
- PHASES OF DEVELOPMENT
- DATASET USED
- DATA PREPROCESSING
- MACHINE LEARNING ALGORITHM
- MODEL TRAINING
- PREDICTIONS



## PROBLEM STATEMENT

- The problem is to create a machine learning model that forecasts product demand based on historical sales data and external factors.
- The goal is to help businesses optimize inventory management and production planning to efficiently meet customer needs.



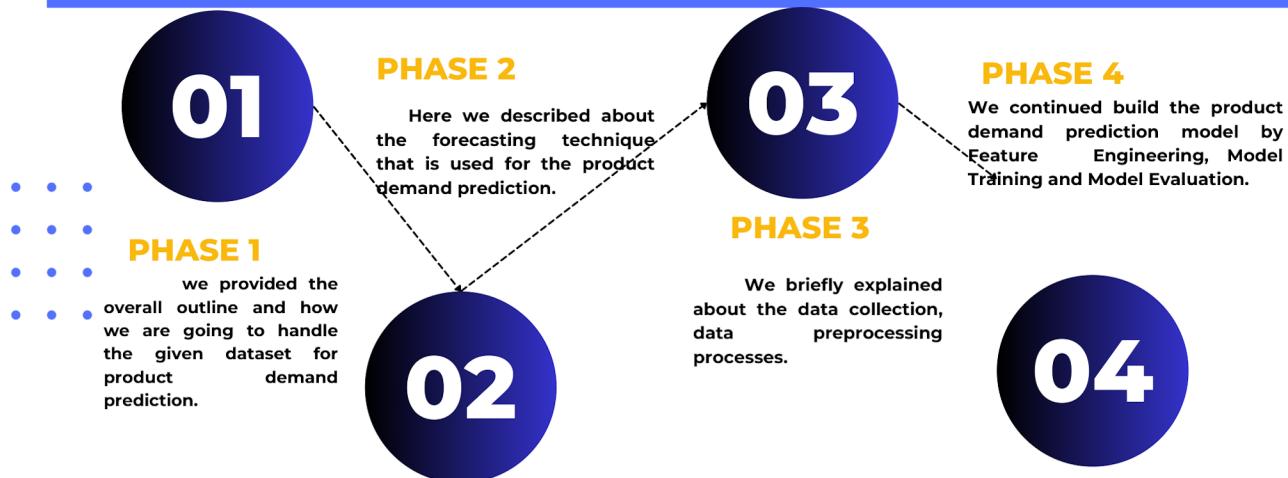


## DESIGN THINKING

Demand forecasters attempt to do just that by using predictive analysis techniques to spin data about past and present sales into predictions of what customers will want in the future. But generating predictions is only the beginning. Demand forecasting success demands that those insights inform decisions about product direction, pricing, company expansion, hiring and more — and that those interpreting results don't fall into the trap of simply trying to deliver faster horses.



# PHASES OF DEVELOPMENT





## DATASET USED

Here, we are already provided with the datasets for product demand prediction from KAGGLE platform.

### DATASET LINK

<https://www.kaggle.com/datasets/chakradharmattapalli/product-demandprediction-with-machine-learning>



## **DATASET USED**



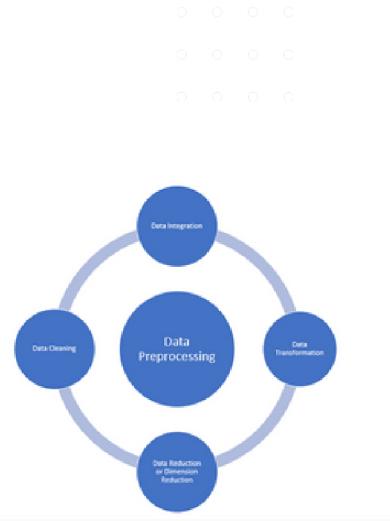
The dataset that we have for this task contains data about:

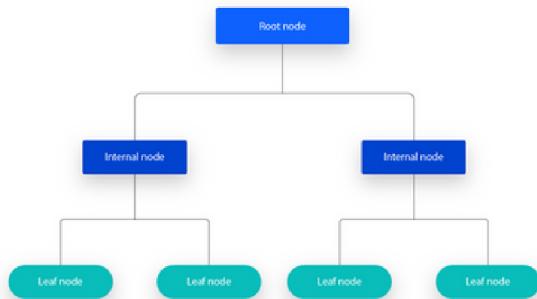
- . . .
- 1. **the product id**
- 2. **store id**
- 3. **total price at which product was sold**
- 4. **base price at which product was sold**
- 5. **Units sold (quantity demanded)**

# DATA PREPROCESSING

The dataset contains a null value.

And it should be removed at this step





## MACHINE LEARNING ALGORITHM

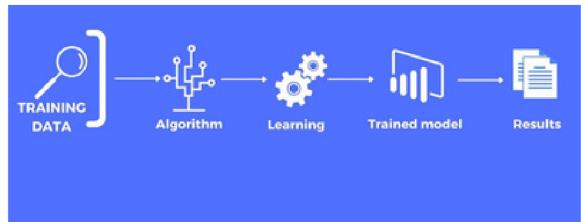
A decision tree is a non-parametric supervised learning algorithm, which is utilized for both classification and regression tasks. It has a hierarchical, tree structure, which consists of a root node, branches, internal nodes and leaf nodes



# MODEL TRAINING

Now let's move to the task of training a machine learning model to predict the demand for the product at different prices.

We will choose the Total Price and the Base Price column as the features to train the model, and the Units Sold column as labels for the model.



# PREDICTIONS

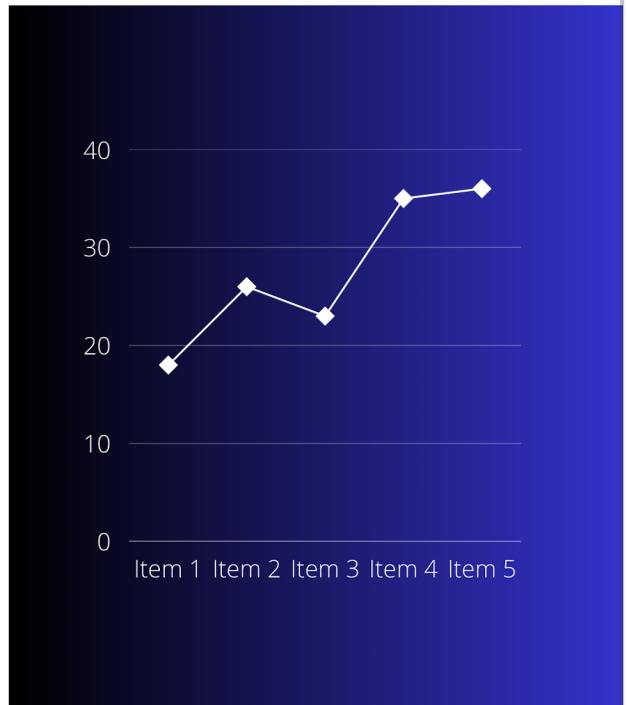
Now let's input the features (Total Price, Base Price) into the model and predict how much quantity can be demanded based on those values:

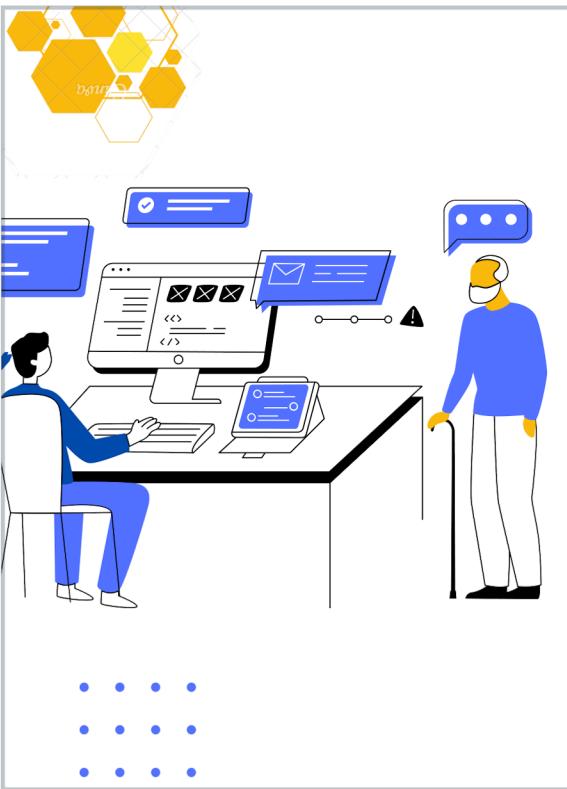


# BUSINESS STRATEGY



**"Price is one of the major factors that affect the demand for the product. If a product is not a necessity, only a few people buy the product even if the price increases."**





# THANK YOU

**BY,**

A.ASHIKA  
S.BANUPRIYA  
J.JAYAPRIYA  
L.PRIYA NANDHINI  
N.VARSHA

