

# Product Demand Analysis

Create a machine learning model that forecasts product demand based on historical sales and external factors, helping businesses optimize by using data set

## Design Thinking

Design think contain several steps

Data Collection

Data Preprocessing

Model Selection

Model Training

Evaluation efficiency

## Data collection

Some common data collection methods include surveys, interviews, observations, focus groups, experiments, and secondary data analysis.

The data collected through these methods can then be analyzed and used to support or refute research hypotheses and draw conclusions about the study's subject matter.

## Data preprocessing

Data pre processing, a component of data preparation, describes any type of processing performed on raw data to prepare it for another data processing procedure.

1. Load data in Pandas.
2. Drop columns that aren't useful.
3. Drop rows with missing values.

Create dummy variables.

Convert the data frame to NumPy

## Model selecting

Model selection is the process of selecting the best model from all the available models .

for a particular business problem on the basis of different criterions such as robustness and model complexity.

Example regression modeling is use to predict the data in accuracy & efficiency

## **Model training**

A method of measuring a accuracy of the model by using XGBoost.

## **Evaluating efficiency**

Evaluating the efficiency by using Root mean Squared Error(RMSE