Material Consumption Prediction of a Power Transmission Equipment Manufacturer

Objective

Accurate and efficient raw material consumption prediction of each Product ID (PCN) for the next three months.

INPUT

Data consists of monthly Consumption of 290 unique products from April 2018 to August 2019.

Data Preprocessing

➢ Expand the given datasets in Time Series data format
➢ Extract features as 'Year' and 'Month'
➢ Group by 'PCN' and 'Date'
➢ Fill the missing value in 'Consumption' by Interpolation
➢ Outliers are handled by IQR using boxplot

Feature Extraction

➢ Based on the variance of the consumption per month, lag is used to create feature
➢ Also, rolling mean is used on consumption for feature creation
➢ Exponential rolling mean is used for feature creation
➢ Use logarithm on consumption to reduce huge variation
➢ Normalize the data using mean and Standard deviation

June 2019
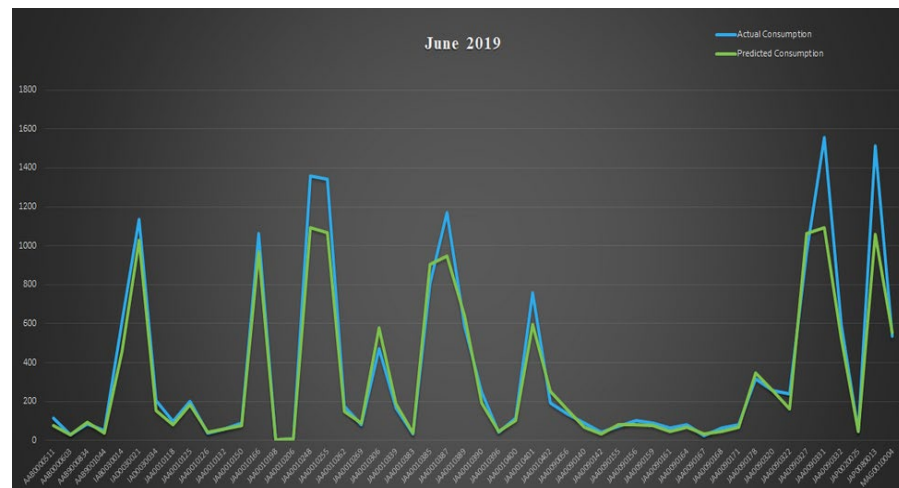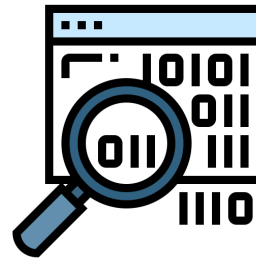
Algorithm Used:

- **Hybrid K-Nearest Neighbour (KNN)**
- **Light Gradient Boosting Machine (LightGBM)**

Autocorrelation