GRUPO BIMBO INVENTORY DEMAND

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GATHERING DATA

The dataset for this competition was primarily sourced from Kaggle. Additionally, we utilized web scraping techniques to augment our data with external variables. Specifically, we collected biweekly inflation rates and consumer confidence indices from an API. These additional variables were gathered for the period from March 31st to June 1st, 2016.

EXPLORATION DATA

We perform an inspection in the features in the dataset, counting the total of missing values, unique values, and cardinality. Then we proceed to merge the different dataframes in our disposal in one unique big dataset

PREPROCESSING

We change the columns type to the one needed, and fill the missing values if its required

FEATURE ENGINEERING

HOW DID WE DECIDE:

Upon exploring the dataset we realized that were several columns that were of the type "object" something that we needed to avoid since a regression ML model was used, also, we also evaluated wich columns were relevant to pass to the model so we could get an accurate prediction.

MODEL BUILDING

We separated our original dataset in test and training files that were fitted in the XGB model and RandomForest model

TRAINING MODEL

Upon training the model, the results showed a 28% margin of error

MODEL EVALUATION

WICH MODEL TO USE?

Since we need a numerical answer from the data it was decided that a Regression Machine Learning Model. At first we evaluated between RandomForest and XGBoost. After measuring the performance of each one of then, we decided to opt for the RandomForest model
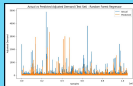
BUSINESS QUESTIONS

The study aimed to address several business questions related to inventory management and demand forecasting:

- What are our best customers per week?
- What are the sales that WAL MART TEPEYAC had during the weeks?
- How many sales and returns where done for each week?
- What are the top 10 products with most sales?
- What are the states and towns where there have been more sales?

REFERENCE

https://www.kaggle.com/competitions/grupo-bimbo-inventory-demand/overview