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Specialization: Data Science
Github link: link

Problem Statement

The large company who is into beverages business in Australia. They sell their products through various super-markets and also engage into heavy promotions throughout the year. Their demand is also influenced by various factors like holiday, seasonality. They needed forecast of each of products at item level every week in weekly buckets.

Business Understanding

The company needs to accurately forecast the demand for each of its products, taking into account the various factors that affect demand. The forecasts will help the company to plan their inventory levels and production schedules, ensuring that they have sufficient stock to meet customer demand while minimizing waste and excess inventory.

The stakeholders in this project include the management team, marketing team, production team, and supply chain team. The success metrics for the project include the accuracy of the forecasts, as measured by the weighted mean absolute percentage error (Wt. MAPE), and the ability of the forecasts to support effective inventory and production planning.

To address this problem, the company needs to collect and analyze historical sales data, as well as data on holidays, seasonality, and promotional activities. They also need to identify any external factors that may impact demand, such as changes in the economy or consumer behavior. The analytical approach to address this problem may include statistical forecasting models such as ARIMA or exponential smoothing, or machine learning algorithms such as random forests or neural networks. The company may also use a combination of these techniques to achieve the most accurate forecasts possible.

Overall, the goal of this project is to provide the company with accurate demand forecasts at the item level, enabling them to optimize their inventory and production planning and maximize their profitability.

Project Lifecycle

Problem formulation: The project involves forecasting the sales of each product weekly to enable us to know the future trend in sales.
Data collection: The data involving collecting the sales of each product and other features. The data is found in the following: data link
Data preparation: Check for validity, consistency, uniformity of data
Data visualization and analysis: Visualize the data in hand.
Modelling: Models to be used in are: ARMA, ARIMA, SARIMA, SARIMAX, RNN and LSTMU.
Model evaluation: Pick model with the highest accuracy and highest precision .

Deployment: Deploy model in flask

Deadline:20 April 2023

Data Intake Report

Name: Retail Forecasting
Report date: 18/03/2023
Internship Batch: LISUM18
Version: 1.0
Data intake by: Felix Muriithi Nyagah
Data intake reviewer: intern who reviewed the report
Data storage location: data link

Tabular data details:

Cabs data table

Total number of observations	1218
Total number of files	1
Total number of features	12
Base format of the file	.csv
Size of the data	50.3 kb