Data Science Project

Group Name : Tech Trio

Team Member's Name

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Specialization: Data Science

Retail Forecasting for a Large Beverage Company in Australia

Project Description

The project aims to create multivariate forecasting models using AI/ML to anticipate weekly beverage demand at the item level. The organization presently employs an internal software program, but it has trouble managing the different time series patterns in the data that are impacted by trends, seasonality, and holidays. The goal is to replace this approach with parallel-operating, more accurate and efficient ML/Deep Learning models that provide insights into variable contributions for explainability, ideally with PySpark.

Business understanding

The company operates in the Australian beverage industry, selling through supermarkets and relying heavily on seasonal trends and promotional activities throughout the year. Accurate forecasting is crucial for efficient supply chain management, as demand fluctuations can lead to overstock or understock issues, impacting both profitability and customer satisfaction.

Challenges:
The time series data exhibits a range of patterns, some showing seasonal variations, some with clear trends and some showing neither. Their current in-house software generates unreliable forecasts that do not match the actual demand. The company wants to build a robust forecasting model that can provide more reliable and accurate predictions.

Expected Results:
By adopting the AI/ML-based forecasting model, the company aims to get accurate product-item level demand predictions hence optimizing inventory levels, minimizing waste and enhancing overall supply chain efficiency.

Project Lifecycle and Deadline

- Problem Understanding - August 19th
- Data Understanding and preliminary Data Cleaning- August 26th
- Detailed Data Cleaning and Transformation - September 2nd

- EDA and Recommendation - September 9th
- Business Presentation and Propose Modeling- September 16th
- Model Selection and Building - September 23rd
- Tidy up and Final Report -September 20th

Github Link : https://github.com/nuzats19/Retail-Forecasting-for-a-Large-Beverage-Company