

Swire-CC Innovation Product Forecasting

Business Problem Statement

Requirement

Swire Coca-Cola faces a business challenge in optimizing production planning and inventory management for its innovative beverage products. The company aims to accurately forecast the demand, identify the most profitable region and time periods for launching these products, using historical sales and market data of similar products along with customer demographic information to strike a balance between both out-of-stock and overproduction situations.

Analytics Approach

The solution to this challenge requires developing supervised predictive regression and time series analysis to forecast the demand for each innovation product at a week level granularity. The analytical approach will involve data analysis through time series, statistical modeling and machine learning algorithms leveraging the historical sales data, product attributes, market trends, and demographic information. These models performance will be validated against cost benefit analysis and other quantifiable methods to support informed decision making.

Benefit of the Solution

The reliable demand forecasting model will enable Swire Coca-Cola to optimize and streamline their production planning and inventory management for the innovative products. By accurately predicting the demand of products, Swire can reduce loss due to under estimated demand, and wastage from overproduction thereby minimizing loss and maximizing customer satisfaction. Additionally, insights derived from census data will identify most profitable regions and time period for product launch optimizing marketing strategies ultimately leading to reduced costs, and improved sales and revenue.

Success Metrics

Stakeholders will assess the project's success based on the uniqueness and performance of the models. The project will be deemed successful if Swire can address the challenge of forecasting product demand as well as determine which region and what time of the year the product needs to be launched. Since, Swire does not immediately possess any benchmark values to be validated against, a critical component in evaluating the project is based upon the justification of the results and on the team's ability to provide quantifiable support.

Scope

The scope of this project is to build an application that is powered by machine learning and time series models, which can be used by Swire to forecast demand, launch time periods and regions. Quantifiable supporting evidences will be presented in the form of adjustable cost benefit methods and interactive Power BI Dashboards. Primary deliverables for this project will be the following.

- Machine Learning and/or Time Series Model
- GitHub repository that including the link to the application as well as the Python code files
- Cost Benefit Analysis matrix and Power BI dashboards to interpret results

Details

This forecasting project will be executed by skilled group of Business Analytics Masters students from the University of Utah with functional support being provided by the domain experts from Swire along with the Capstone professors. The team will schedule call with Swire for retrospective sessions early March to refine the solution if needed. The project will span for around two months with results available by March 24th, 2024 with the team presenting the solution to the sponsors on the 10th of April.

Key milestones during the project development phase:

- Exploratory Data Analysis
- Modelling
- Final Presentation