Profit-Lifter: An Artificially intelligent Solution

ABSTRACT

We all go to shops for buying products, most of the shopkeepers stock a lot of products even if the sales of the product are not that high, which eventually don’t give them valuable profit. Results of such practice leads to wastage of unsold products and the capital the owner invests. This problem can be minimized by representing an artificially intelligent solution which include both forecasting of sales and analyzing the customer’s buying pattern which could prove fruitful to the confectionary shop holders recommending them to focus on buying products which have higher average sales to maximize their profit, plus it will also reduce wastage of products. For this problem we are using Python and machine learning for forecasting of the fruitful products. We are working on two modules one works on forecasting the sales and the other one focus of customer segmentation. Our solution comprises of notifying regular customers about the products they buy on daily basis are available or not (future work). Other modules will be added it to with time.

For customer segmentation we will use K-means Clustering and for forecasting we have trained the data on few regression models such as Linear, Ridge, SVM andrandom forest classifier out of which XGBoost performs best

INTRODUCTION

One of the problems faced by small scale shopkeepers is that they have limited capital to invest in buying products for retail. It is a hectic task to determine which products to keep in their shop and which don’t as there are mere as thousands of products to decide from and they sometimes don’t have the slightest idea that some of the products they are keeping in their shop is never going to sell and hence they have to suffer loss because of this .Also they don’t have any specific algorithm to find that what quantity of a particular product they should buy in order to maximize the profit margin on that product.

This problem can be solved using machine learning. We are using customer segmentation and demand forecasting for maximizing the profit. Segmenting customer base allows us to maximize profits by targeting specific groups that will be the most receptive to the product or service. We can use segmentation to target specific consumer groups for specific products, services and offers.

For customer segmentation we are using k-means clustering algorithm. k-means clustering algorithm, which is designed to find the most important partitioning or clustering of data. It is a method that identifies groups of similar items based on their similarity and degree of separation from one another.

Many businesses struggle with the demand forecasting problem. Your business needs to be able to accurately predict your customers’ behavior to maximize profits and create a positive customer experience.

For demand forecasting we are trying different algorithms like linear regression, xgb, etc. and predicting future demands of a particular product.

Then we are analyzing results of both demand forecasting and customer segmentation for maximizing the profit of the shopkeeper