Prediction of Consumer Purchasing in a Grocery Store Using Machine Learning Techniques

In this paper the main objective is to find a decision function f with the property f (xi) = yi, ∀i
In this paper, they try to measure the response of purchase intention to the contextual factors such as customers' age, gender and income, product price, and sale promotion. Most business models are basing on a linear equation to estimate the weight of these factors due to the linear equation is not only intuitive for other academics to compare and replicate. Analysis based on linear models are insufficient to satisfy the requirement of academics and practitioners any more, and machine learning methods have been increasingly attracted us in the last two decades, to conduct them as an alternative approach for knowledge discovery and data mining.

Bayes classifier and support vector machine, and investigates the performance of them with the data in the real world. They use this algorithm to improve the result accuracy. To facilitate this purpose, SVM provides a set of hyperplanes including two margin hyperplanes, individually. The thought notion of an optimal hyperplane was first suggested by Vapnik and applied to linear classification He subsequently proposed an algorithm for nonlinear classification by using the kernel trick to maximize the gap between margin hyperplanes, which is the most important aspect of SVM theory. In addition to being applied to linear classification, several typical kernels applied in nonlinear classification have been proposed in SVM as follows:

They suggested a method for extracting consumer purchasing behavior. Utilizing RFID data acquired from individuals in a supermarket, we examined several important methodological issues related to the use of RFID data in support vector machines (SVMs) to predict purchasing behavior. In this paper, they mention that they measure customers' behavior based on age, gender and income, product price, and sale promotion. But in this paper, they didn't focus on this. They collect data by RFID and calculations based on customer spend time in super shop. I think Super Shop location is more important and what kind of people come here like age, gender and income and what products they buy, then collect that data which product customer buy most then promote that product customer buy most.

This project idea is similar to our project and the algorithm like Bayes classifier and support vector machine (SVM) that has been used will help our project.

Using Machine Learning To Cocreate Value through Dynamic Customer Engagement in a Brand Loyalty Program

Given the dearth of research in this area, the primary purpose of this study is to examine the predictive impact of customer engagement, to enhance and increase customer engagement as measured by revenue, and to analyze how this dynamic customer engagement influences customer loyalty when machine learning is used to personalize the customer engagement experience.

1. The researchers partnered with the management of a large event venue that focuses on hospitality and entertainment.
2. While a system could be implemented immediately, the organization felt that engaging in a trial of discounting before implementing a system would be beneficial in many ways.
3. The management of this organization is revenue focused; before they would proceed with implementing a system, they wanted evidence of an increase in revenue based on this new program.
4. These variables were selected based on their availability in the CRM system the management team used

This study demonstrates how machine learning can be used to increase our understanding of what customer's value in the engagement-to-loyalty value chain. It also adds to the theory by proposing a framework for measuring and analyzing dynamic customer engagement. This provides methodology for adjusting offers and promotions of products and services to influence customer engagement behaviors in real time, which bridges research gaps on the application of machine learning in the hospitality and tourism literature. Demonstrated how hospitality venues can cocreate value by offering personalized discounts that influence loyalty. Methodology gives researchers a way to identify procedures where automation can be implemented, and this dynamic engagement can be exploited. In the future, researchers should also explore the dynamic link between engagement and loyalty. With the capability to gather customer preference data at each engagement opportunity, the link to loyalty can also be explored in a dynamic fashion using machine learning. Using this model, changes in loyalty can also be ascertained in real time.

This led to small sample sizes and lower than desired power in certain studies. Theoretical and Managerial Implications

Our project is to create product value using machine learning and this paper mainly based on theory. So in this paper, we can improve our theoretical idea.