Midterm Group Projects

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MKT-680 Marketing Analytics

Background

The company Pernalonga, a leading Brazil retail company, plans to partner with Heineken and develops a personalized promotion campaign to boost the sale of Heineken. The biggest competitor of Heineken in Brazil is Super Bock. Pernalonga and Heineken want to know whether it is a good strategy for them to target customers who currently buy Super Bock, and if it is, which Super Bock customers should be targeted. The goal of this report is to answer these two questions and to give recommendations accordingly.

Business Problem

Promotion is widely used in businesses. It helps a company to put across the benefits of product or service to customers, and thus plays a big role in any retailer's arsenal of tools to increase brand awareness, capture market share and ensure profitability. However, promotion comes with cost. Inefficient promotion could lead to a huge waste of time and money. As a result, seeking more efficient promotion methods is a key element to consider for every marketing team.

How to conduct a more efficient promotion campaign? Traditionally, retailers are using in-store promotion, which means the promotion is at retailer's location, with bundled offers, product samples, special discounts, etc. This strategy is heavily used in supermarket; however, it is not perfect. Customers will not know there's a promotion for specific products before they go to the store. Besides, in-store promotion could only be a trigger to purchase when the promotional products have already been very popular among customers. Suppose you are a fan of Pepsi and you find there is a big jump for its price when you are shopping today. You probably will put lots of Pepsi in your cart, even they are not on your shopping list. But if you find some product you are not very familiar with has the same amount of discount at the same time, you probably will not be attracted. In fact, you may not notice the product is on sale at all. So, in-store promotion might not be a primal choice in marketing, especially for products that have relatively small market share.

With technology develops, obtaining and analyzing customer data becomes more and more achievable. It becomes possible for marketers to understand customer behavior, and thus to incorporate personalization in marketing strategies. Compared to in-store promotion, personalized promotion is a better choice for lots of businesses. With the customer data and the power of predictive analysis, companies can forecast which customer could be more likely to buy the products and deliver more relevant, more connected and more timely promotions accordingly. The trend of personalization provides a huge opportunity for companies to better use their marketing dollars.

As one of the strong beer players, Heineken is very popular across Americas and Europe, however, it is not the case in Brazil. Statistics in 2017 show that only 0.76% of beer customers in Brazil will choose Heineken, while Super Bock attracts 35.71% of beer fans. Pernalonga, the leading Brazil supermarket chain, is planning personalized promotion campaign. Since Brazil has the world's third largest beer market, just behind China and the US, Heineken wants to seize this opportunity and increases its sales in Brazil by targeting Super Bock customers.

Exploratory Data Analysis

Within all beer brands

Super bock has the largest customer base. 36% of customers who buy beers are super bock customers. In contrast, Heineken's customer base is a lot smaller, only accounts for 0.76% of all beer customers. When we extract customer who buy both two brands's products and study their purchase history, we realized that Super Bock's customers don't usually buy Heineken. The major reason might be the huge different customer size for these two brands. At the same time, nearly all Heineken customers have bought Super Bock at some point, leaving only 1% of Heineken customer buys Heineken exclusively.

Within only Super Bock and Heineken brands

We split customers into three categories: Super Bock-Only buyer, Both Super Bock and Heineken buyer and Heineken-Only buyer. Our data analysis will be based on these 3 three types of customers.

Data Analysis

To find out which Super Bock customers are likely to respond to this particular marketing campaign, we borrowed the ideas of collaborative filtering approaches, which assume users who share similar past behavior will make similar purchase decisions in the future. Firstly, we pulled out Heineken consumer data and found the top 10000 products they are more likely to buy. We put these 10000 products into a list as a "product profile" for a typical Heineken fan.

Then we divided the Super Bock customers into two groups: Group A contains the customers who currently only purchase Super Bock, while Group B contains customers who currently purchase both Super Bock and Heineken. The goal of promotional campaign for Group A and B is different: we want to expand Heineken customer base by targeting people in Group A, and we want people in Group B buy more Heineken. As a result, we used different analysis methods to support our recommendations.

In the following part, we are focusing on the question "which customers will be targeted".

Analysis on Group A

We compared each customer in Group A with this "typical current Heineken customer" through Jaccard similarity, generated a "similarity score" for each Super Bock customer, and ranked them accordingly. The highest similarity score is 0.193. Without comparison, we cannot judge whether this number is high or not. So, we did the same calculation on Group B. The results are showed in Table 1:

Percentile	0%	25%	50%	75%	100%
Group A	0.013	0.08	0.098	0.115	0.196
Group B	0.03	0.086	0.103	0.123	0.193

From the table, we found that the similarity difference between group A and group B is small, which means if we promote Heineken to Group A, it is very possible for Heineken to increase sales. So, we will target customers in Group A that have higher similarity score. The threshold of similarity score depends on the budget for marketing. If the budget is higher, the threshold can be lower, and more customers will be targeted.

Analysis on Group B

For customers in Group B, we want to know whether they are sensitive to discount or not. If they tend to buy more products when they have promotional code to apply, we will put them on our target list. If they are not sensitive to price, we will not send them the promotional codes because they probably will not buy more Heineken anyway. So, to distinguish price-sensitive customers from other customers, for each customer in Group B, we counted the quantity of products with discounted price and the quantity with full price. If a customer buys more when there is a discount, we will regard he as a target.

Recommendation

Heineken is selling three products in Brazil market. In this part of the report, we are trying to answer the question "for each targeted customer, which product is being promoted with an offer".

Product Recommendation for Group A

We already know which customers in Group A Heineken should target. But before implementing the promotional campaign, we need a further analysis on which product from Heineken should be promoted. We noticed that different Heineken products have different prices, which are shown in the left table. Since price is a good indicator of people's shopping habit and income level, we decided to take beer price as the differentiator. Let's say Mark is a Super Bock

Heineken Product ID	Unit Price
910	$17.5
9490	$0.84
10208	$0.99

drinker and usually he pays one dollars for one unit. This probably could suggest that he is hard up for money and might not pay more on beers. When he received a promotional letter from Heineken that tries to talk him into the beer with the price more than fifteen dollar per unit, he probably will not be interested. So, it could be easier for Heineken to attract current Super Bock customers by promoting the products that have similar prices. The product promotional recommendation for each customer in Group A is to promote Heineken products that have similar prices with the Super Bock products.

Product Recommendation for Group B

Customers in Group B purchase both Heineken and Super Bock and by targeting the customer who are sensitive to price, we expect sales of Heineken could increase. Since these customers already have purchase record of which Heineken product they prefer to buy, we recommend Heineken send out promotional codes for the products they have purchased before.

Further Analysis

When our marketing campaign is implemented, we can collect related data to see whether in fact the targeted customers buy Heineken or not. According to the analysis on new data, we will be able to tune our model and put forward more reliable personalized promotion plan.