Proposal Document

Acme Innovations

Introduction

Data Dorks -"Where Data Meets Brilliance!", a leading data science consulting firm, delivering innovative data-driven solutions to complex business challenges. We are proud of our ability to unlock the full potential of data through cutting-edge techniques.

Acme Innovations, a household name for 75 years for being reliable and innovative in the realm of household appliances, has seen a rapid decline in its market share due to shift in customer preferences over the products, as a result customer retention rates are declining.

We at Data Dorks propose a data- driven marketing result powered by advanced data mining ways to revitalize the spark at Acme inventions. With our approach we harness guests data using clustering algorithms in relating crucial client parts including pious and high values guests. using products purchase data with use of Association rule mining which uncovers copping gets and product combinations by the guests.

Methodology

Data Exploration and Cleaning: From the handed sample guests and product bought data we're going to clean the data by filtering any empty values and look for abnormalities in the data similar as outliers by using statistics and imaging the data to insure robustness. We choose the variables that stylish defines the result needed for chancing pious guests and reasons for dwindling in client retention rates. This foundational step ensures that our recommendation and models are erected on the dependable data**.**

Model Selection: For client Segmentation having large quantum of data, we choose K- Means Clustering an unsupervised machine learning fashion which can discover unknown client parts grounded on characteristics, behaviours, and preferences without taking any target variable or pre independent variable. The performing clusters give precious perceptivity for developing marketing strategies and adding pious guests. for product Recommendation Machine we're going to use Association rule mining via Eclat algorithm (Equivalent Class Transformation) for mining constantly bought particulars from a large set of data due to its effectiveness in computing, scalability, delicacy, and its low memory operation.

Model Training and Evaluation: For K- Means clustering model we will be training our model using features age, payment, spending score and time as client. In relating the number of clusters needed for segmenting guests we will be using elbow system assuring meaningful client groups are formed. latterly we will fit the K- Means to our model and fantasize the results to get a better understanding to get needed perceptivity. For Eclat algorithm model we will be converting our purchase history data into sale format for Association rule mining and fantasize the top purchase products. latterly we're going to set a minimal support count and minimum length of item sets bought and apply the Eclat algorithm and check and find the topmost bought combination of particulars by the guests that are above the minimal support count.

Metrics: For client segmentation we will be assessing attained client parts from K means model results where we could find our most pious guests group, guests group that we should concentrate on retaining to increase client retention rate by comparing the named point variables. For recommendation machine we will be using the results of frequent bought particulars and number of times they bought and compare them with top ten most bought products from the company and determine the products that are in demand from the company.

Recommendations:

Grounded on our models' perceptivity, we at Data dinks propose following practicable recommendations for Acme inventions to address their business challenge.

Targeted Customer Segments: Increase the number of loyal customers by focusing more on customer group who have more salary but similar spending score as they are existing loyal customers.

Product Arrangement: Using Perceptivity from the recommendation machine focus on products that constantly brought together and organize the store in a way where guests find other products they might like and buy those along with those particulars.

Product Building: In case of online purchase make frequently brought items on a sale together and place a minimum order to increase average purchase value.

Marketing Strategies: Implement certain marketing strategies to retain the existing customers and welcoming new customers by giving rewards and introducing loyalty programmes.

Conclusion:

Client retention and adding request share is the most important step we can take as a business proprietor. With the problem of floundering with declining client retention rates with the data handed, we at Data dinks by the use of advanced data mining ways and professional working platoon were be suitable to give a result which suits best to increase company’s request share by retaining their guests and be a colonist in the assiduity.