Executive Summary

TravelTide Customer Segmentation

Introduction

In any business, understanding the customer behaviour is an important component. In business companies like TravelTide to retain their customers and make them buy regularly, they need to understand their customers behaviour and allocate perks.

Specific Objectives

1. To segment customers into distinct categories based on their previous trip booking history.
2. To allocate a perk for each segment based on their unique behaviour

The project assumes that advertising booking to individual users with perk that likely interests them would increase the chance of trip booking.

Methodology

For segmentation analysis customers who have had at least 8 sessions in the time frame between 2023-01-04 and 2023-07-27 have been selected as a cohort. The data was cleaned for nulls, duplication and booleans were converted to integers. All numeral columns in the clean data were scaled down using the MinMaxScaler algorithm to a range of 0 and 1. Finally, the dimensionality of the scaled data was reduced using principal component analysis(PCA), silhouette_score analysed to determine the number of clusters and segmented using the Gaussian Mixture algorithm.

Users involved in the lower three stage of the trip are used for customer segmentation.

Results

The Gaussian Mixture algorithm segmented the users who have had at least one trip booked on TravelTide into six clusters.

1. Segment_0 = 1139 users
2. Segment_1 = 1286 users
3. Segment_3 = 758 users
4. Segment_4 = 661 users
5. Segment_5 = 351 users
6. Segment_6 = 1347 users

Perk Allocation

Segment_0: This segment contains the most frequently flying users. They have the highest trip booking per session rate. Some users in the category are not hotel users. They need to be given the best perk possible.

Perk: Free access to the airlines lounge

Segment_1: Users in this segment are also frequently flyers and 100% hotel users. They are loyal customers and deserve the second best perk.

Perk: Free Hotel night

Segment_2: This segment contains partly frequently flying customers and also partly respond

to discounts. As medium to long distance traveler flight discount likely motivates them.

Perk: 10% flight discount.

Segment_3: Customers in this segments are high spenders per km flight and also respond positively for discounts. As a 100% hotel users, hotel discount should make them happy.

Perk: 10% Hotel_discount

Segment_4: Customers in this segment are last minute booker, short distance travellers and are positively responsive to discounts. The are not frequent flyers and are 100% non_hotel users. So, flight discount most likely excites them.

Perk: 5% flight discount

Segment_5: Customers in this segment are mostly older people. They are frequently flyer and can be considered as a loyal customers. They are 100% hotel users and therefore free ride to/from the airport plus free hotel meal should be a good perk for them.

Perk: Free ride and Free hotel meal

Conclusion and Recommendation

The Gaussian Mixture algorithm clustered customers successfully based on their trip purchase behaviours. The Algorithm identified six groups with distinct features that allowed perk allocation. Three of the 5 Elena's perk suggestion could be verified by the data analysis. A bigger data set may identify additional features that allow allocation of other perks suggested by Elena.

Therefore, I recommend reducing the stringency of the cohort selection in terms of session numbers and timeframe to identify more customer behaviours and perk allocation.

All TravelTide project related files:

1 The googlecolab itself

https://colab.research.google.com/drive/14ndCNnSNOISdR5etfdlnfvkRSwc8OTDv

2 The user_id of all six segments
3 The perk allocation analysis
4 Segmentation related data

Can be found from the google drive link below.

https://drive.google.com/drive/folders/1DClshZqTUIesLXJHvF6WoTT76YJwosoE

The complete analysis of the segments can be seen from the link below.

https://docs.google.com/spreadsheets/d/16UbdiHK5phq5N4bESajNwl7CCEwzN3gXk_-7gu6-jiM/edit?gid=894977344#gid=894977344

The Github link for the project with the README file is found in the link below.

https://github.com/derewor/TravelTide_perk_project/tree/main