TravelTide Customer Segmentation Project Summary

Executive Summary

The TravelTide Customer Segmentation project aims to enhance the rewards program by segmenting users based on their affinity for various perks. This analysis supports the company's marketing strategy by identifying groups of users with distinct behavioral patterns, helping personalize engagement and boost loyalty.

We began by defining a meaningful user cohort, focusing on users with at least 6 months of activity on the platform. This ensured sufficient behavioral data for segmentation. The dataset was cleaned and enriched through feature engineering—aggregating hotel, flight, and session-level data to user-level metrics.

Descriptive analytics revealed key demographic insights and behavioral trends. Users were then segmented using rule-based and clustering techniques, resulting in distinguishable groups, such as: "Family Travelers Seeking Discounts," "Frequent Flyers with Premium Preferences," and "Infrequent Users with High Spend."

These segments offer clear guidance for targeted rewards. For example, budget-conscious users may benefit from early-bird discounts, while frequent travelers might value loyalty points. By aligning perks with user behavior, TravelTide can drive engagement and improve program effectiveness.

Detailed Report

1. Business Context

TravelTide, a digital travel-booking platform, is rolling out a rewards program to improve customer retention. The success of this program depends on understanding user preferences and tailoring perks accordingly. Our goal: segment users based on behaviors relevant to rewards program affinity.

2. Data Exploration and Cleaning

We worked with a database comprising five tables: users, sessions, hotels, flights, and rewards_perks. The initial dataset included over 49,000 session-level rows. Key steps:

- Assessed data types and null values

- Removed anomalies (e.g., negative or unrealistic stay durations)

- Defined cohort: users active for at least 6 months with complete behavioral data

3. Feature Engineering

User-level metrics were generated by aggregating behavioral data:

- Total bookings (flights, hotels)

- Average stay duration and hotel price

- Session frequency, duration, time of activity

- Use of mobile vs desktop

- Engagement with discounts and perks

These metrics helped quantify each user's travel patterns, digital engagement, and value to the platform.

4. Segmentation Methods

We applied two segmentation strategies:

- **Rule-based categorization**: Using demographics (age group, children, marital status) and behavior (booking count, average spend)

- **Clustering (K-Means)**: Based on standardized user-level features to uncover hidden patterns

Resulting segments included:

- Young Professionals Booking Getaways

- Families on a Budget

- Premium Business Travelers

- Occasional Users Interested in Deals

5. Exploratory Data Analysis (EDA)

Each segment was profiled:

- Families tended to book longer hotel stays and favor discounts

- Business travelers booked flights frequently and had higher spending

- Deal-seekers showed high interaction with promotions but booked less often

Visualizations (bar charts, heatmaps, boxplots) supported these findings and provided actionable insights.

6. Recommendations

Tailored perks for each segment:

- **Budget Travelers**: Loyalty discounts, family bundles

- **Frequent Travelers**: Priority bookings, tier-based rewards

- **Infrequent Users**: Referral bonuses, first-time perks

These recommendations will enhance the perceived value of the rewards program and encourage ongoing engagement.

7. Project Deliverables

- Segmented dataset: `users_id.csv, user_id and perk.csv`

- Executive summary and report: `project_summary.pdf`

- Visuals and dashboards (Tableau)

- 5-minute video presentation on loom