Executive Summary – TravelTide Rewards Segmentation

Author: Konstantin Milonas

Objective
TravelTide wants to personalize perks in its new customer rewards program. My task was to validate five proposed perks using user behavior data and assign each customer to a likely preferred perk.

Approach

- Filtered dataset to include active users (≥ 7 sessions since Jan 4, 2023)
- Engineered features from sessions, flights, hotels, and demographics
- Applied PCA to reduce dimensionality
- Used K-Means clustering (K=6, chosen by silhouette score)
- Interpreted segments and matched each with a proposed perk

Key Findings

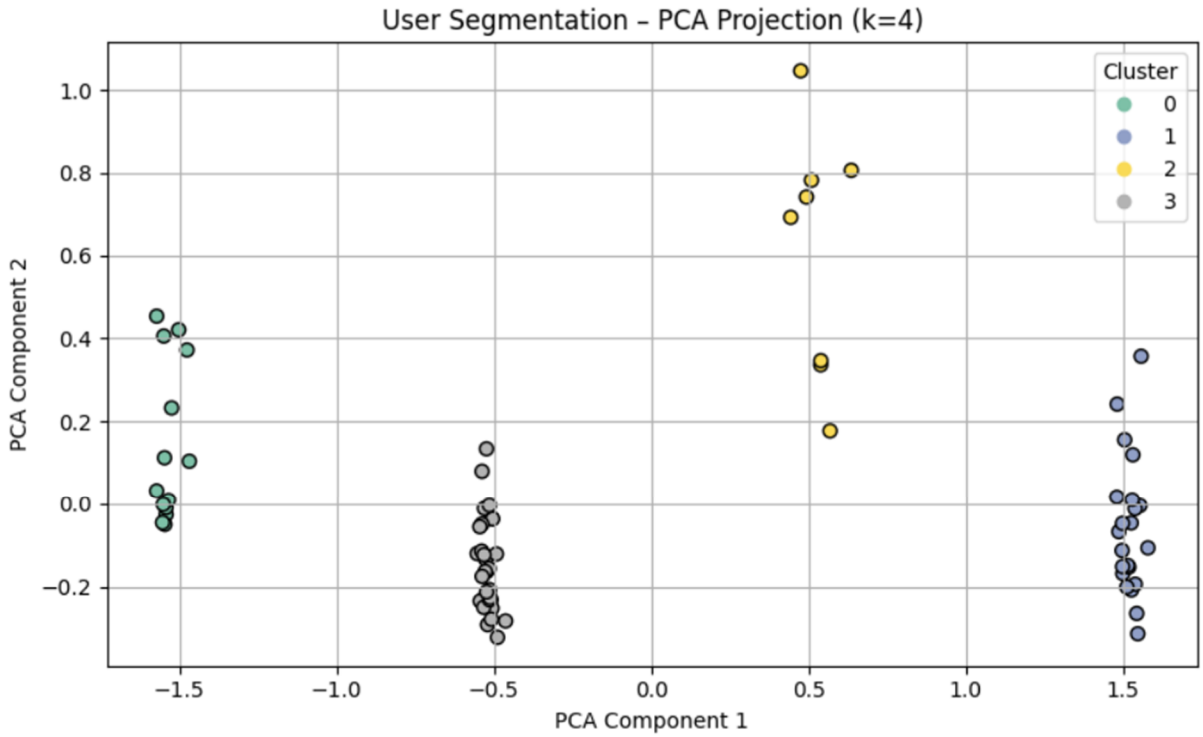
- 6 meaningful segments emerged, e.g.:
    - **Dreamers**: Active but no bookings → *first-trip discount*
    - **Family Travelers**: Lots of bags & kids → *free luggage*
    - **Business Travelers**: Short trips, no hotel → *free in-flight meal*
- Some perks matched clearly; others need A/B testing (e.g. *free cancellation*)

Recommendations

- Roll out perks to well-defined groups
- A/B test unclear perks
- Track uptake to iterate segment definitions over time

Cluster Visualization (PCA 2D Projection)

(each dot = user, color = segment)



(Visualization created from PCA-reduced data with K-Means labels)

Cluster Interpretation & Perk Assignment

As part of the segmentation, four distinct customer clusters were identified based on behavioral patterns such as booking activity, discount usage, cancellation behavior, and trip duration. Each group was matched with a suitable reward perk:

Cluster	Behavioral Summary	Assigned Perk
0	Frequently uses discounts, low cancellations, active in both flights & hotels	🎁 Exclusive Discounts
1	Low spenders, low session volume, limited engagement	🧳 Free Checked Bag
2	High cancellation rate, medium session volume	❌ No Cancellation Fees
3	Frequent flight + hotel usage, long stays, high spending	🏨 1 Free Night with Flight