



# Executive Summary – TravelTide Rewards Program Personalization

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## **Project Overview**

To enhance customer satisfaction and increase engagement on the TravelTide platform, we conducted a data-driven personalization initiative aimed at aligning users with rewards that best suit their travel behavior. The core objective was to assign each user one perk — such as a free hotel meal, loyalty points multiplier, or free cancellation — based on their historical session and booking activity.

## **Approach**

We began by consolidating user interaction data from session logs, trip bookings, and demographic details. From these, we engineered a comprehensive set of features including session click rates, trip frequency, spending behavior, and engagement with flights and hotels.

To prepare for modeling, the data was standardized and reduced using Principal Component Analysis (PCA), maintaining interpretability while reducing noise. We then applied KMeans clustering to identify natural groupings in traveler behavior. Each user cluster was matched with an optimal perk based on usage profiles, with the aim of maximizing perk relevance and future engagement.

### Key Insights

- A 9-cluster segmentation revealed distinct traveler archetypes, such as frequent flyers, hotel-only bookers, low-engagement users, and high-spending loyalists.
- Perks were assigned based on the dominant behavior of each group. For instance, high-frequency flyers received **Free Checked Bag**, while hotel-focused users were matched with **Free Hotel Meals**.
- **Free Cancellation** emerged as the most broadly appealing perk, particularly for inactive or price-sensitive users, while **Loyalty Points Multiplier** and **Flight Discounts** were favored among high-value or frequent travelers.

### Business Impact

- This targeted perk assignment enables **smarter email campaigns** and **more relevant promotions**, leading to increased click-through and redemption rates.
- TravelTide can optimize marketing spend by offering high-cost perks to users who are most likely to convert or remain loyal.
- This framework sets the foundation for scalable personalization across future campaigns, improving long-term retention and ROI.

### Strategic Recommendations & Next Steps

To maximize the impact of the personalized rewards program, we recommend a multi-pronged strategy grounded in behavioral segmentation and continuous optimization:

- **Implement Segment-Based Perk Strategies:** Use the nine behavioral clusters to assign perks that align with travel habits, booking patterns, and user engagement levels. For example, frequent flyers with high engagement may respond well to loyalty point multipliers or hotel upgrades, while low-engagement users may be better motivated by perks like free cancellation or early booking discounts.

- **Consolidate Overlapping Perks:** Certain segments share similar traits or preferences. Clusters receiving perks such as “Flight Discount” and “Free Checked Bag” may be merged into broader travel-saving bundles, reducing redundancy and simplifying program management.
- **Introduce Iterative Clustering Over Time:** As user behavior evolves, rerun clustering models on extended datasets (e.g., quarterly or biannually). This will capture changes in seasonality, booking trends, and cancellation behaviors — allowing the perk system to adapt dynamically to new patterns in customer preferences.
- **Launch a Perk Feedback Loop:** Embed a lightweight feedback mechanism in user profiles or post-booking flows. Encourage users to indicate perk satisfaction or suggest alternatives. This will provide real-time sentiment and enhance the reward system’s responsiveness to emerging needs.
- **Develop Cluster-Aware Marketing Campaigns:** Tailor promotional content to the unique profiles of each behavioral cluster. For example, marketing to “hotel-only” bookers might emphasize room upgrades or meal perks, while full-package travelers might value bundled discounts or VIP perks. This alignment can boost both click-through and conversion rates.
- **Address Demographic Gaps in Engagement:** Our analysis highlighted an uneven gender distribution across certain clusters. Consider outreach efforts or perk bundles that appeal to underrepresented segments — particularly male travelers — to foster a more balanced and inclusive customer base.

By grounding perk assignment in behavioral data and enabling ongoing adaptation, TravelTide can deliver a rewards experience that is both highly personalized and strategically scalable — increasing engagement, satisfaction, and customer lifetime value.