

Executive Summary: TravelTide Rewards Personalization Strategy

Challenge

TravelTide, an e-booking platform known for its extensive inventory, faces high customer churn due to an underdeveloped post-booking customer experience. The Head of Marketing, Elena Tarrant, requires a data-backed customer segmentation model to personalize the launch of a new rewards program, moving away from generic marketing to targeted perk invitations.

Methodology & Findings

The project followed a **detailed** analytical pipeline, documented in the (combined) `traveltide-segmentation-analysis (3).ipynb` notebook:

1. **Data Curation:** Raw data was filtered to include only active users (those with ≥ 7 sessions and activity post-2023-01-04), resulting in **5,998 users**.
2. **Feature Engineering:** Core behavioral metrics were calculated, including session and booking frequency, **Spend Segment** (Budget, Mid-Range, Premium), **Age Group**, and the binary feature `has_children`.
 - o **Crucial Engagement Insight:** Users who successfully converted to a booking had a median of **22.0 page clicks**, significantly higher than non-bookers, who averaged just **8.0 clicks**. This confirms engagement as the strongest predictor of conversion.
3. **Model Selection:** An Unsupervised ML approach (K-Means on PCA-reduced data) was attempted but discarded. Although the Silhouette Score peaked at $K=5$ (0.525), the resulting clusters lacked clear, mutually exclusive business characteristics.
4. **Final Approach:** A **Manual Hierarchical Segmentation** was adopted, prioritizing features based on clear business impact observed during EDA (e.g., family travel, age, and spend).

Key Segments & Strategic Recommendations

The analysis resulted in six highly actionable customer segments, enabling precise reward program personalization.

Segment	% of Base	Core Profile & Strategic Focus	Proposed Reward Perk
Family Market	22.17%	Users prioritizing convenience and large-capacity stays. Focus: Retention & Upsell on bundles.	Priority Booking, Free Checked Bags
Premium High Engaged Other	19.67%	Non-Core ages (e.g., 50-64) but high activity and premium spend. Focus: Loyalty & Exclusivity.	Premium Lounge Access, Status Upgrades
Mid-Ranged High Engaged Core	18.34%	The most reliable, transactionally active 35-49 age group. Focus: Value Maximization.	Points Multiplier on Core Bookings
Price Sensitive Buyer	14.49%	Budget-focused users showing high engagement. The primary target for tactical risk management.	Free Cancellation
Mid-Ranged High Engaged Other	14.95%	Active users outside the core age group, focusing on value. Focus: Sustained Frequency.	Discount Codes, Flash Sales

Premium High Engaged Core	10.37%	The highest-value, most loyal customer group (35-49). Focus: Advocacy & Service.	Dedicated Concierge, Service Vouchers
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Conclusion

The data confirms that behavioral segmentation provides a powerful lever for the rewards program launch. Future marketing efforts must abandon the generic approach and leverage these six distinct segment profiles to tailor the rewards message, ensuring maximum sign-up conversion and sustained customer retention.