TravelTide Customer Retention Project Customer Segmentation and Reward Strategy

1. Business Context

TravelTide, a leading online travel platform, is facing customer retention challenges due to suboptimal user experience. To increase customer loyalty, TravelTide plans to launch a tailored rewards program. Market research shows that incentives such as complimentary hotel meals, waived cancellation fees, free checked baggage, exclusive discounts, and free hotel nights bundled with flight bookings are highly attractive.

Objective: Use behavioural and demographic data to identify customer preferences and design personalized rewards that boost engagement and retention.

2. Data Overview

The project used over 5 million rows from the following datasets:

- **Sessions Table**: Session-level user activity
- **Users Table**: User demographics and historical data
- **Flights Table**: Flight booking details
- **Hotels Table**: Hotel booking details

3. Data Preparation

3.1. Data Quality Checks & Cleaning

- Handled duplicates, nulls, and outliers using domain knowledge.
- Standardized data formats across all tables.

3.2. Aggregation & Merging

- Aggregated behavioural metrics to user level.
- Merged data using SQL joins and CTEs.
- Filtered for users with:
- More than 7 sessions
- Sessions starting after **2023-01-04**

3.3. Feature Engineering Created derived user-level metrics

- Average kilometres travelled (using the **Haversine formula**)
- Average nights stayed
- Trips per session
- Cancellation rate
- Booking lead time
- Average spends (hotel & flight)
- Clicks per session
- Discount usage ratio

Final dataset: 5,998 rows (users) for downstream modelling.

4. Exploratory Data Analysis (EDA)

Tools: SQL & Tableau Key Insights:

- Distribution by marital status, children, and average age
- Booking patterns by age group
- User engagement behaviour: session duration, click frequency
- High engagement linked to lower churn

5. Customer Segmentation Using Composite Score

5.1. Methodology

- **Step 1:** Selected variables – frequency, monetary spend, engagement, profitability, loyalty
- **Step 2:** Min-max normalization of variables
- **Step 3:** Assigned weights based on business relevance and correlation analysis (removed features with correlation > 0.8)
- **Step 4:** Computed composite score
  Composite Score = w1x1 + w2x2 + ... + wnxn
- **Step 5:** Segmented customers by percentile ranks

5.2. Custom Segments

- **Beyond Borders:** High spenders, frequent travellers, families
- **Taste and Travel:** Consistent, moderate spenders with high engagement
- **Deal Voyage:** Price-sensitive customers with opportunistic booking patterns

Visualization: Segmentation results displayed in Tableau dashboards.

6. Perk Assignment Strategy

Original Perk Strategy:

Shifted from fixed perks to personalized, segment-specific rewards based on behaviour and preferences.

Expanded Reward Options:

New perk options were added to align with customer needs and insights:

Segment	Perk Options
Beyond Borders	🎒 Discounted fares for children or 🏨 25% off hotel booking
Deal Voyage	🏨 One hotel night free or ✈️ Discounted travel protection policies
Taste and Travel	💳 Pay monthly without interest or 🍽️ Free hotel meal
Pack and Ride Deal (New)	🎒 Free luggage or 🚌 25% off city bus service
10% More Reason to Travel (New)	🏨 10% off next hotel booking or 🚗 10% off car rentals

7. Additional Insights & Strategic

7.1. Hotel Spend Outweighs Flight Spend

- Most customers spend more on hotels than flights.
- **Recommendation:** Focus perks on hotel-based benefits like free meals, upgrades, or a complimentary night.

7.2. Distance Travelled vs. Segments

- Users with higher average travel distance (in km) predominantly fall into the Beyond Borders segment.
- **Recommendation:** Leverage distance as a key signal for high-value segmentation.

7.3. Session Duration vs. Clicks & Trip Frequency

- As session time increases, both clicks and trips per session decrease.
- Suggests that longer sessions indicate friction or confusion.
- **Recommendation:**
  - ➢ Optimize booking interface for quick decision-making
  - ➢ Introduce time-bound personalized deals to reduce drop-off

7.4. High-Revenue Geography: New York City

- **New York City** is the top revenue-generating region.
- **Recommendation:**
  - ➢ Enhance services in NYC (e.g., more hotel partners or exclusive bundles)
  - ➢ Consider expanding premium offerings in high-value locations
  - ➢ Target premium segments with location-based campaigns

8. Advantages of Composite Score Segmentation

- Tailored to specific business goals: retention, engagement, and profitability
- Broader scope than traditional RFM segmentation
- Scalable for **machine learning models**
- Enables accurate targeting of loyalty initiatives

9. Next Steps & Future Enhancements

✅ **Machine Learning Integration**

- Use **supervised models** (e.g., logistic regression, decision trees) to predict perk responsiveness.
- Validate segments with **unsupervised clustering** (e.g., K-means).

✅ **A/B Testing**

- Test personalized vs. static reward strategies.

✅ **Engagement Funnel Analysis**

- Deconstruct user behaviour from **search** → **click** → **book** to identify friction points.

✅ **Campaign Attribution**

- Identify **channels and perks** that yield the highest retention.

✅ **Time-Series Retention Analysis**

- Use **cohort-based retention curves** to evaluate behaviour over time.

10. Conclusion

This project implemented a customized composite score segmentation system using robust SQL-based data engineering and Tableau for visualization. The resulting reward strategies—driven by real behavioural insights—are poised to increase retention, engagement, and customer lifetime value.

Next phase: Integration of machine learning and real-time personalization to maximize program impact.