

## Executive Summary: TravelTide Customer Segmentation & Rewards Program

### Project Overview

**Objective:** Design a data-driven customer segmentation strategy to power a personalized rewards program that increases customer retention and booking frequency for TravelTide's e-booking platform.

### Analysis Scope:

- Original cohort: 5,722 active customers (January 2023+, 7+ sessions)
- After data quality processing: **5,149 customers analyzed** (573 outliers removed)
- Analysis period: January 2023 - July 2023

**Key Finding:** The analysis identified **3 distinct revenue-generating customer segments** suitable for personalized rewards, plus one non-purchasing segment requiring different strategies.

### Customer Segmentation Results

#### Methodology

- **Algorithm Used:** K-Means Model (3 components)
- **Features Analyzed:** 33 behavioral, demographic, and spending features
- **Segmentation Quality:** Moderate Silhouette score 0.132 (Segments overlap significantly; boundaries are fuzzy, not distinct)
- **Note:** While statistical separation is moderate, segments show meaningful differences in business-relevant behaviors

#### Three Customer Segments Identified

##### Segment 0: High-Value Occasional Travelers (40.6% - 2,092 customers)

- Average total spend: \$3,723
- Average sessions: 8.2
- Average bookings: 7.6 per customer
- Return flight rate: 96.0%
- **Reward -eligible:** Yes
- **Profile:** Take fewer trips, but consistent spenders, high return-flight preference

##### Segment 1: Low-Value Minimal Engagement (9.1% - 470 customers)

- Average total spend: \$492
- Average sessions: 8.1
- Average bookings: 0.6 per customer
- Return flight rate: 4.0%
- **Reward -eligible:** Yes
- **Profile:** Browse extensively but rarely book.
- **Recommendation:** Need incentives to convert.

Segment 2: Budget Occasional Travelers (50.2% - 2,587customers)

- Average total spend: \$1,794
- Average sessions: 8.2
- Average bookings: 3.8 per customer
- Return flight rate: 96.0%
- **Reward- eligible:** Yes
- **Profile:** Largest segment. Book regularly.

**Limitations & Considerations**

- **10% data loss:** 573 customers removed as outliers - may include legitimate high-value customers
- **Analysis period:** 7 months may not capture all seasonal patterns
- **Segment 1 mystery:** 470 customers browse extensively but low purchase - requires further investigation