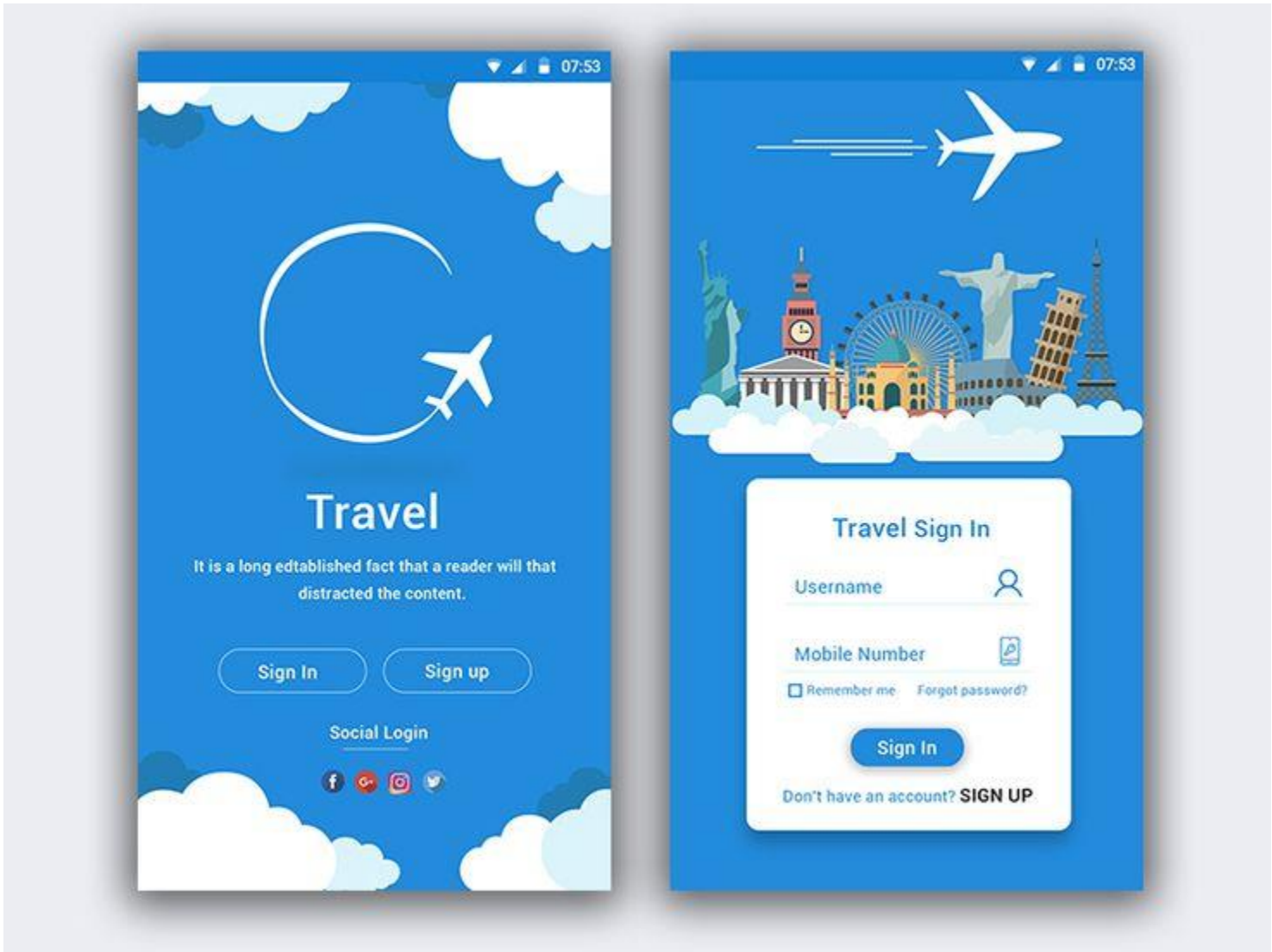# PROJECT REPORT: TRAVELTIDE CRAFTING A PERSONALIZED REWARDS PROGRAM TO BOOST CUSTOMER LOYALTY

DATE: 06 SEPTEMBER 2024
ANALYST: ANJU THOMAS

TRAVELTIDE'S BUSINESS CONTEXT

TravelTide, a dynamic e-booking startup, has experienced rapid growth since its inception in 2021, driven by its robust data aggregation capabilities and extensive travel inventory. However, the company is currently grappling with a critical challenge: customer retention. Recognizing the importance of cultivating long-term relationships with its users, TravelTide is embarking on a mission to design a personalized rewards program aimed at enhancing customer loyalty and encouraging repeat bookings.

PROJECT OBJECTIVES

The primary objectives of this project are threefold:

1. **Validate Customer Preferences:** Analyse customer data to confirm whether distinct segments exhibit unique preferences for specific perks.
2. **Personalize Reward Offers:** Segment customers into distinct groups and assign the most suitable perks based on their behaviour.
3. **Enhance Customer Retention:** Increase customer loyalty and repeat bookings by offering rewards that align closely with customer preferences.

METHODOLOGY

### 1. Data Cleaning and Preparation

The dataset used for this analysis was extracted from TravelTide's Postgres database using SQL and was subsequently processed in Python. Key steps in data preparation included:

- **Outlier Handling:** Addressing outliers in key variables such as **base_fare_usd** and **page_clicks** through capping based on Z-scores to ensure that extreme values did not skew the analysis.
- **Missing Values:** Missing data was imputed with appropriate values, including filling numerical fields with zeros where applicable.
- **Feature Engineering:** New features were generated to enhance analytical depth, such as **avg_checked_bags**, **avg_base_fare**, **length_of_stay**, and **flight_distance_km**.

2. Exploratory Data Analysis (EDA)

EDA was conducted to gain insights into customer demographics and behaviours:

- **Univariate Analysis:** Provided a snapshot of individual variables, revealing key characteristics such as a predominance of female customers (88.37%) and a diverse age distribution.
- **Bivariate Analysis:** Correlation heatmaps highlighted relationships between variables, such as a strong correlation between **total_flights_booked** and **total_hotels_booked.**

Heatmap of Correlation Matrix
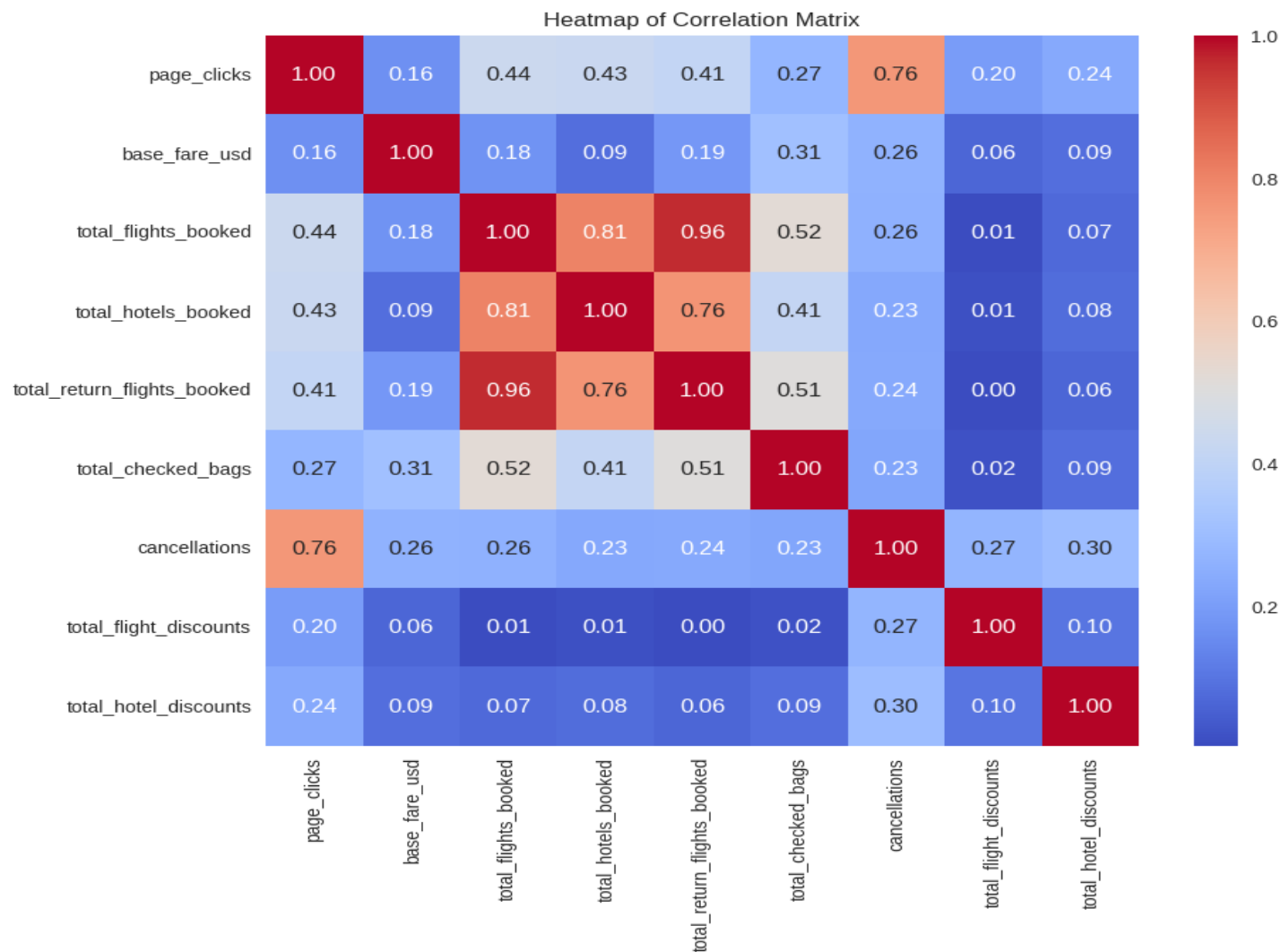
3. Clustering

- **Scaling and Dimensionality Reduction:** Features were standardized, and Principal Component Analysis (PCA) was used to reduce the dataset to three principal components, facilitating effective clustering.
- **K-Means Clustering:** The Elbow method was employed to determine that four clusters were optimal. Each cluster was analysed to identify the most suitable perk.

4. Perk Assignment and Fuzzy Segmentation

Customers were mapped to specific perks based on their cluster assignments, with fuzzy segmentation ensuring that each customer was assigned the perk with the highest affinity.

KEY FINDINGS

The analysis confirmed that distinct customer segments exhibit different preferences for rewards:

- **Budget-Conscious Customers:** Prefer perks that reduce travel costs, such as "**Free Checked Bags**," which was a popular choice with 1,180 selections.
- **High Spenders and Frequent Travelers:** Value flexibility, making perks like "**No Cancellation Fee**" more appealing, as evidenced by its 1,253 selections.
- **Deal Seekers:** Are attracted to perks like "**Exclusive Discounts**," which garnered 1,113 selections, indicating a strong preference for savings on overall travel expenses.
- **Comprehensive Package Seekers:** Are drawn to perks that enhance their overall travel experience, such as "**One Night Free Hotel**" and "**Free Hotel Meals**," with 791 and 703 selections respectively.

Distribution of Clusters
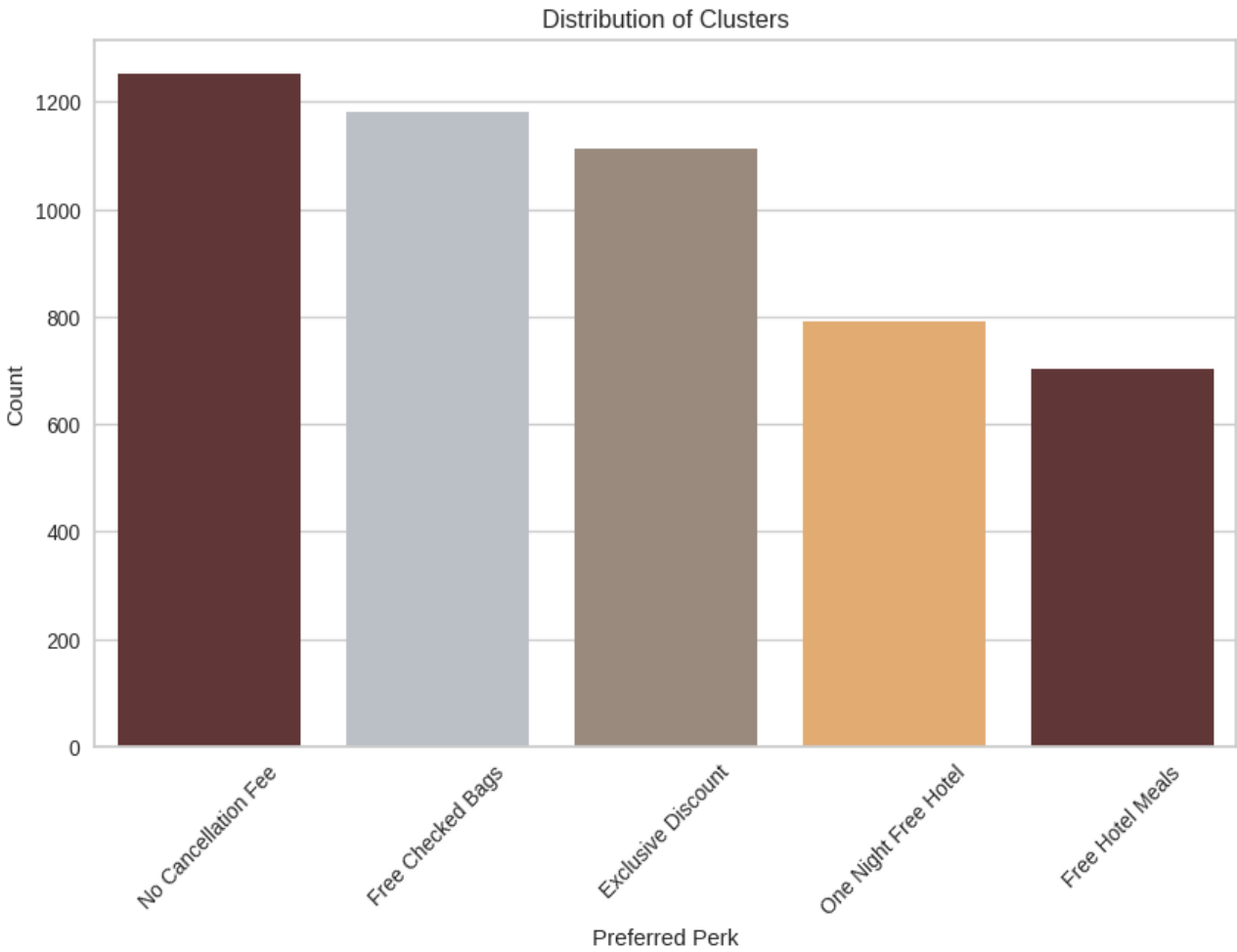
```
       Perks        count
0  No Cancellation Fee 1253
1  Free Checked Bags   1180
2  Exclusive Discount   1113
3  One Night Free Hotel  791
4  Free Hotel Meals       703
```

RECOMMENDATIONS

1. Multi-Tiered Perks Program
Strategy: Introduce a multi-tiered rewards program that provides basic perks, such as "**Free Checked Bags**," for new users and premium perks, such as "**No Cancellation Fees**," for frequent travellers.
Impact: This approach will incentivize customers to increase their engagement with TravelTide by offering more valuable rewards as their activity levels rise, fostering greater loyalty and frequent usage.

2. Perk Bundling
Strategy: Bundle related perks like "**Free Hotel Meals**" with "**One Night Free Hotel**" to create comprehensive offers that appeal to customers looking for a complete travel experience.
Impact: By combining perks, you enhance their perceived value, making the rewards more attractive to customers interested in all-inclusive travel packages, thereby increasing their satisfaction and engagement.

3. Targeted Marketing for High-Value Customers
Strategy: Develop focused marketing campaigns that highlight perks such as "**No Cancellation Fees**" and "**Free Checked Bags**" specifically for high-value customers.
Impact: This targeted approach will help retain and satisfy TravelTide's most profitable users, encouraging repeat business and enhancing the overall customer experience.

4. Location-Based Perk Customization
Strategy: Customize perks based on the customer's geographic location, offering region-specific benefits like "**Exclusive Discounts**" for popular destinations or local attractions.
Impact: Tailoring perks to geographic locations makes them more relevant and valuable to users, increasing engagement and making the rewards program more effective.

5. Dynamic Feedback Integration
Strategy: Implement a feedback system that allows for continuous adaptation of the rewards program based on customer input and preferences.
Impact: This will help keep the rewards program aligned with customer needs and expectations, maintaining high levels of satisfaction and loyalty over time.

6. Demographic-Based Personalization
Strategy: Utilize demographic data to tailor perks, offering age-appropriate rewards such as "**Exclusive Discounts**" for younger travellers or other demographic-specific benefits.
Impact: Personalizing perks based on demographics ensures that rewards are relevant to different customer segments, enhancing the effectiveness of the program and improving retention rates.

CONCLUSION

The recommendations outlined in this report are designed to maximize the effectiveness of Travel-Tide's personalized rewards program. By implementing a multi-tiered program, bundling similar perks, and customizing offers based on customer demographics and geographic location, TravelTide can significantly enhance customer satisfaction and loyalty. Continuous feedback integration and targeted marketing efforts will further ensure that the program remains relevant and effective in retaining customers in a competitive market.

APPENDIX

➢ Click HERE to access Google Colab

➢ Click HERE to access the Github account

➢ Click HERE to watch Presentation Video