Customer Segmentation Sun Country Airlines

Presented By:

Pranvi Setia

Yun-Chien Yen

Shao-Ning (Caitlyn) Yen

Swapnil Joshi

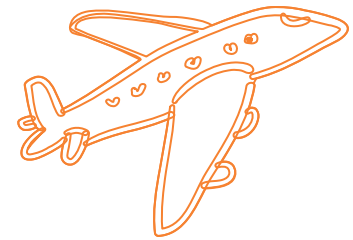Khalil Elhafi

sun country
airlines

Table of contents

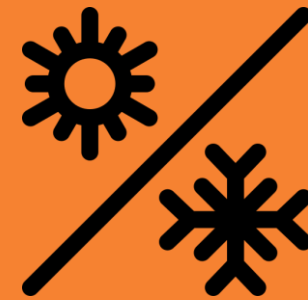# Problem Statement

Customer segmentation

Customer segmentations on passengers and transaction data

Ufly Rewards Program

How to increase Ufly membership, card holders and SCA website traction?

Increase Customer Base

When to give discounts, travel class upgrades & how to increase customer base?
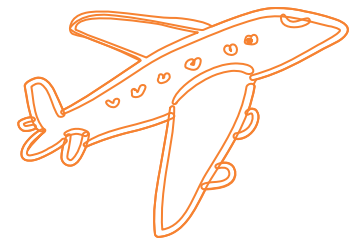
Roadmap

As exploratory data analysis is a cyclic process, we planned to keep following the steps below and generated meaningful insights & practical recommendations

1 Brainstorming

- How to make data more meaningful?
- What questions can be answered by data?

2 Data Cleaning

- Filter for relevant data, drop duplicates
- Handling null values & outliers
- Define new variables to support analysis

3 Data Analysis

- Generating insights through data exploration & visualization
- Customer segmentation via clustering

4 Insights & Recommendations

- Insights about customer segments, travel patterns, etc.
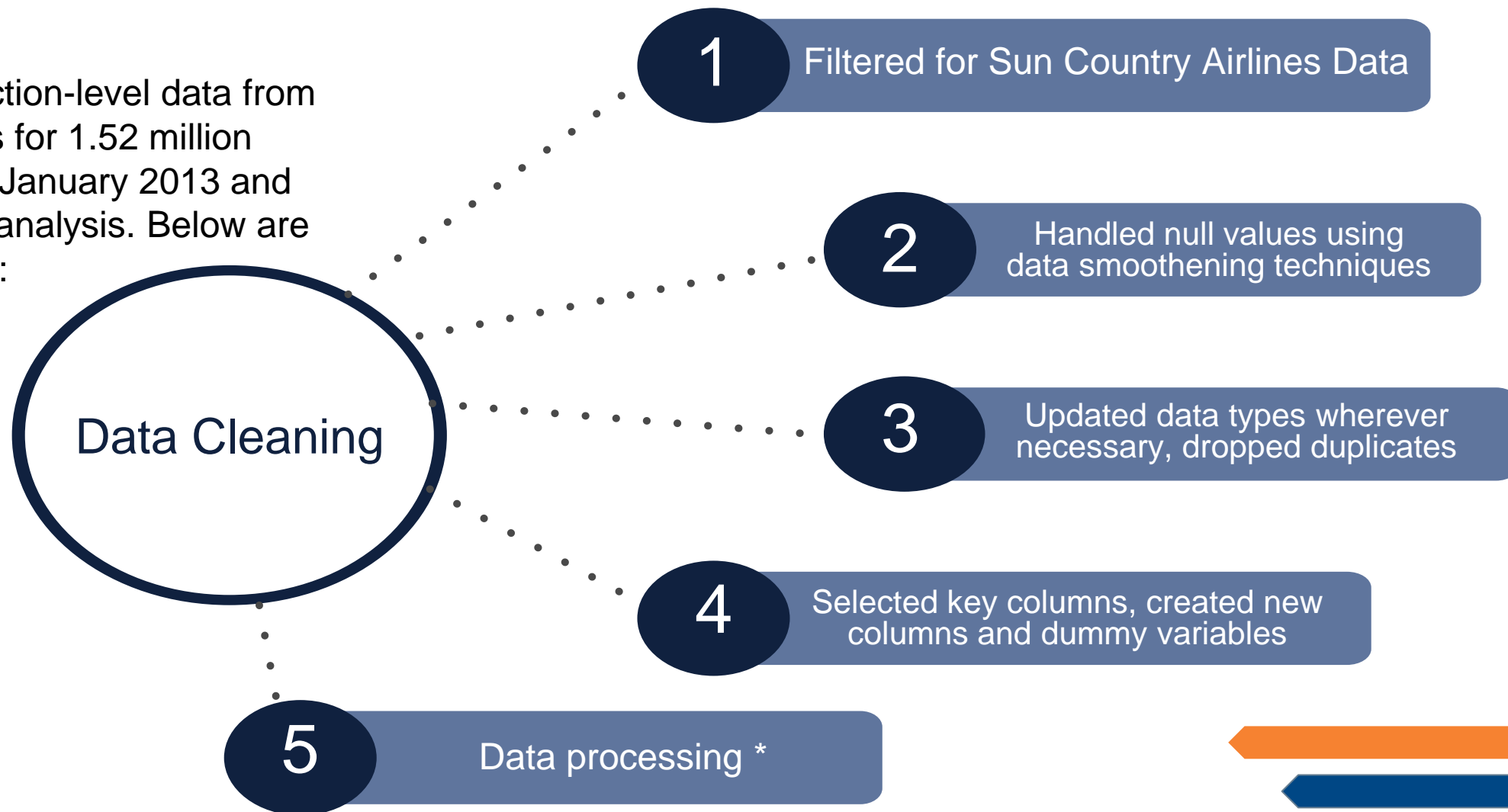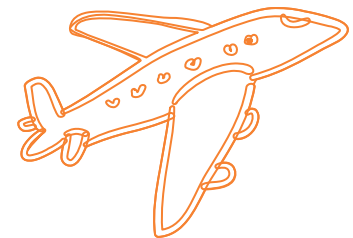- Present practical recommendations

Data Cleaning

We received transaction-level data from Sun Country Airlines for 1.52 million customers between January 2013 and December 2014 for analysis. Below are the data clean steps:

Data Cleaning

1 Filtered for Sun Country Airlines Data

2 Handled null values using data smoothening techniques

3 Updated data types wherever necessary, dropped duplicates

4 Selected key columns, created new columns and dummy variables

5 Data processing *

* Explained in next slide

Data Processing

Data Aggregation

Count: Journeys by class, number of class upgrades, number Of discounts, different booking channels

Sum: Total amount spent, number of trips

Feature Engineering

Created Dummy Variables

Demographics: Gender, Age group

Cost metrics: Total trips, amount spent, discounts offered

Ufly Rewards: Cardholder, membership, booking source and travel class
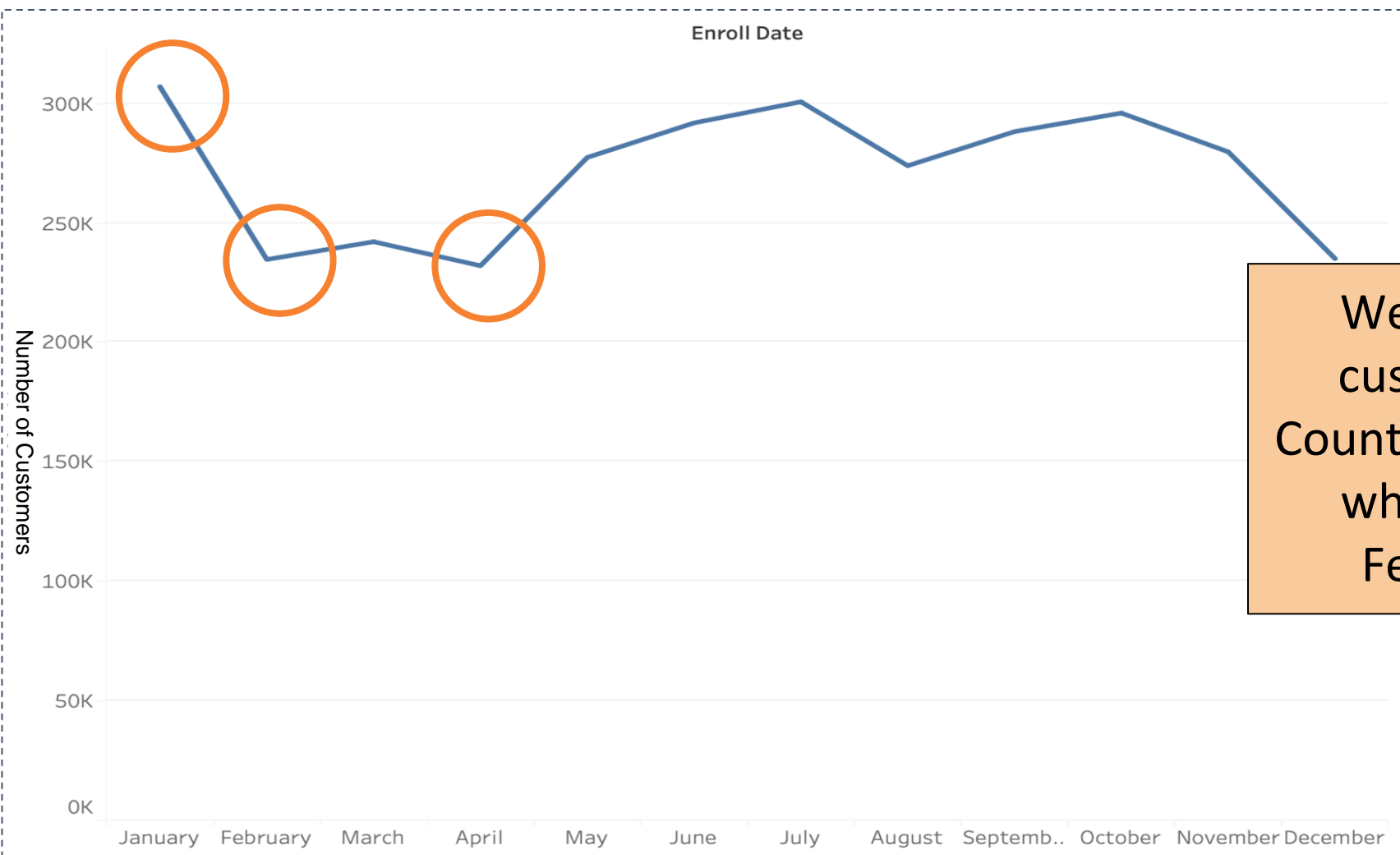
Define Unique Key: Customer ID

GenderCode

Birthdateid

EncryptedName

Data Exploration

Enroll Date

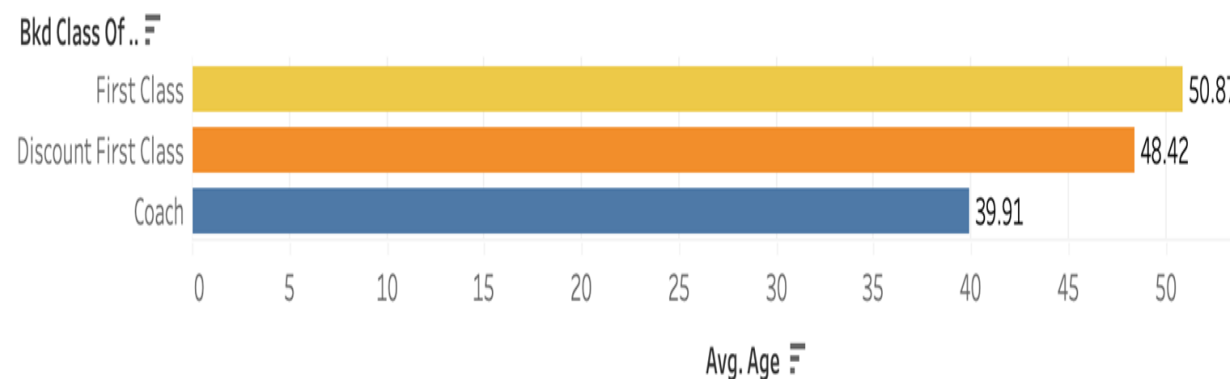We can see a peak of customers taking Sun Country Airlines in January, while a valley in both February and April.

Data Exploration

For the average age above 40, people are more likely to book premium class

Bkd Class Of..

First Class	50.87
Discount First Class	48.42
Coach	39.91

Avg. Age

For the average age above 40, people are more likely to become a member

Ufly M..

Elite	49.88
Standard	45.39
Null	38.83

Avg. Age

Data Exploration

Booking Channel

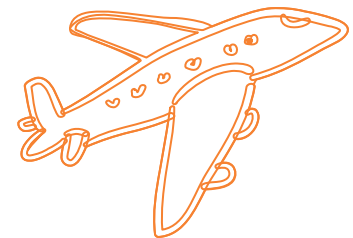| Booking Channel	Percentage
Outside Booking	44.34%
SCA Website Booking	43.80%
Reservations Booking	4.95%
Tour Operator Portal	3.88%
SY Vacation	2.68%
MSP	0.15%
FCM	0.11%
DFW	0.02%
XTM	0.01%
LAX	0.01%
MKE	0.01%
JFK	0.01%
LAN	0.01%
MDW	0.01%
LAS	0.01%
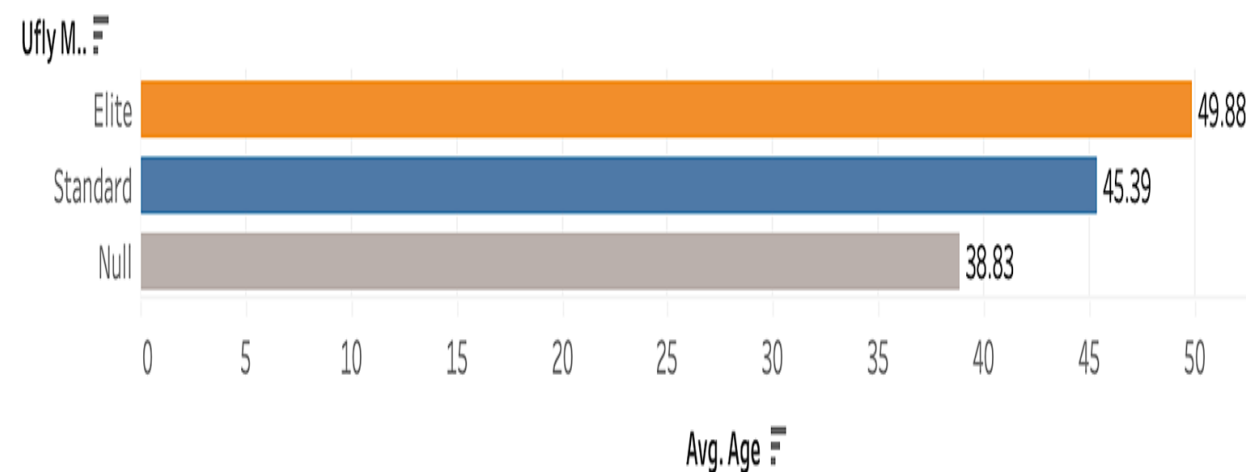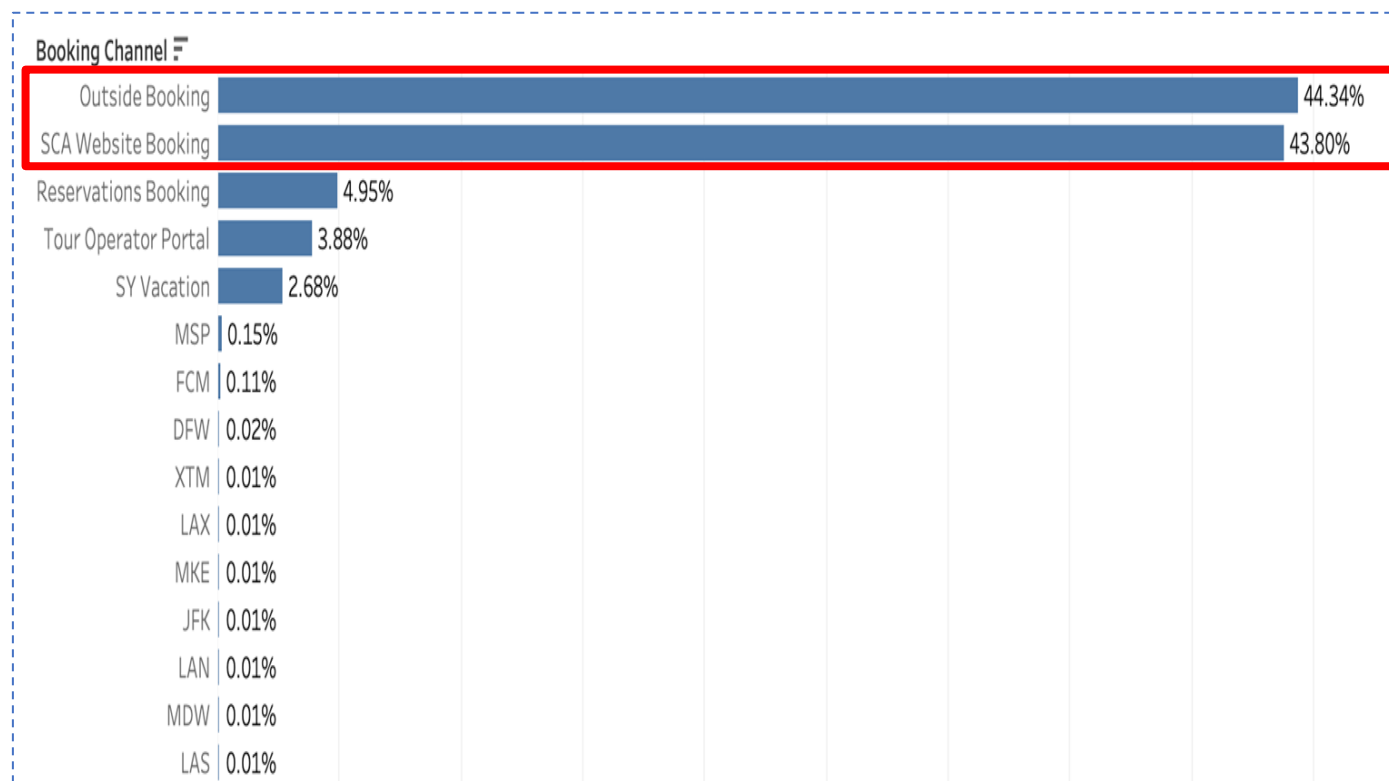
The highest two booking channels dominate the rest:

Clusters Techniques

- We used various clustering techniques like K-Prototypes, K-Medoids, DBSCAN and Gaussian Mixture Model on the SCA transaction level data

- We finalized **K-Medoids** because of following benefits:
    1. Simplicity
    2. Low sensitivity towards outliers
    3. Ability to incorporate continuous and categorical data
    4. Object-based results

- Silhouette coefficient was taken as performance measure which was highest for 5 cluster solution. **Let's see 5-cluster solution on the following slide**
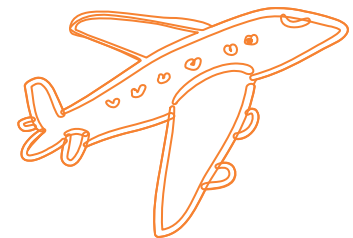
Clusters Description

We identified 5 segments using the K-Medoid Clustering method

	Segments	Gender	Booking Channels	Age groups	Membership	Travel Frequency	% Class Upgrade	Discount	Amount / Trips ($)	Card Holder
1	**Loyal Senior Female Travelers**	Female	SCA Website	Senior (>55)	Standard	High (~ 5Trips)	21% Trips	High (~2.5 Trips)	406.8$	Yes
2	**Budget Travelers**	Female	Outside	Adult (26-40)	Not Member	Low (~ 2Trips)	6% Trips	Low (~ 0.9 Trips)	283$	No
3	**Loyal Senior Male Travelers**	Male	SCA Website	Senior (>55)	Standard	High (~ 5Trips)	23% Trips	High (~2.4 Trips)	408.7$	No
4	**Young, potential future customers**	Female	SCA Website	Child (<18)	Not Member	Low (~ 2Trips)	6% Trips	Medium (~ 1.2 Trips)	335$	No
5	**Male Adult Passengers**	Male	Outside	Adult (26-40)	Not Member	Low (~ 2Trips)	7% Trips	Low (~ 0.9 Trips)	324.9$	No

Business Recommandations per segments

Loyal Senior Female Travelers

✓ Promote the benefits of Ufly elite membership status.

• They can give 1-month free elite membership around winters.

✓ For senior citizens, comfort of journey is the top priority. SCA should continue giving them class upgrades.

✓ Promote vacation packages because these customers will pay higher for a good experience.

Business Recommandations per segments

Budget Travelers

✓ Provide more discounts on SCA website

- Incentivize customers to book using SCA website
- Save on commission provided to outside distributors

✓ Promote Standard Ufly Rewards Membership

- Exchange fly miles for discounts and upgrades

Business Recommandations per segments

Loyal Senior Male Travelers

✓ Promote SCA card by offering card holders specific services

- Priority check-in, comfort seats, complementary food and beverages and personal assistance for Senior customers.

✓ Special vouchers for warm destinations for Senior members to encourage them upgrade from Standard to Elite membership

✓ Display Best Deals on SCA website.

Business Recommandations per segments

Young, Potential Future Customers

✓ Children mostly fly with their parents, and thus, Sun Country Airline could provide the family seating on their website to motivate family customers.

✓ Sun Country could enhance the loyalty of young customers by discounting school groups of becoming a membership, and also coach class tickets.

Business Recommandations per segments

Male Adult Passengers

✓ Offer back-to-school packages (September and March traveling discounts) or vacation coupons (Winterbreak and Summerbreak promotion codes) for more Ufly Rewards miles earned.

✓ SCA should propose referral coupons or single-time discounts on the outside websites, so passengers are likely to invite their peers (more first-time users) and book SCA from their website and increase brand awareness.

Business Recommandations

General Recommendations for all customers:

✓ Focusing on the periods after the Christmas holidays

- Attract potential customers via promotion code

✓ Boosting the customers' booking rate on the website of Sun Country Airlines

- Discounts on the first several rides
- Free bags on the first trip

✓ Seniors Travel Assistance programs

✓ Social Media Promotion

Thank You