SANTA CLARA UNIVERSITY
LEAVEY SCHOOL OF BUSINESS

Airline Satisfaction Analysis with R

Group 2

Chun-Yu (Benson) Chen, Kane Lee, Xuelian Liu

MS of Business Analytics

TABLE OF CONTENTS

01

Overview

Company, Dataset, Objective

02

Exploratory Data Analysis

Insights and Data Visualization

01

Overview

Company, Dataset, Objective

ABOUT THE COMPANY

This dataset includes two airlines:

- **WOW air**
- **Primera Air**

Both airlines are no longer operating.

(WOW air ceased operation in March, 2019)

(Primera Air ceased operation in October, 2018)

OUR DATASET

Airline Satisfaction Dataset

The data includes:

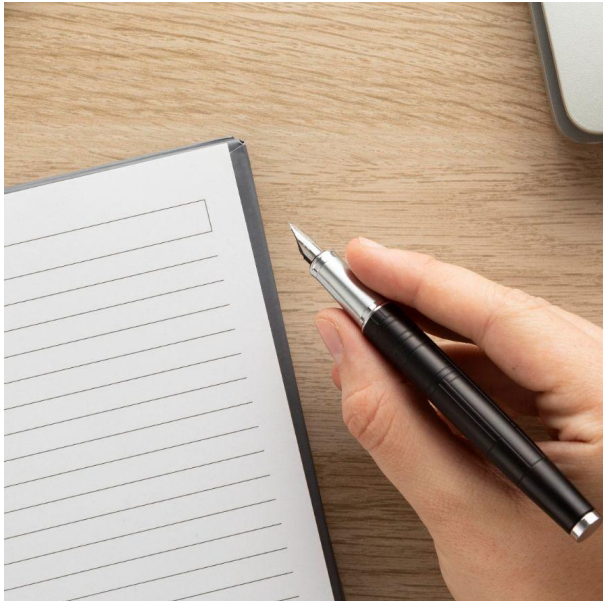
- 10,600 observations (replace NANs with 0)
- 22 variables

This dataset contains consumer survey data and airline data, reflecting the relationship between airlines and customers.

The Objective

Improve Customer Satisfaction

Our goal is to help the airlines improve their customer satisfaction and flight experience.

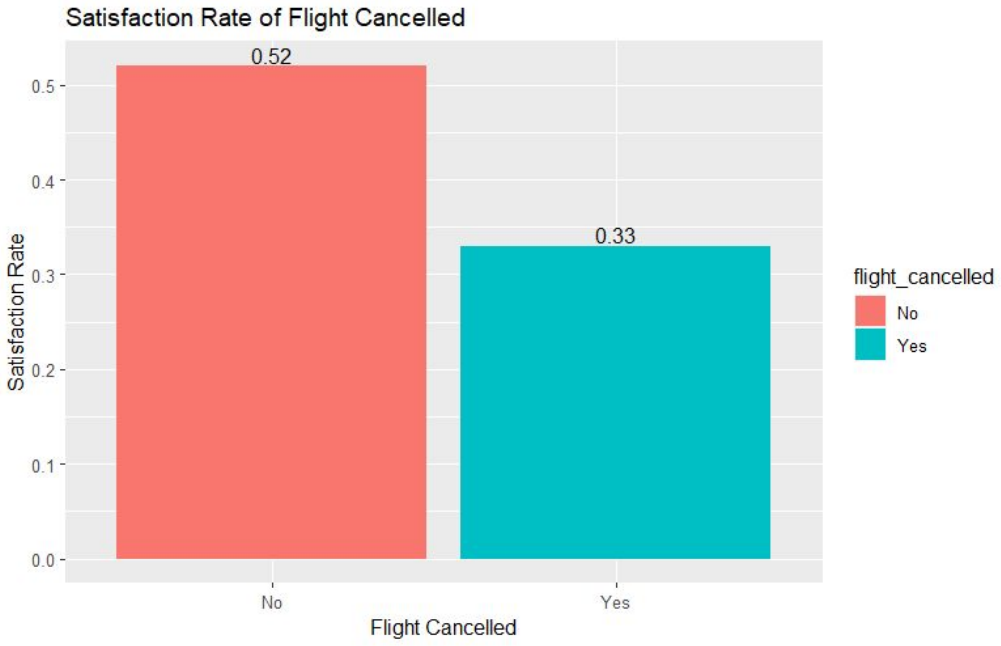


02

Exploratory Data Analysis

Insights and Data Visualization

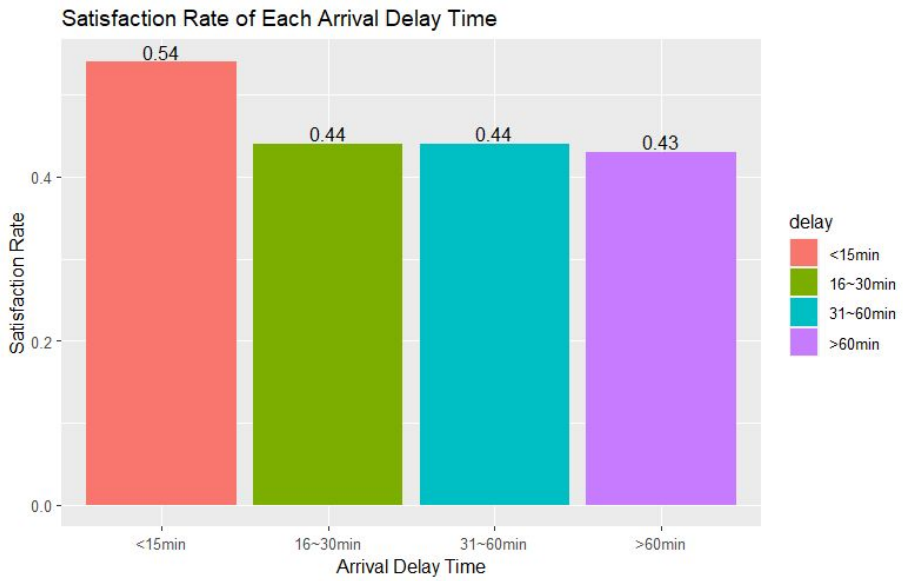
Data Visualization



Satisfaction Rate vs. Flight Cancellation

- 52% of the customers are satisfied with the airline company when their flight was NOT cancelled. Only 33% of the customers are satisfied when their airline was cancelled.
- However, the dataset only includes 393 observations whose flight was cancelled. (3.7% of the dataset)

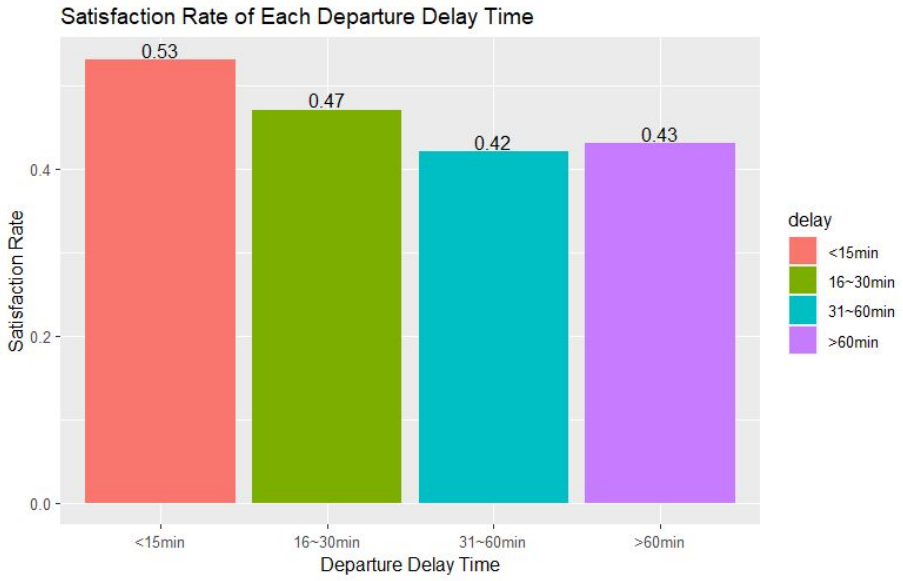
Data Visualization



Satisfaction Rate of arrival delay time

- 54% of the customers are satisfied with the airline company when the arrival delay time is less than 15 minutes. (including flight cancelled)
- The satisfaction rate is nearly 10% higher when the arrival delay is less than 15 minutes.

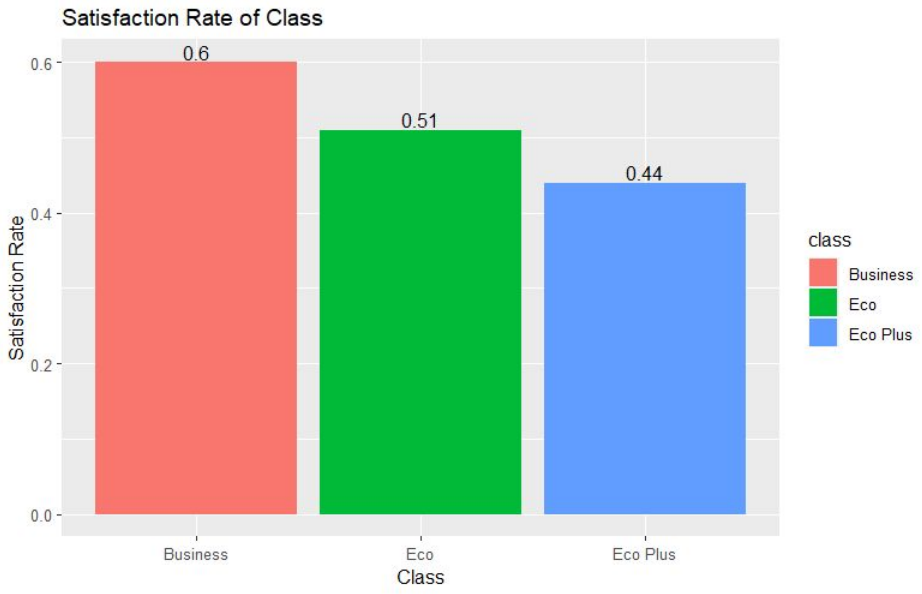
Data Visualization



Satisfaction Rate of departure delay time

- 53% of the customers are satisfied with the airline company when the departure delay time is less than 15 minutes. (including flight cancelled)
- The satisfaction rate is 6-11% higher when the departure delay is less than 15 minutes.

Data Visualization

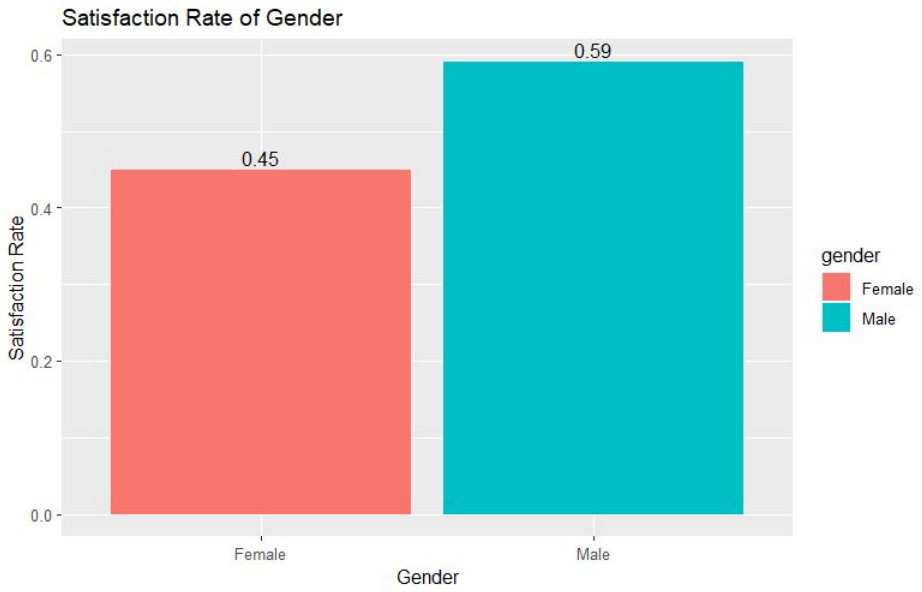


Satisfaction Rate among Classes

- Business Class customers had the highest satisfaction rate with 60%, while eco plus class customers had the lowest with only 44% of satisfaction rate.

- We suggest the airline companies put more emphasis on eco plus customers. For example, they can offer a higher quality of meal options and seat amenities, or provide some priority services during check-in and boarding.

Data Visualization

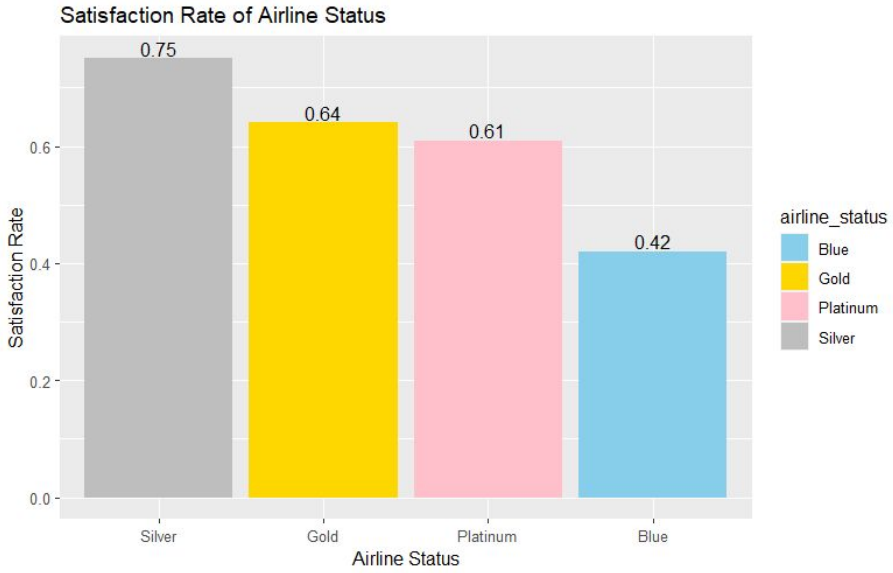


Satisfaction Rate among Genders

- Male customers had a better satisfaction rate with 59%, while only 45% of female customers were satisfied with the airline services.

- It is crucial for the airline companies to improve female passenger experiences. For example, they can create female-only rows to ensure safety, or offering amenities with female hygiene products that help improve flight experience.

Data Visualization

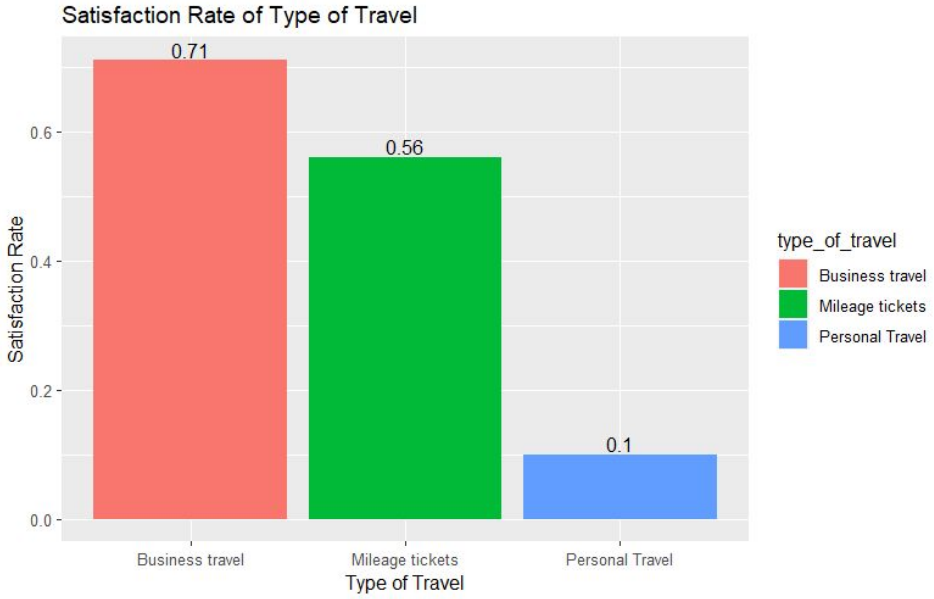


Satisfaction Rate among Airline Status

- Silver customers (3rd tier) had the highest satisfaction rate with 75%, while only 42% of blue customers (4th tier) were satisfied with their experiences.

- The airline companies should provide better services to blue customers. For instance, they can provide complimentary snacks and bottled water for them, or improve the customer service and communication to ensure they don't feel sidelined just because they are in the lowest membership tier.

Data Visualization



Satisfaction Rate among Types of Travel

- Business travel had the highest satisfaction rate with over 70%, while only 10% of the personal travelers were satisfied with their flight experiences.

- To elevate the experience for personal travelers, airlines should leverage surveys and data analytics to pinpoint areas of concern, then strategically enhance customer service and onboard amenities.

Summary

Based on EDA and Data Visualization, we offer the following targeted recommendations to help airline companies boost customer satisfaction:

- Minimize flight delays to under 15 minutes and prioritize avoiding cancellations.
- Enhance customer service offerings for eco-plus passengers.
- Elevate the travel experience for female passengers.
- Boost customer satisfaction for blue-tier members.
- Improve service and flight experience for personal travelers.