

Unsupervised Machine
Learning Project

PASSENGER SATISFACTION ANALYSIS



20th September 2023
Project by Haruka Kozen



Collected from
approx. 130000 Passengers

1 Attributes of Passenger / Flight

- Age
- First Time Customer
- Flight Class
- Flight Distance
- Flight Delay

2 Satisfaction Level

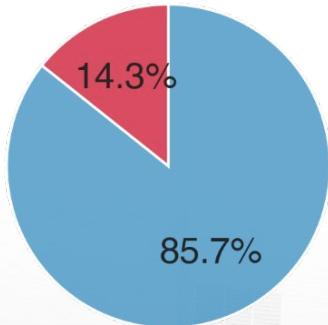
- Ease of Online Booking
- Seat Comfort
- Food and Drink , etc.



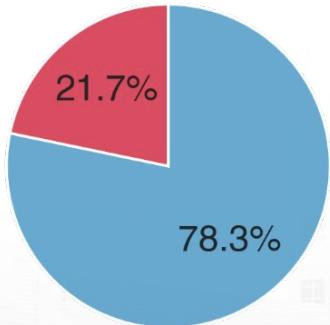


Overall Satisfaction Level with the Airline

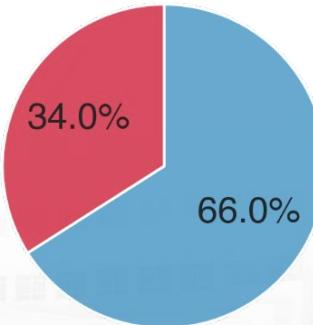
On a Budget



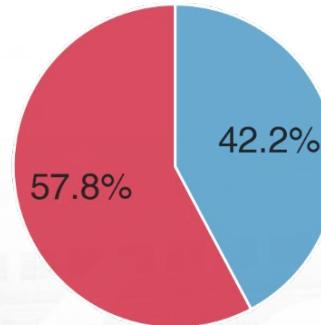
Trouble-Experienced



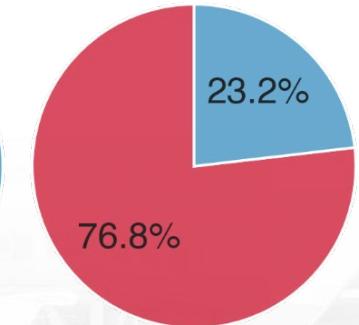
Flight-Delayed



Tech-Assist Target



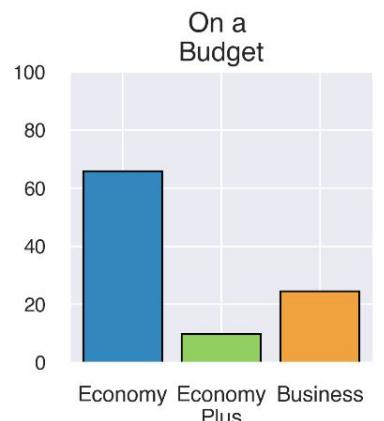
Satisfied Business



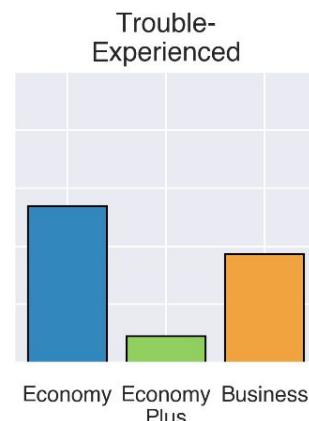
■ Satisfied
■ Neutral or Dissatisfied

Percentage of Flight Class

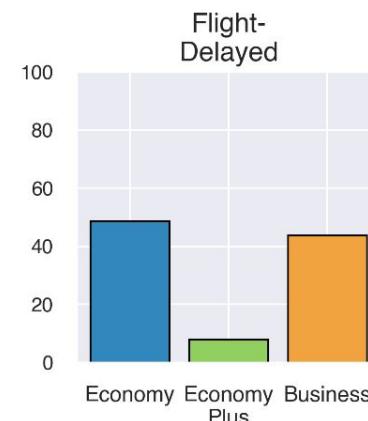
On a Budget



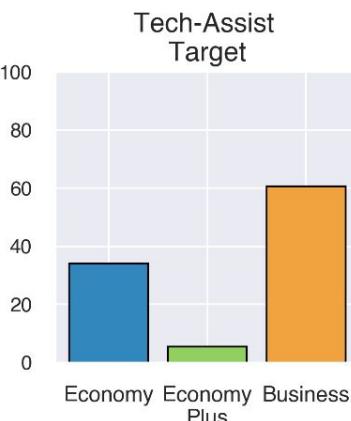
Trouble-Experienced



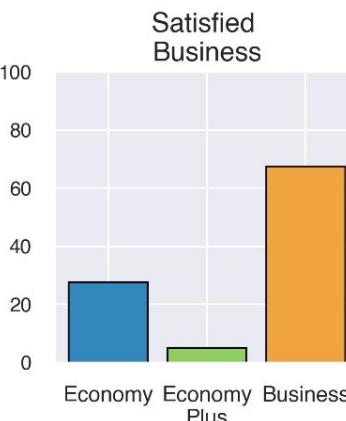
Flight-Delayed



Tech-Assist Target



Satisfied Business

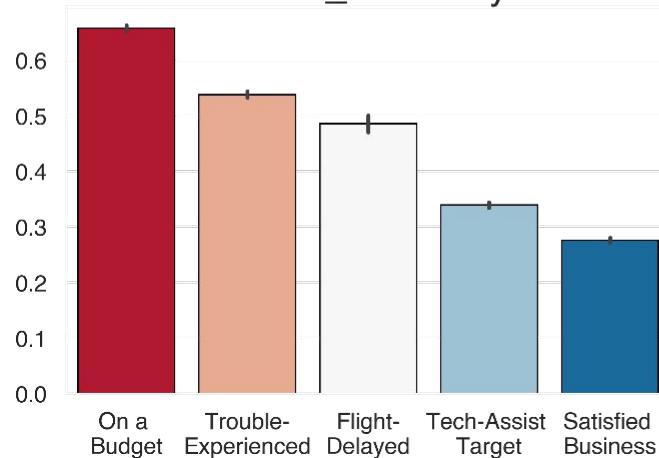




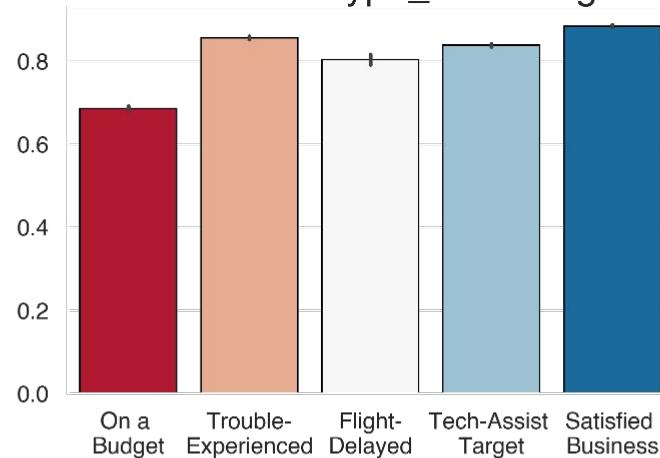
1 On a Budget

Average age is 32 (youngest). 60%+ Select Economy Class, Shorter Flight Distance (800 miles = New York to Minneapolis, Minnesota), Not on Business trip. More First time User

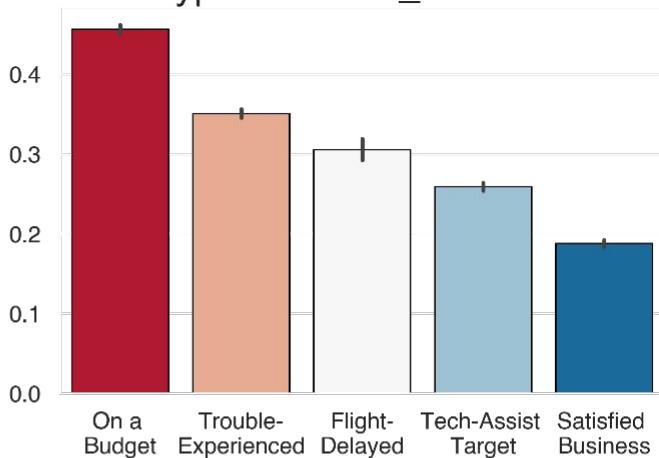
Class_Economy



Customer Type_Returning

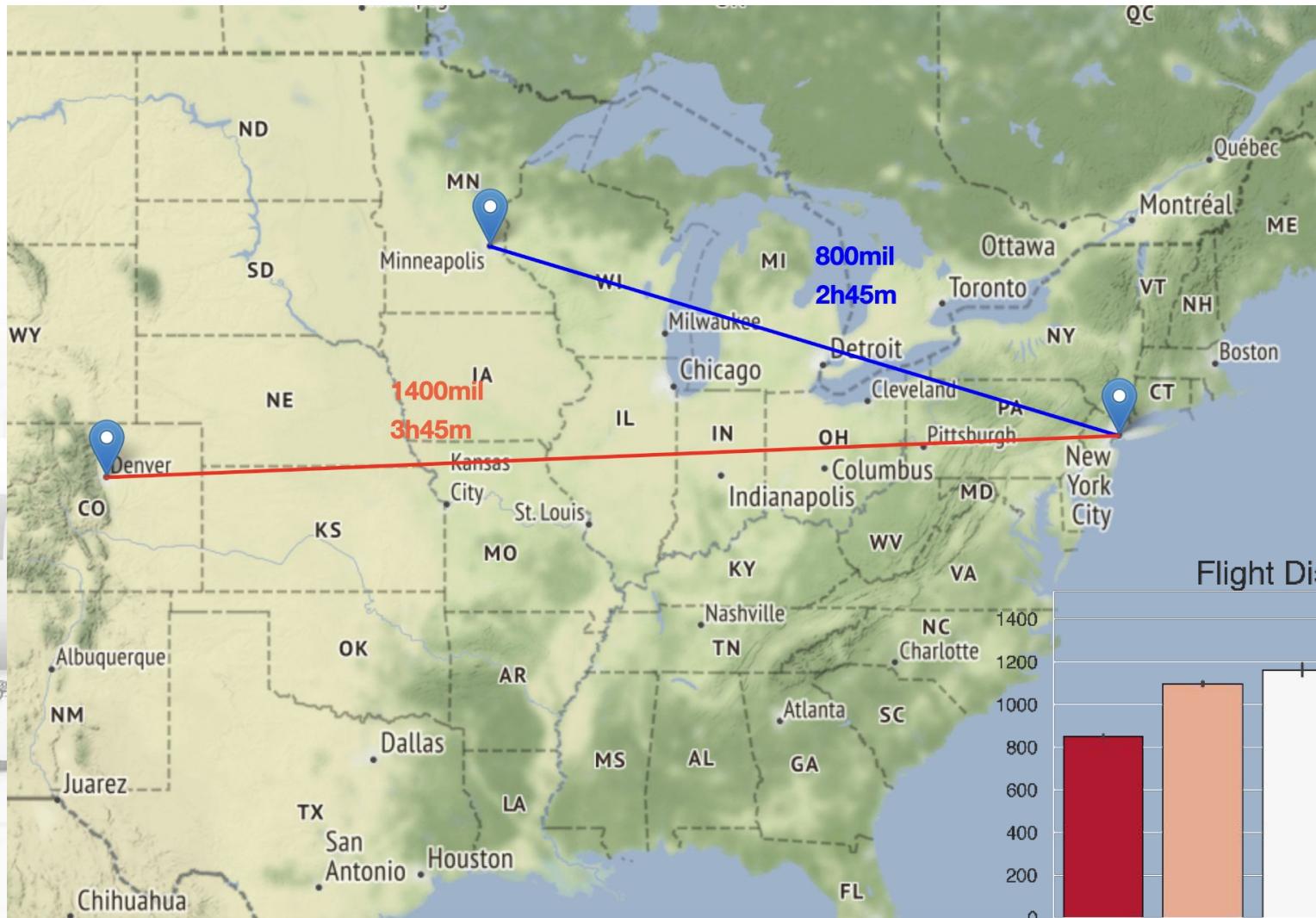


Type of Travel_Personal

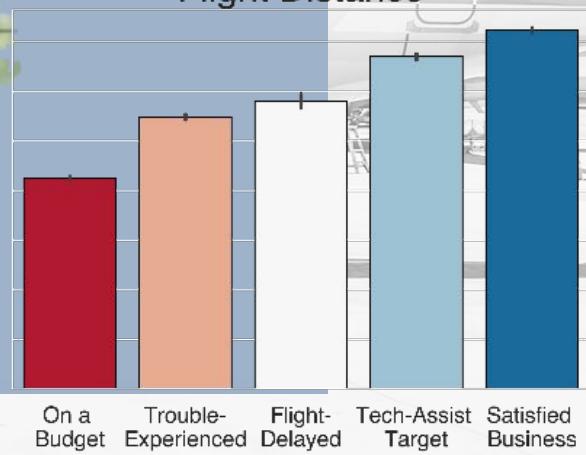




Flight Distance by Passenger Group



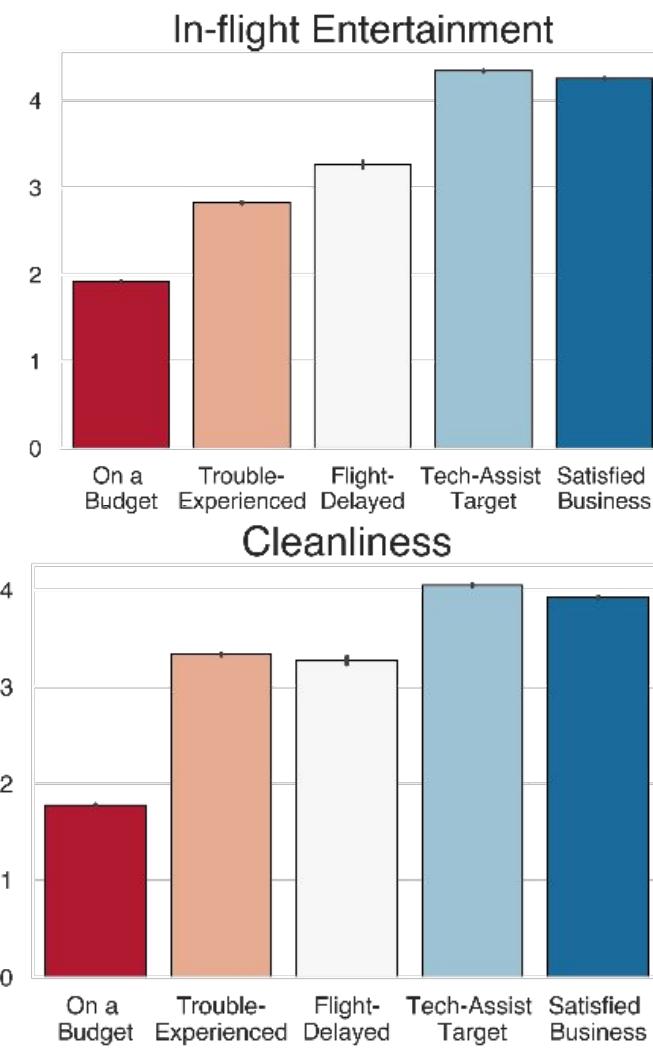
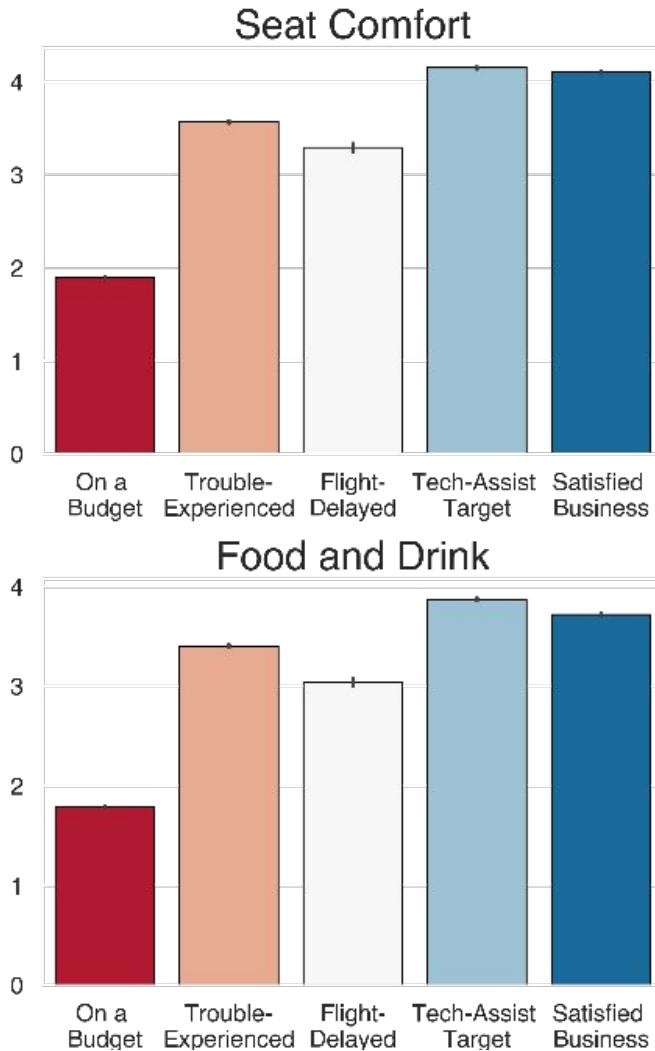
Flight Distance





1 On a Budget

Not satisfied with Seat, Entertainment, Food and drink, Cleanliness

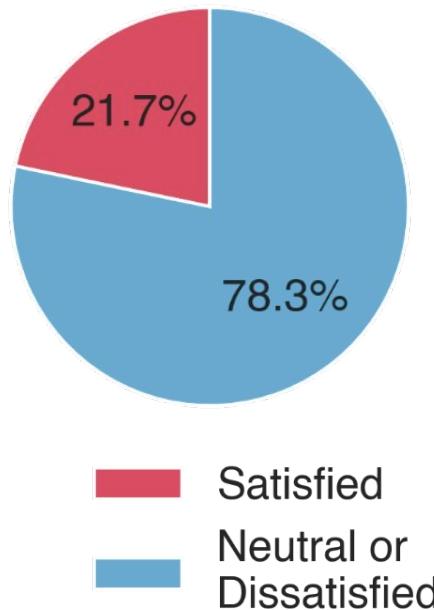




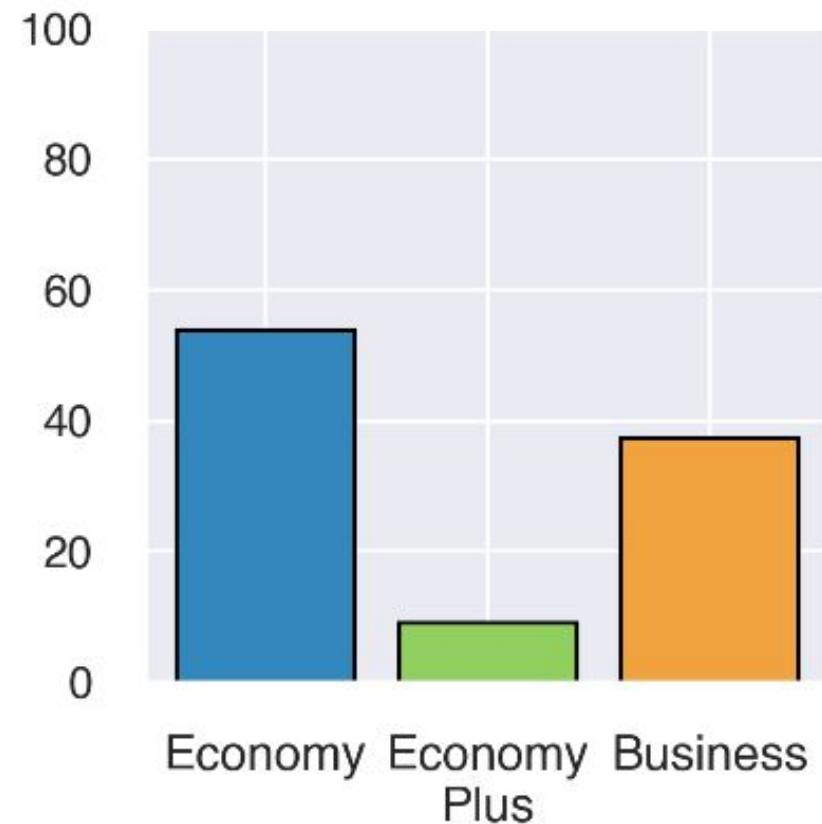
2 Trouble Experienced

Nearly 40% chose Business Class but Close to 80% are not satisfied.
Needs further investigation

Overall Satisfaction Level



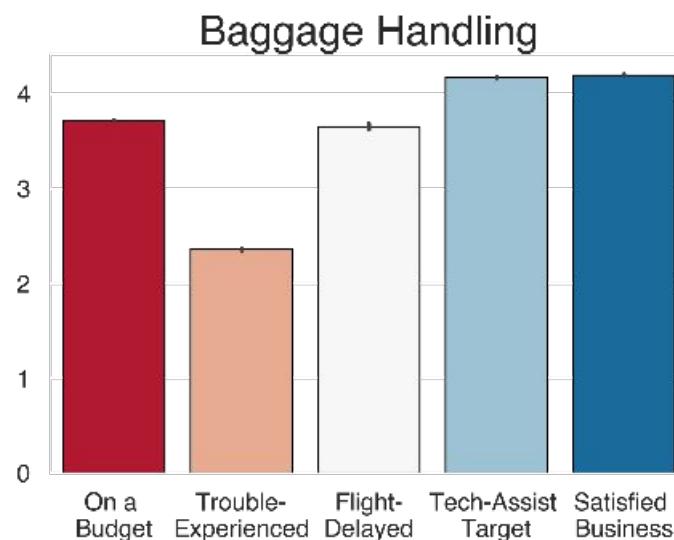
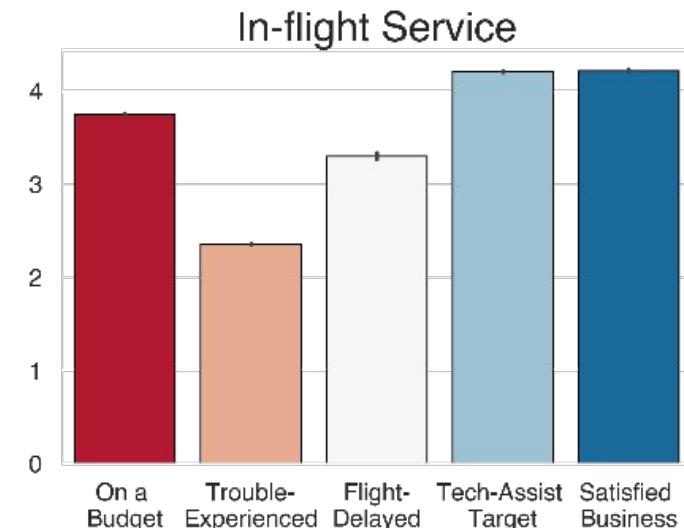
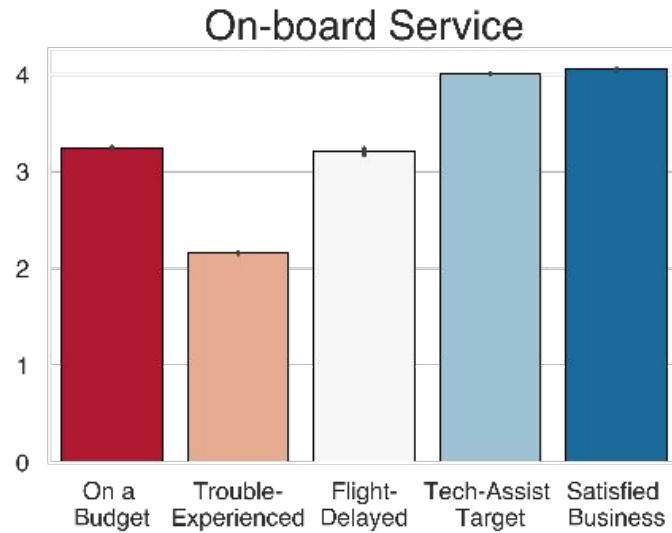
Percentage of Flight Class





2 Trouble Experienced

Not satisfied with On-board/In-flight Service. Baggage Handling Trouble?



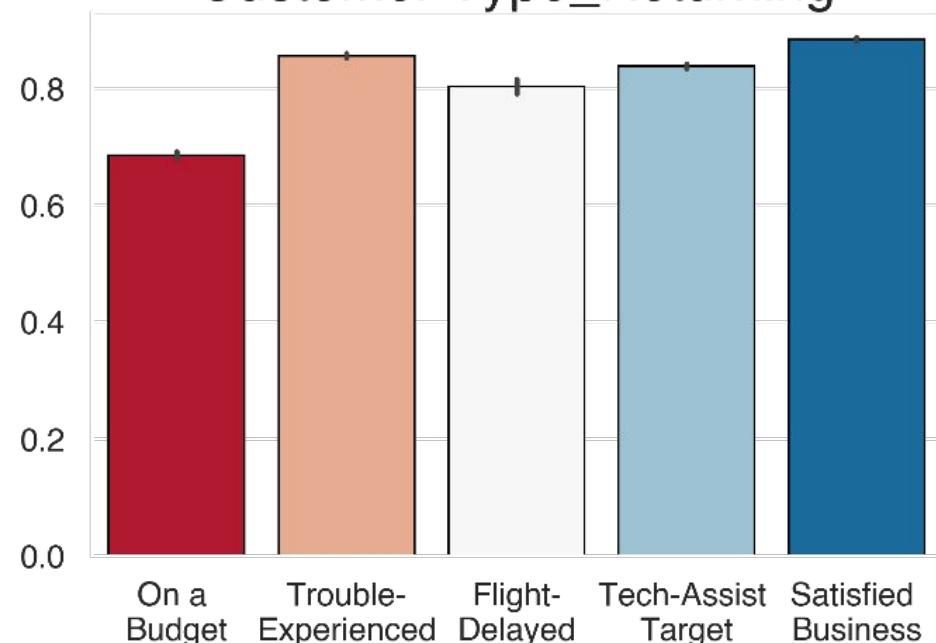


2 Trouble Experienced

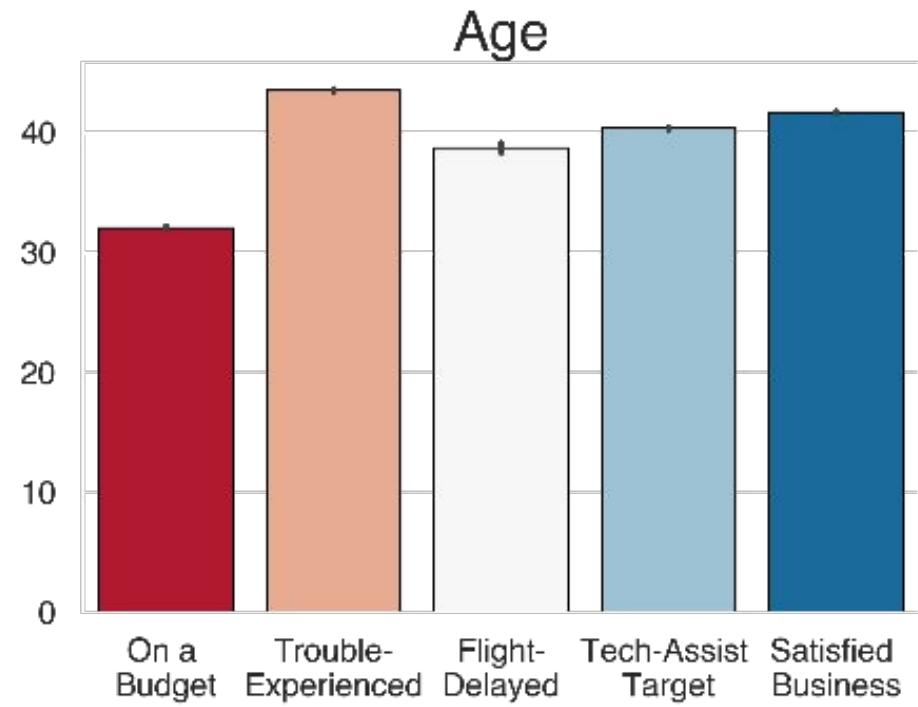
This Passenger Group worth the Investment!

Could be regular Trip User, Oldest (average age 43), able to purchase Business Class

Customer Type_Returning



Age

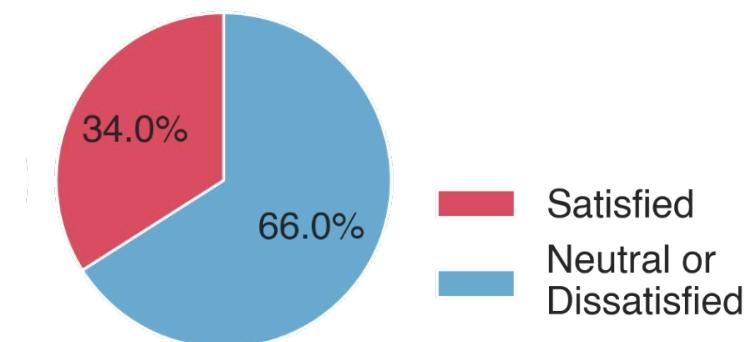
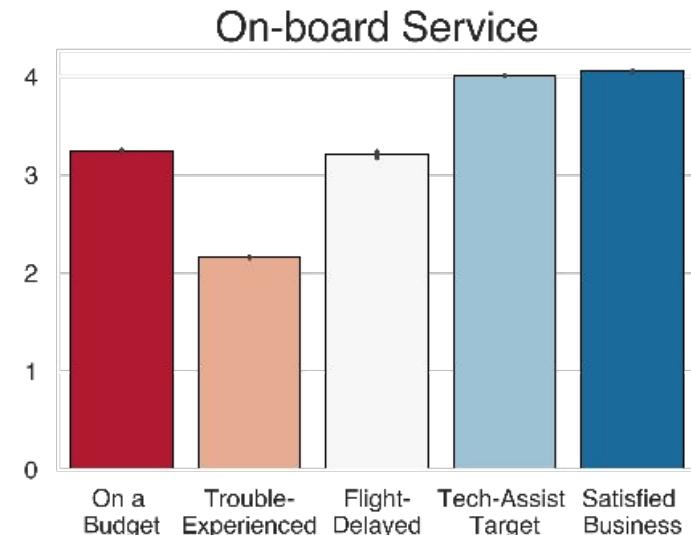
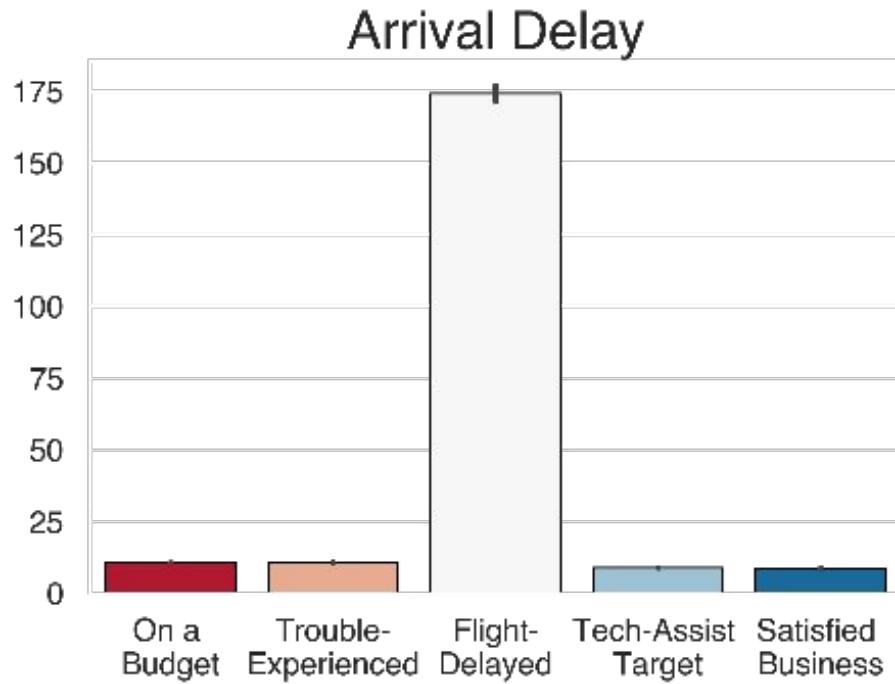




3 Flight Delayed

Departure and Arrival Delayed nearly 3 hours on average.

Which affect the overall dissatisfaction.

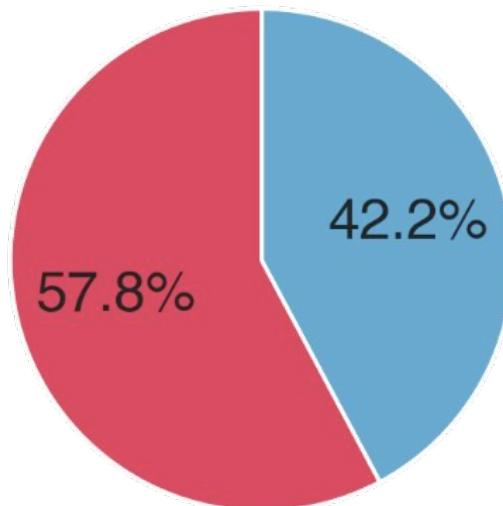




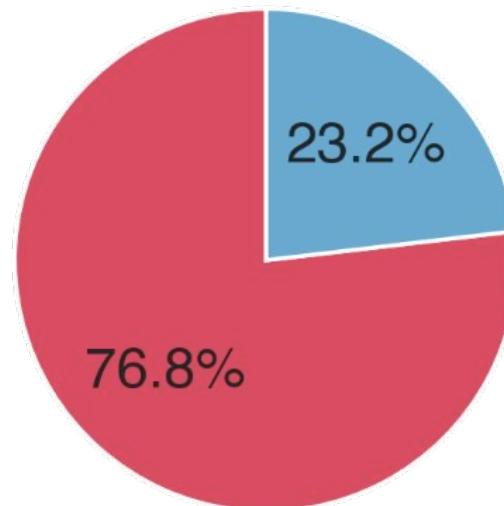
4 & 5 Tech-Assist Target and Satisfied Business

How we can improve their satisfaction more?

Tech-Assist
Target



Satisfied
Business



█ Satisfied
█ Neutral or
Dissatisfied

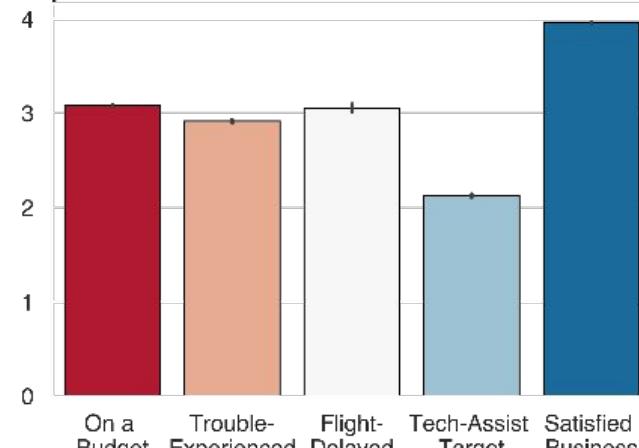


4 & 5 Tech-Assist Target and Satisfied Business

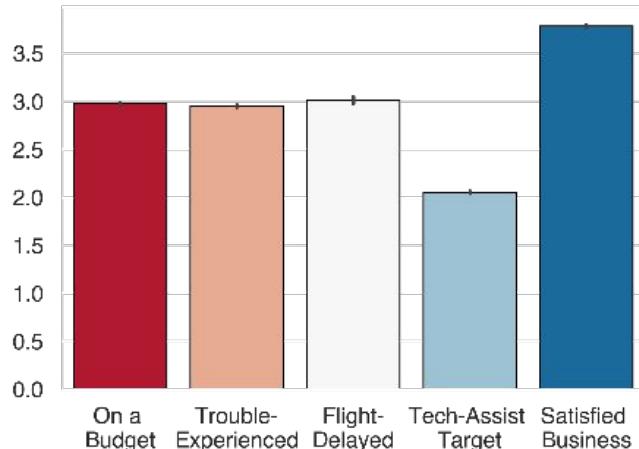
Departure and Arrival Time was not convenient.

Need to improve Online Booking System, can provide more information on time and gate location?

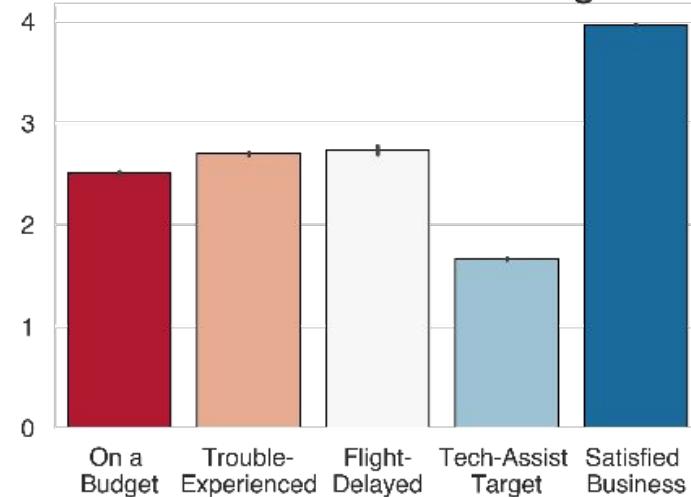
Departure and Arrival Time Convenience



Gate Location



Ease of Online Booking





Challenge

Repeating process of
Analysis and remaking
Visualization

Highlights

Comprehensive Analysis
using Principal
Component Analysis and
K-Means



THANK
YOU

Airline Passenger Satisfaction Datasets at Kaggle
<https://www.kaggle.com/datasets/mysarahmadbhat/airline-passenger-satisfaction>