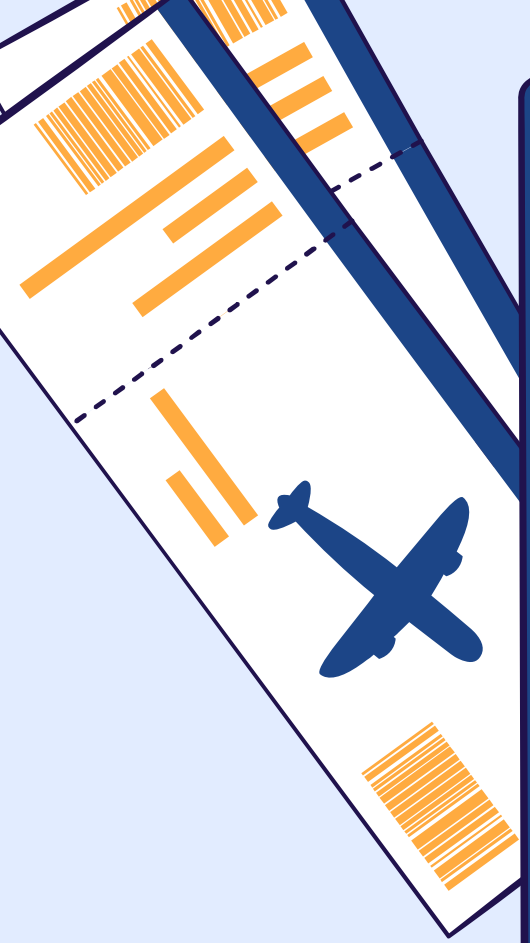


Airline Passenger Satisfaction

Lindsay Spratt & Maeve O'Toole

About Our Dataset...

COLUMNS

- Gender of Passenger
- The customer type *(Loyal customer, disloyal customer)*
- Age
- Purpose of the flight of the passengers *(Personal Travel, Business Travel)*
- Travel class in the plane of the passengers (Business, Eco, Eco Plus)
- Flight distance
- Inflight Wi-Fi service: Satisfaction level of the inflight Wi-Fi service (0: Not Applicable; 1 - 5)
- Departure/Arrival time convenience: Satisfaction level of Departure/Arrival time convenience
- Satisfaction level of Online Booking
- Satisfaction level of Gate Location
- Satisfaction level of Food and Drink
- Satisfaction level of Online Boarding
- Satisfaction level of Seat Comfort
- Satisfaction level of Inflight Entertainment
- Satisfaction level of On-Board Service
- Satisfaction level of Leg Room Service
- Satisfaction level of Baggage Handling
- Satisfaction level of Check-in Service
- Satisfaction level of Inflight Service
- Satisfaction level of Cleanliness
- Minutes delayed when Departure
- Minutes delayed when Arrival
- Airline satisfaction level(Satisfaction, neutral or dissatisfaction)

Our Questions...

01
Satisfaction

How satisfied are our customers currently, prior to our new marketing strategy

02
Traveler Types

What types of travelers does this business encounter?

03
Distinct Features

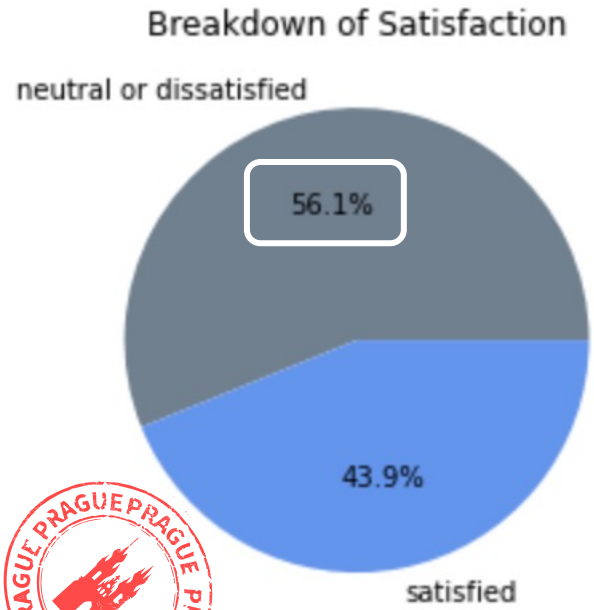
What are the distinct features of these traveler types

04
Marketing

How can we cater our business model to reflect traveler types?

Whoa !

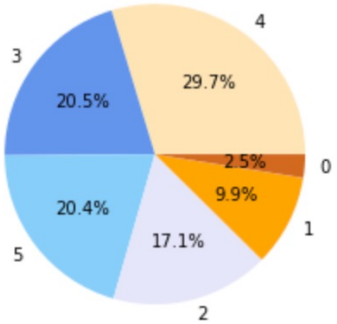
Over 50% of customers on this Airline are overall **dissatisfied or neutral**...



A Closer Look at Satisfaction…

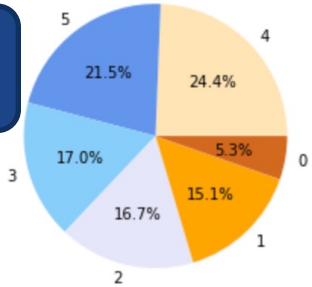
Breakdown of Online Boarding Satisfaction

*A lot of people **satisfied***



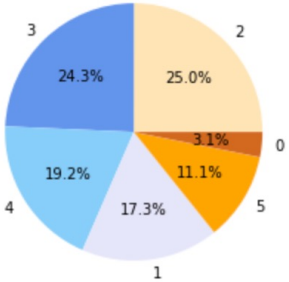
Breakdown of Departure/Arrival Time Convenience Satisfaction

*Pretty **evenly** split*



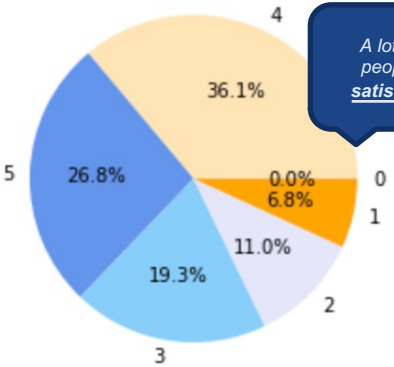
*A lot of people **not** thrilled*

Breakdown of Inflight Wifi Service Satisfaction



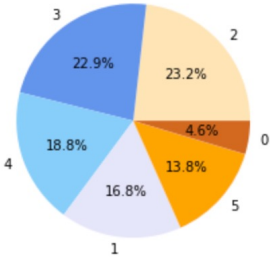
Breakdown of Inflight Service Satisfaction

*A lot of people **satisfied***



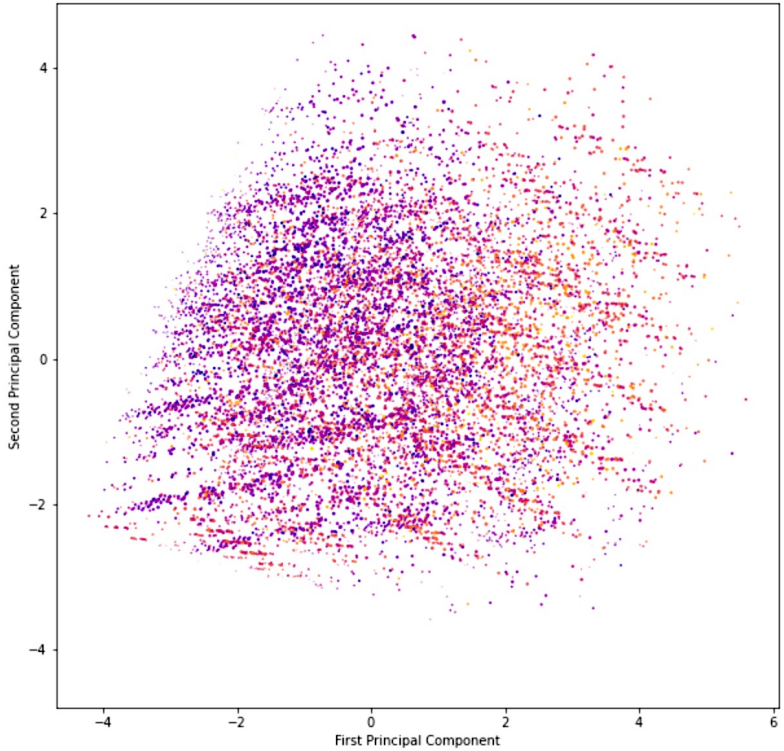
Breakdown of the Ease of Online Booking Satisfaction

*A lot of people **not** thrilled*



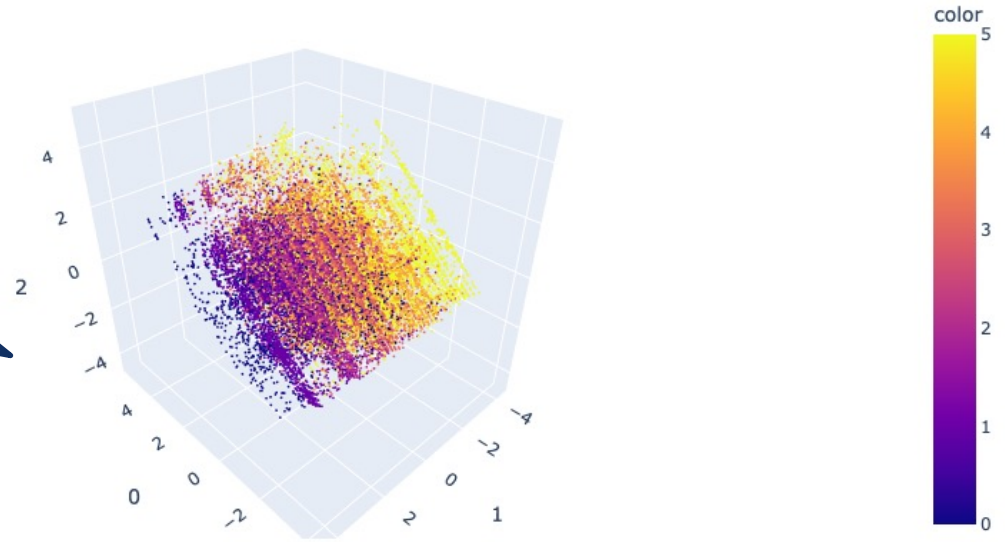
Principal Component Analysis - 2D

PCA in the 2-dimensional space based on ***"Age"*** shows us the reduced separation

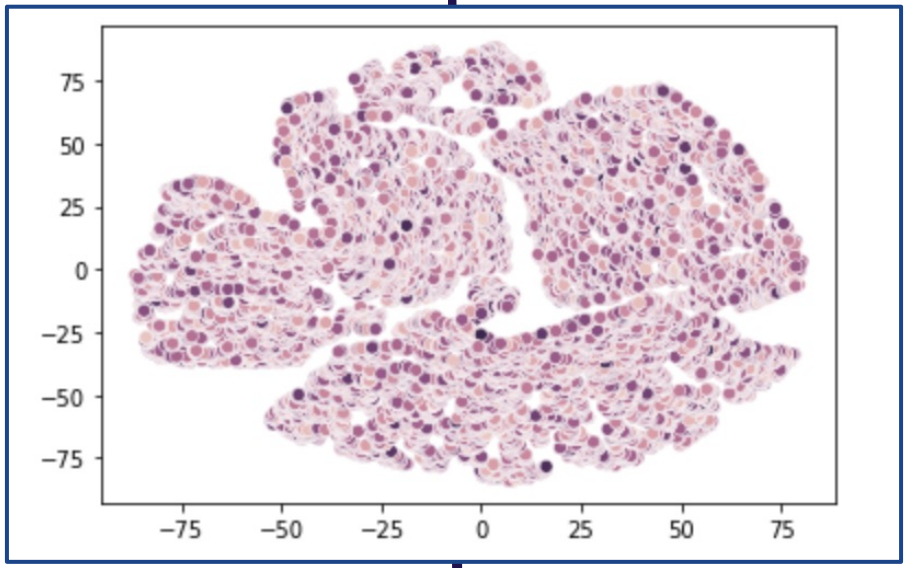


Principal Component Analysis - 3D

Reduced the dimensionality using the ***"Age"*** feature

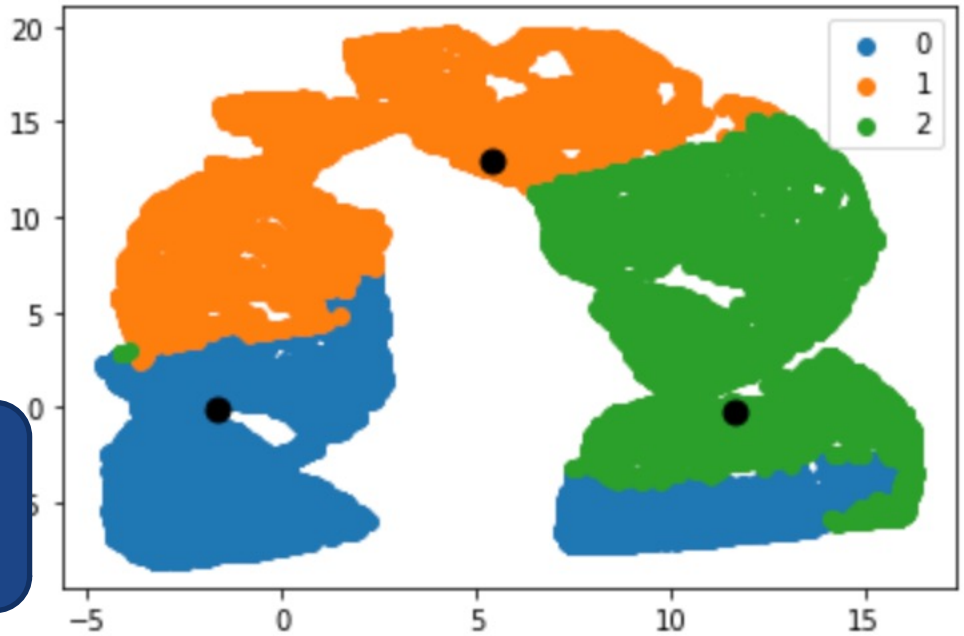


TSNE 2D



This result allows us to visualize our high dimensional data in a more separated way… we can actually see separated clusters!!

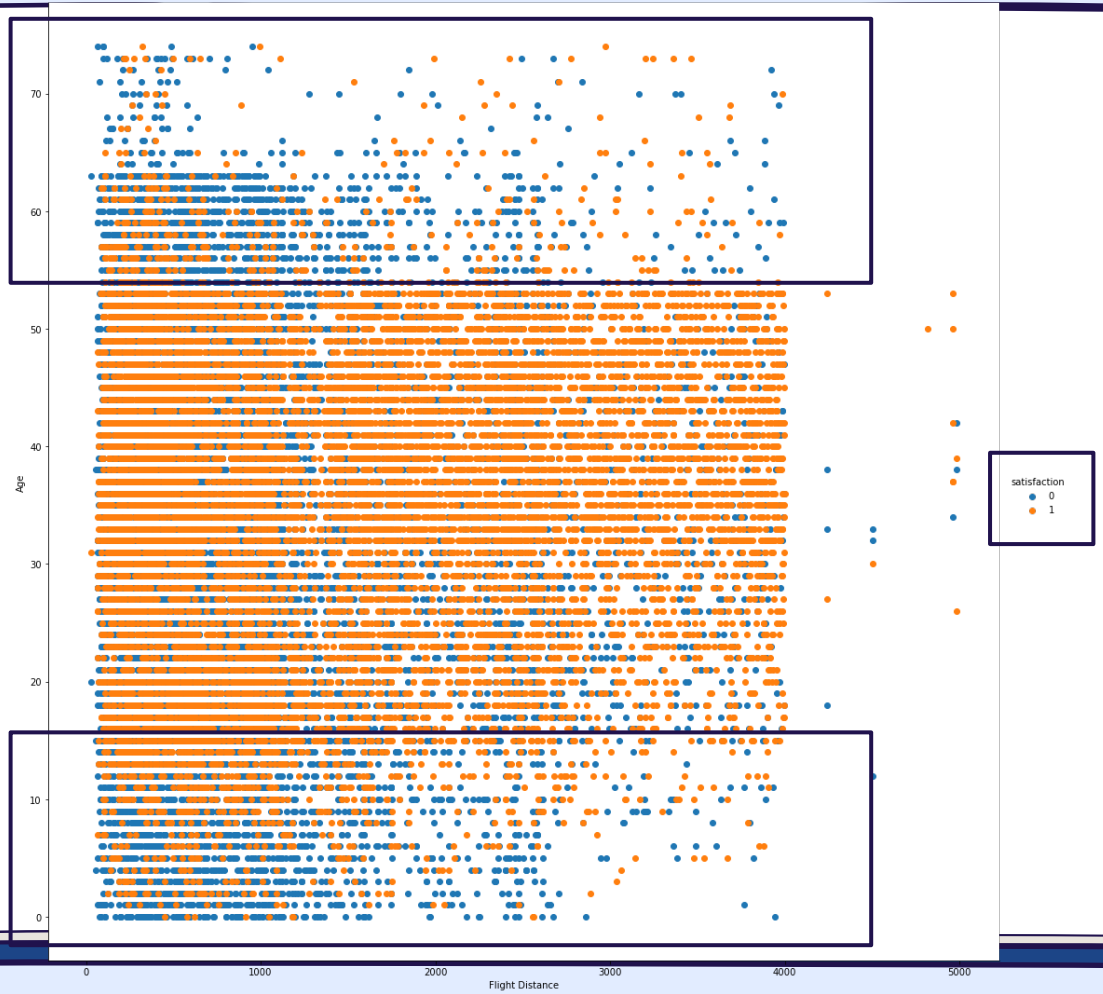
UMAP



Edge strength represents how close the points are to each other

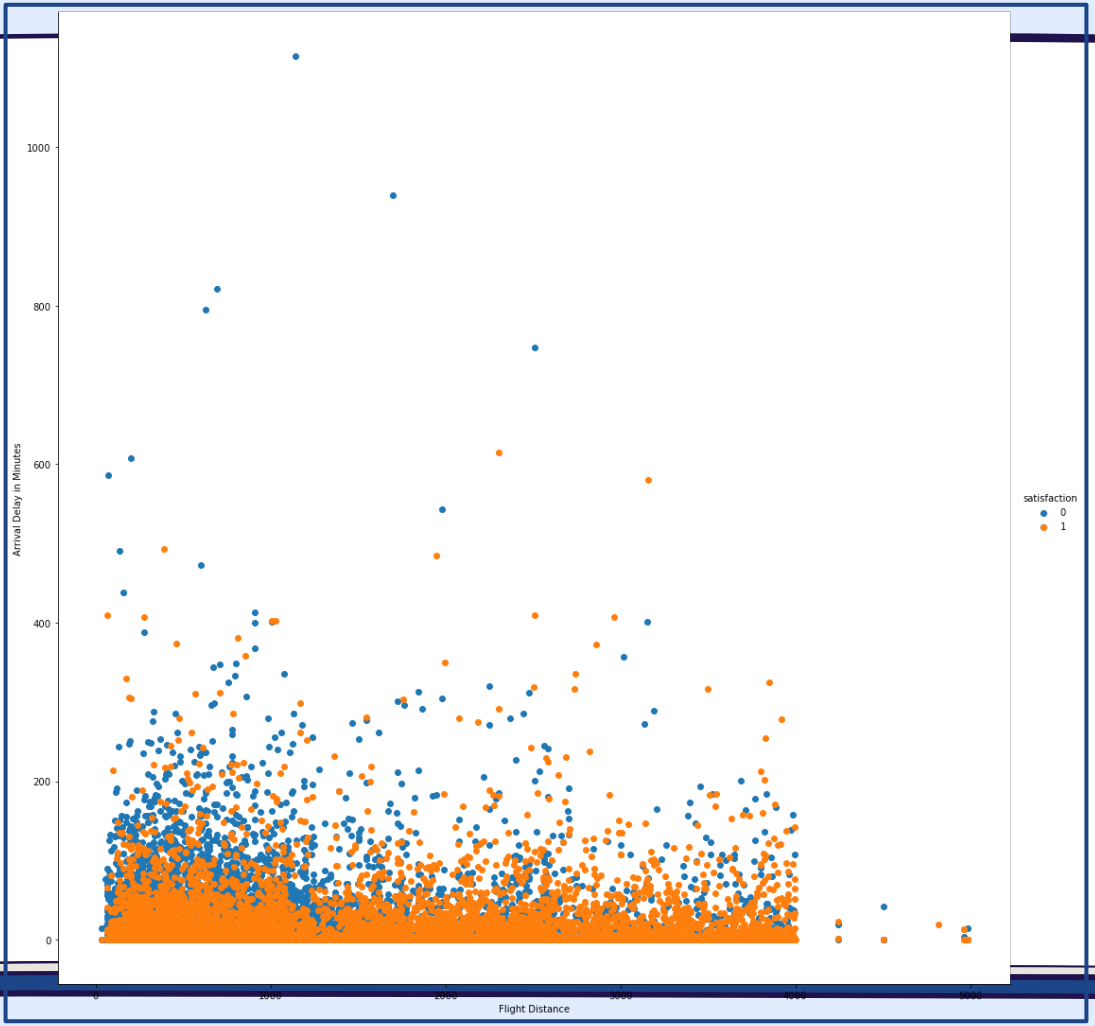
Essentially a **weighted graph** of our high dimensional data

K-Means Clustering between **Age** and **Flight Distance**, hued by ***Satisfaction***



0 – dissatisfied/ neutral
1- satisfied

K-Means Clustering between **Arrival Delay** and **Flight Distance**, hued by ***Satisfaction***



Cluster 1: satisfied

Economy Class, disloyal customers

Adults (~36)

1. Onboard Service
2. Cleanliness
3. **Leg Room**
4. **Seat Comfort**

These features seem to be trivial when it comes to the overall travel experience

- These customers have an average delay of around 11 minutes and longer flight distances. This does not seem to affect the overall satisfaction.

Cluster 2: dissatisfied

Business Class, disloyal customers

Young adults (~20)

1. Arrival and Departure Time convenience
2. In-flight entertainment
3. Baggage handling
4. Check-In service

- These customers had half the flight distance of cluster 1, but are overall more dissatisfied across the board

Economy Class

Our plan to gain **loyalty** over this class…

1. **Onboard Service** – make sure flight attendant are adequately trained and polite to all travelers
2. **Cleanliness** – raise our standards for cleaning, specifically after COVID as this data was collected in 2020
3. **Leg Room/Seat Comfort** – depending on cost/benefits, airlines could consider remodeling outdated aircrafts

Business Class

Our plan to improve **satisfaction** for the business class…

1. **Arrival and Departure Time convenience** – update airline systems to ensure delays are less frequent
2. **In-flight entertainment** – airlines should again consider remodeling outdated aircrafts, these traveler types have higher expectations
3. **Baggage handling/Check-In service** – customer service starts and ends at the airports; it is not just the experience on the plane that matters

Thank you
Happy traveling!!