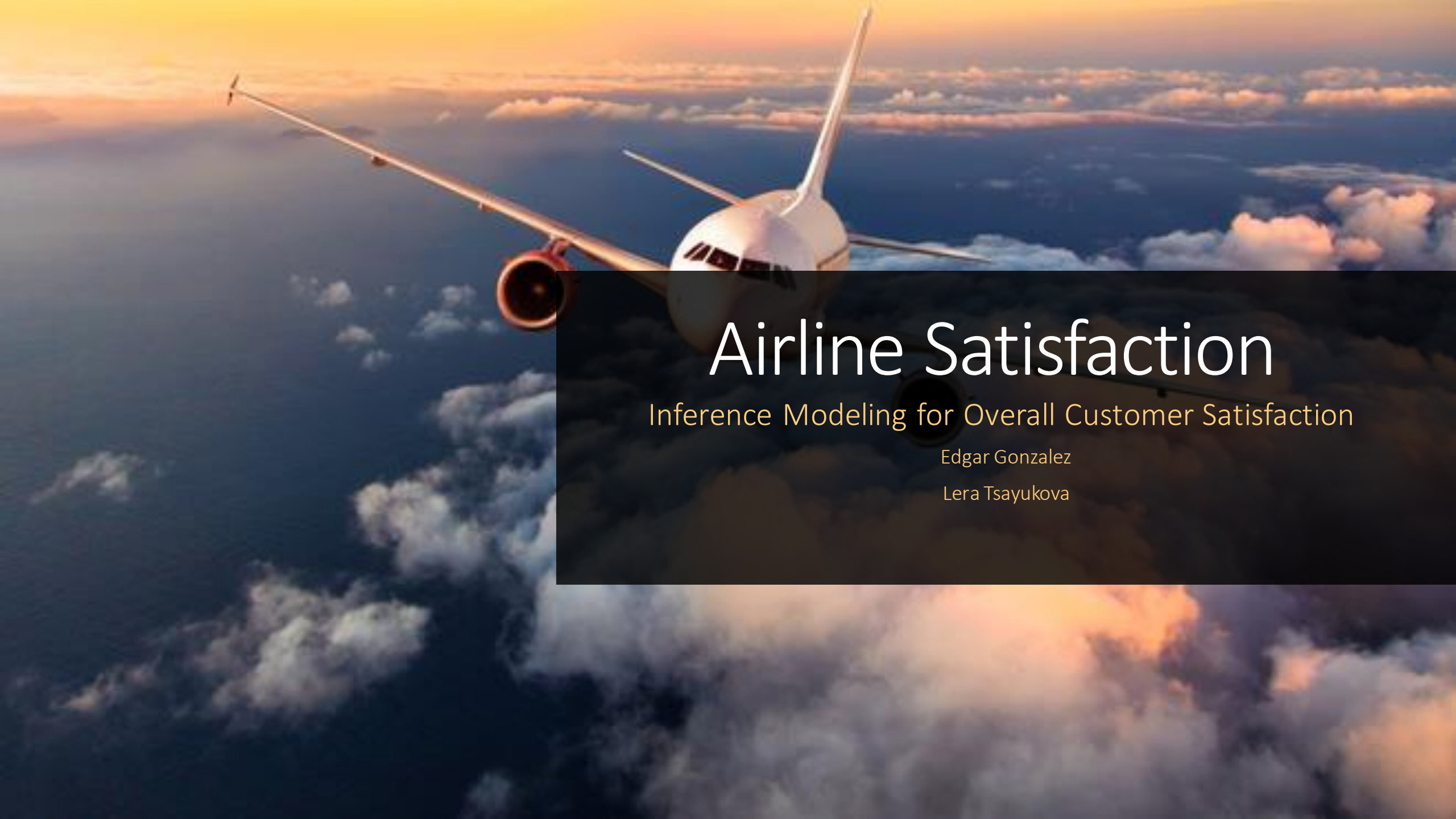


Airline Satisfaction

Inference Modeling for Overall Customer Satisfaction

Edgar Gonzalez

Lera Tsayukova

The Dataset:

-23 feature columns

-1 binary target column

Source	Kaggle
Airline	Anonymous
Observations	106,000
Features	Original =24 After Engineering= 38

Our Business Problem:

-To understand
which features have
the **greatest impact** on overall
customer satisfaction

-**Inferential** :
Understand relationship between X & Y

Who Would Care?

BOARD MEMBERS

STAKEHOLDERS

OTHER AIRLINES

Our Target Variable:

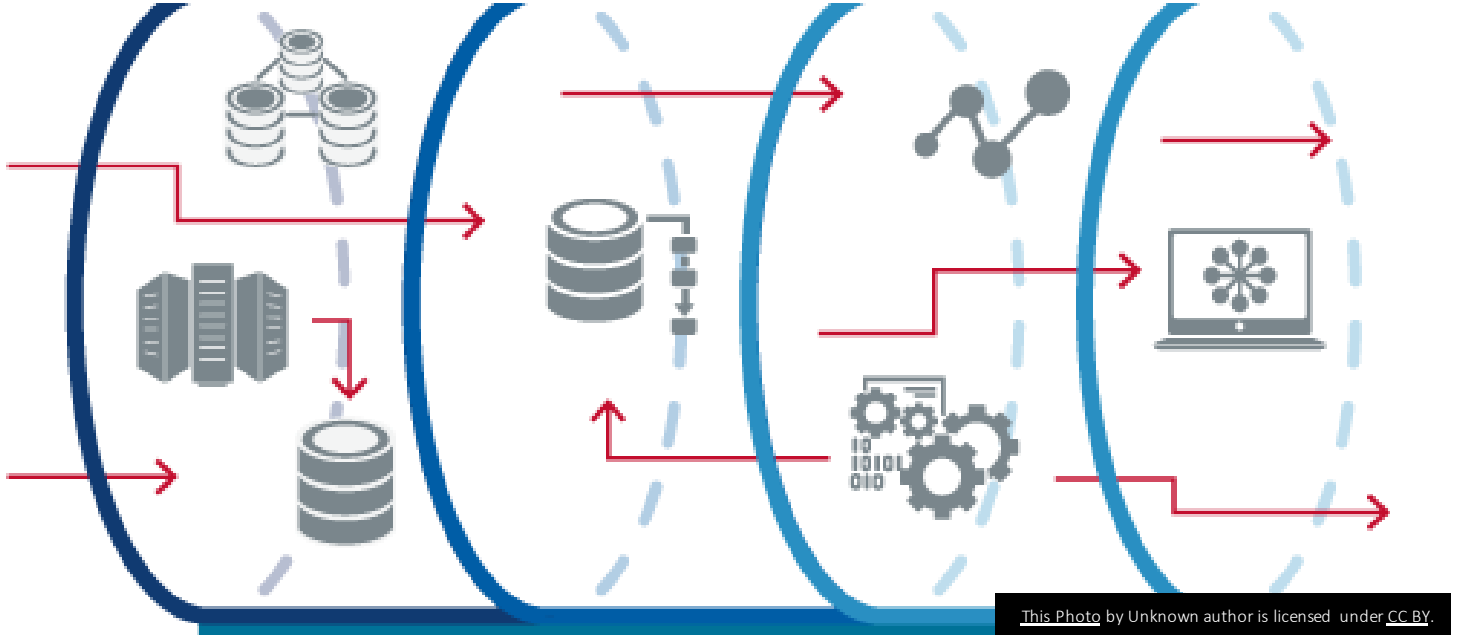
Satisfaction

- Satisfied= 1
- Dissatisfied= 0

44%	Satisfied
56%	Dissatisfied/Neutral

EDA Process

Drop	unnecessary features
Impute	Nan Values
Bin	Features
Dummy	Categorical Data



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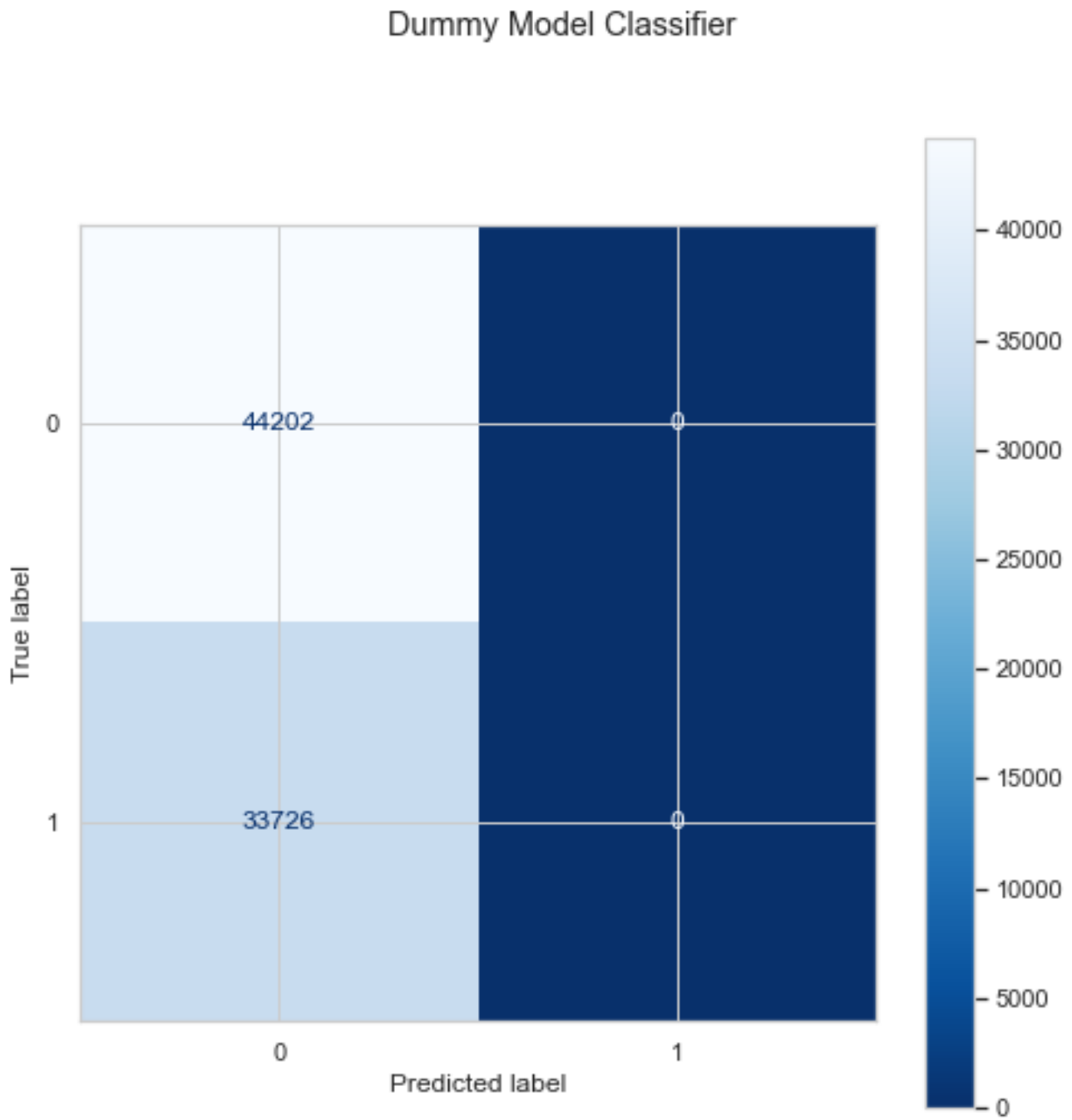
Our Models:

- Logisitic Regression
- Decision Tree
- Random Forest Classifier
- Grid Search RFC

The Modeling Process:

- App. 300 Models Run

-Evaluation Metric -> Accuracy



Baseline Model:

- Predicts majority class (Dissatisfied) every time.
- Predicts with mean accuracy of 56%.
- Same odds as flipping a coin.

Comparing the Models

	Model	Train	Test
0	Dummy Model	0.567216	0.565022
1	Logistic Regression	0.876899	0.876732
2	Decision Tree	1.000000	0.943371
3	Grid Search Random Forest	1.000000	0.962658

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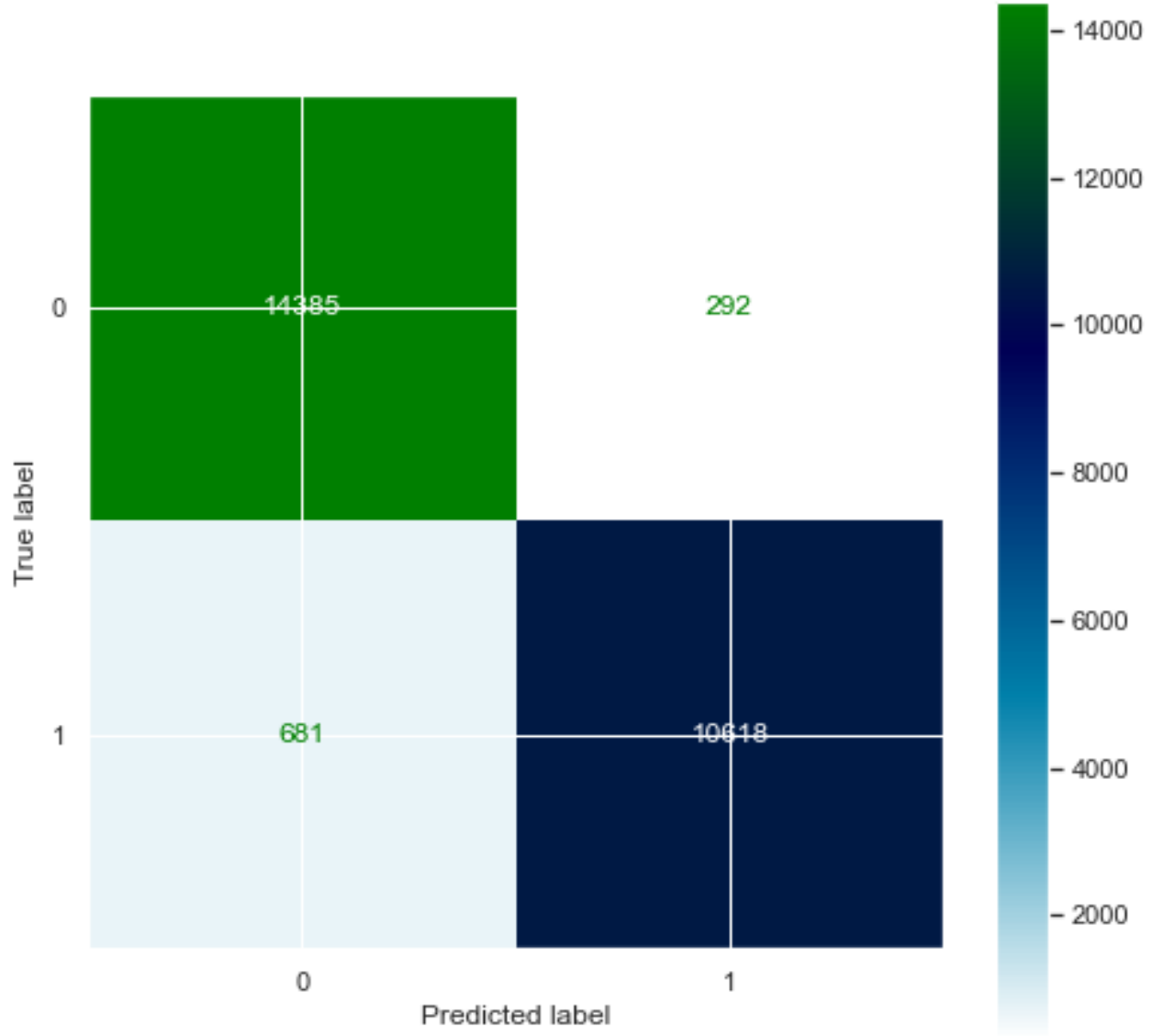
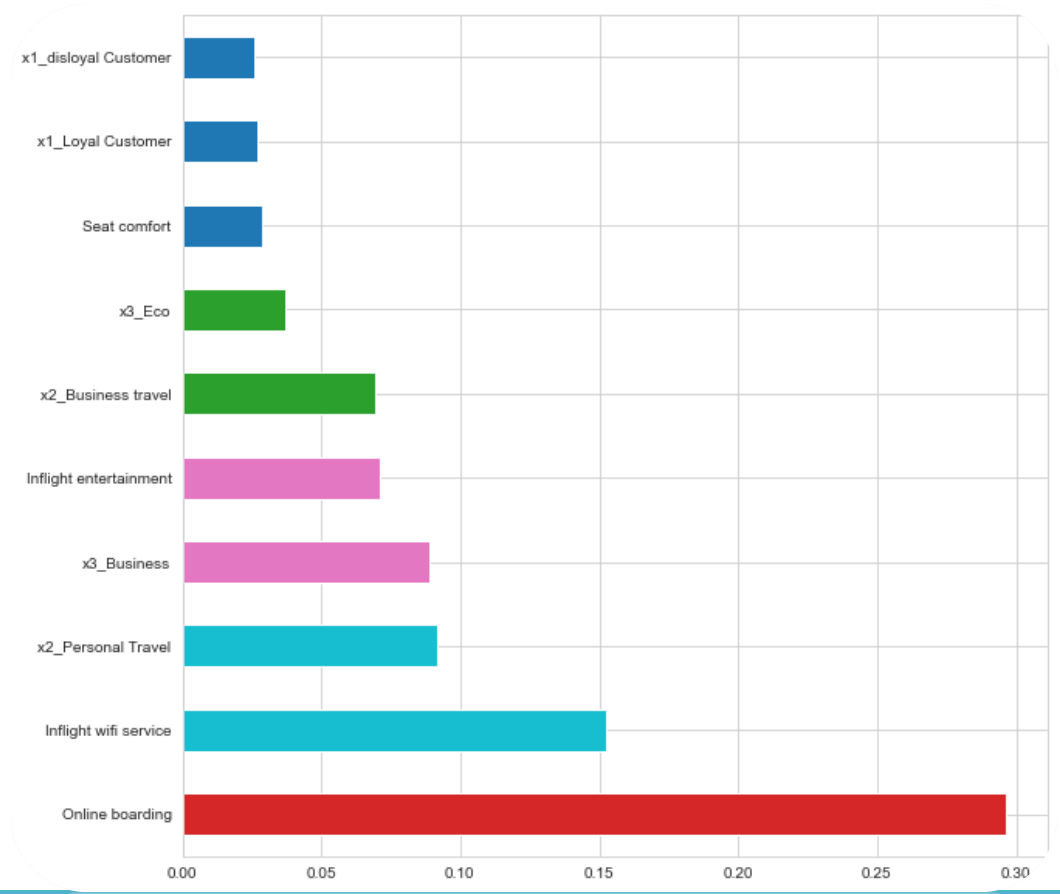
Our Best Model:

Random Forest Classifier






```
'Online boarding': 0.297,
'Inflight wifi service': 0.157,
'x3_Business': 0.103,
'x2_Business travel': 0.07,
'x2_Personal Travel': 0.066,
'Inflight entertainment': 0.058,
'x3_Eco': 0.053,
'Seat comfort': 0.028,
'Ease of Online booking': 0.027,
'x1_Loyal Customer': 0.027,
'x1_disloyal Customer': 0.021,
```

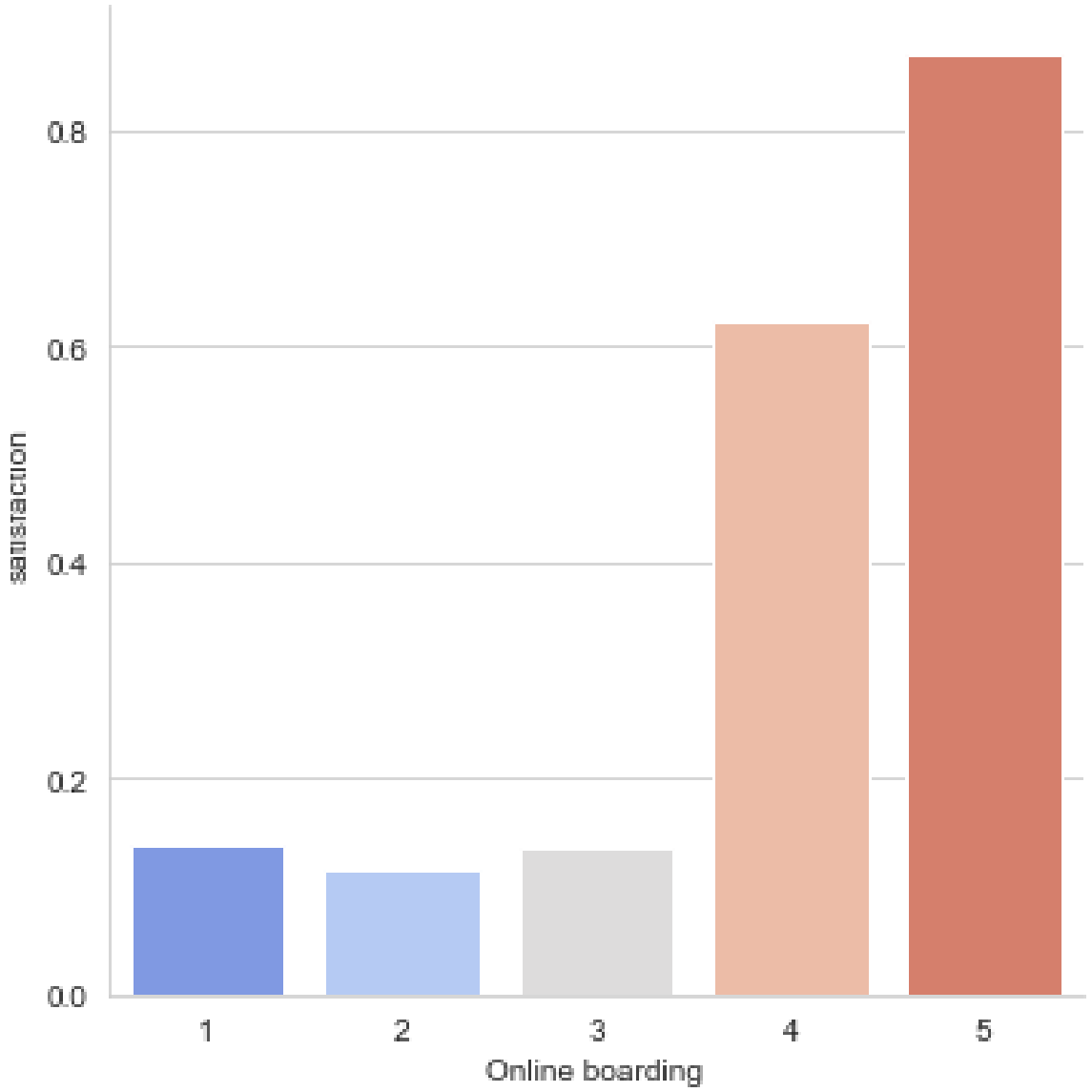
Feature Importance :

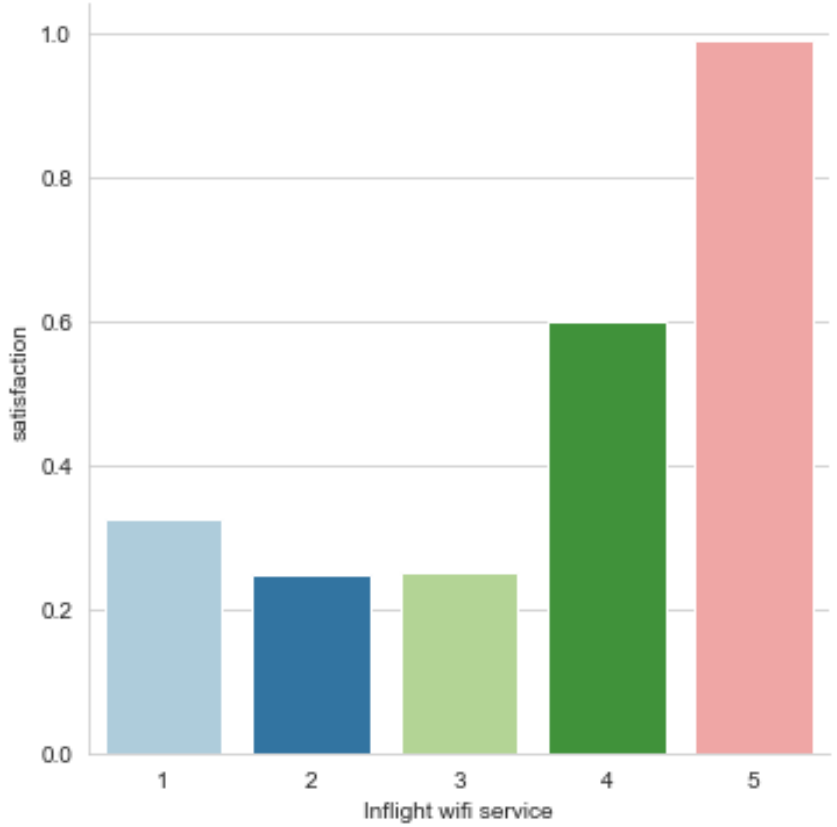
Which features factored the most into customer experience and overall satisfaction Levels

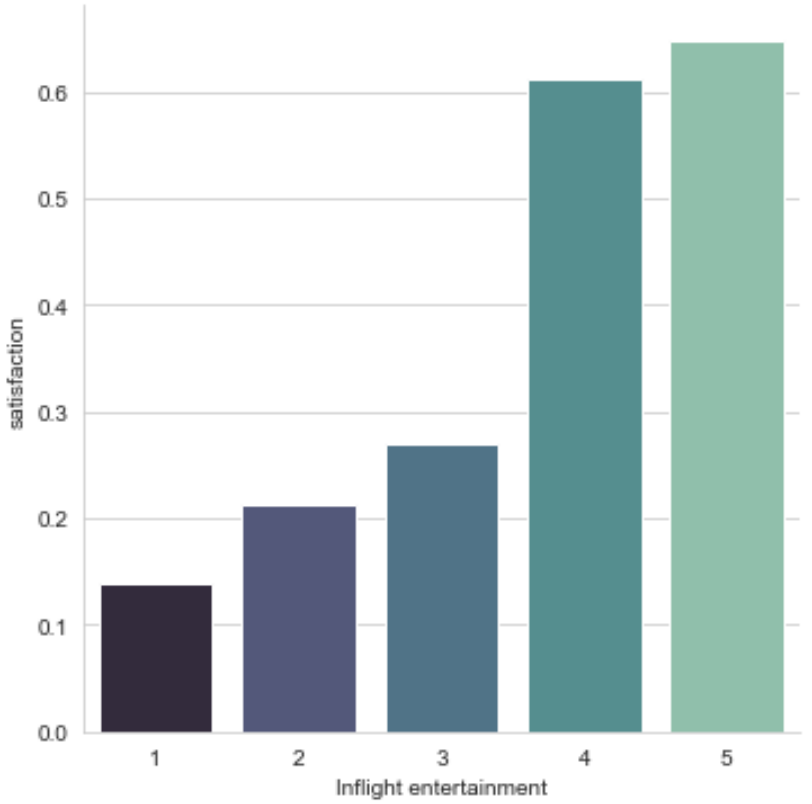
Examining Online Boarding:

-Rating from 1-5

- Large increase in overall satisfaction between 3 and 4







Feature Importance:

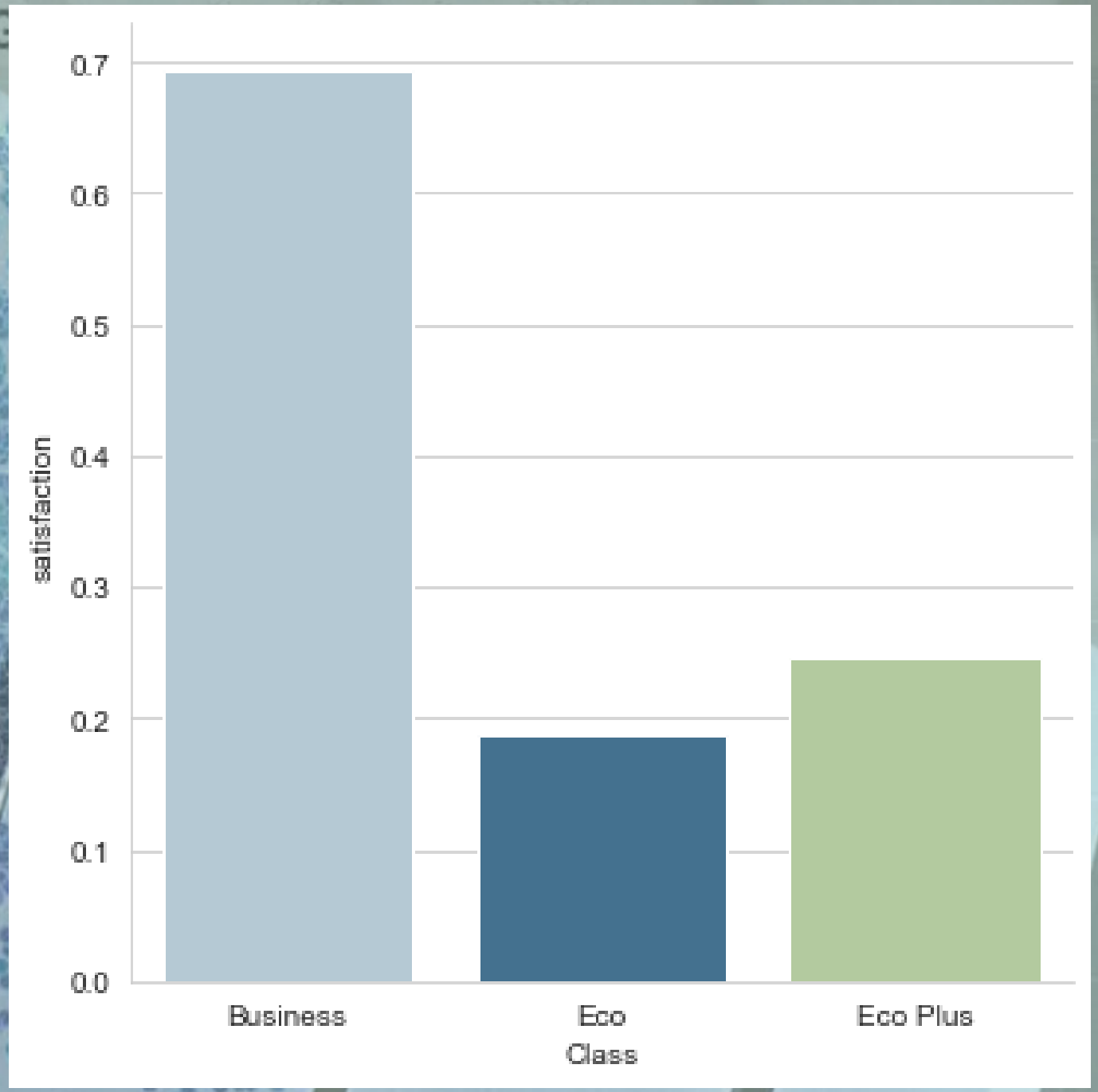
Amenities

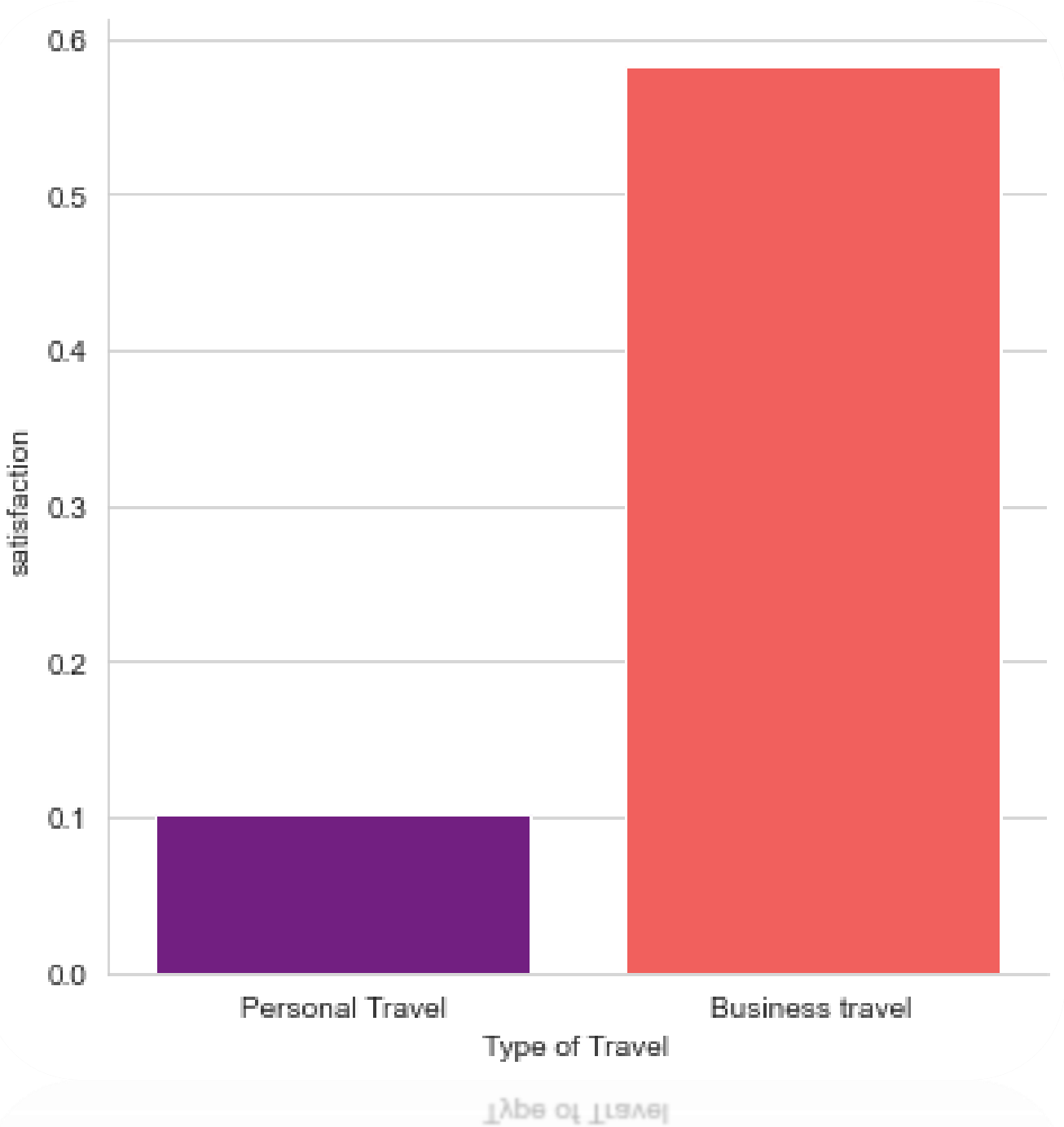
Inflight Wifi

Inflight Entertainment

Feature Importance:

- Business Class: 70%
- Economy Plus: 25%
- Economy: <20%





Type of Travel: Business or Pleasure

-60% of **Business** Travelers Satisfied

10% of Leisure Travelers Satisfied

Conclusions/Recommendations

-Focus on Online Booking

- Strive to provide/ boost Inflight Wifi

- Improve availability of Inflight Entertainment

- Provide more Perks for customers to fly Business Class