



# Airline Passenger Satisfaction

What factors lead to customer satisfaction for an Airline?  
How to improve it?

---

CHIAO-I LIN

# Data type

---

**Categorical data:** 'Gender', 'Customer Type', 'Type of Travel', 'Class', 'satis'

**Continuous data:** 'Age', 'Flight Distance', 'Departure Delay in Minutes', 'Arrival Delay in Minutes'

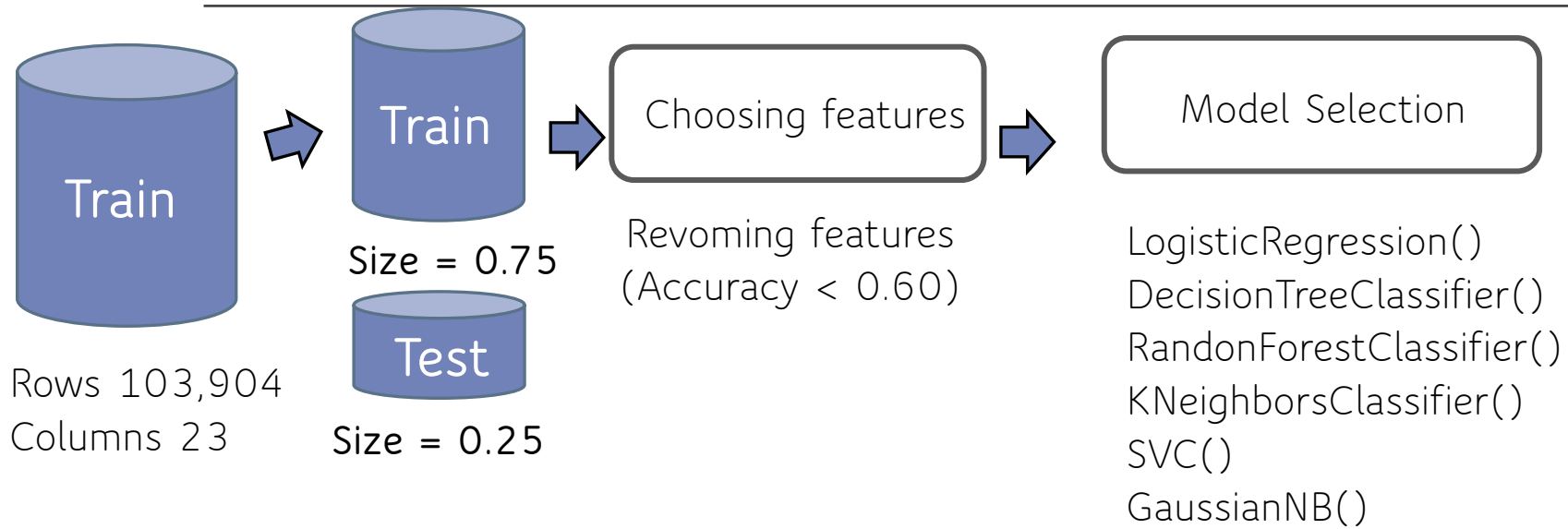
**Ordinal data:**

'Inflight wifi service', 'Departure/Arrival time convenient', 'Ease of Online booking', 'Gate location', 'Food and drink', 'Online boarding', 'Seat comfort', 'Inflight entertainment', 'On-board service', 'Leg room service', 'Baggage handling', 'Checkin service', 'Inflight service', 'Cleanliness'



# Process

---

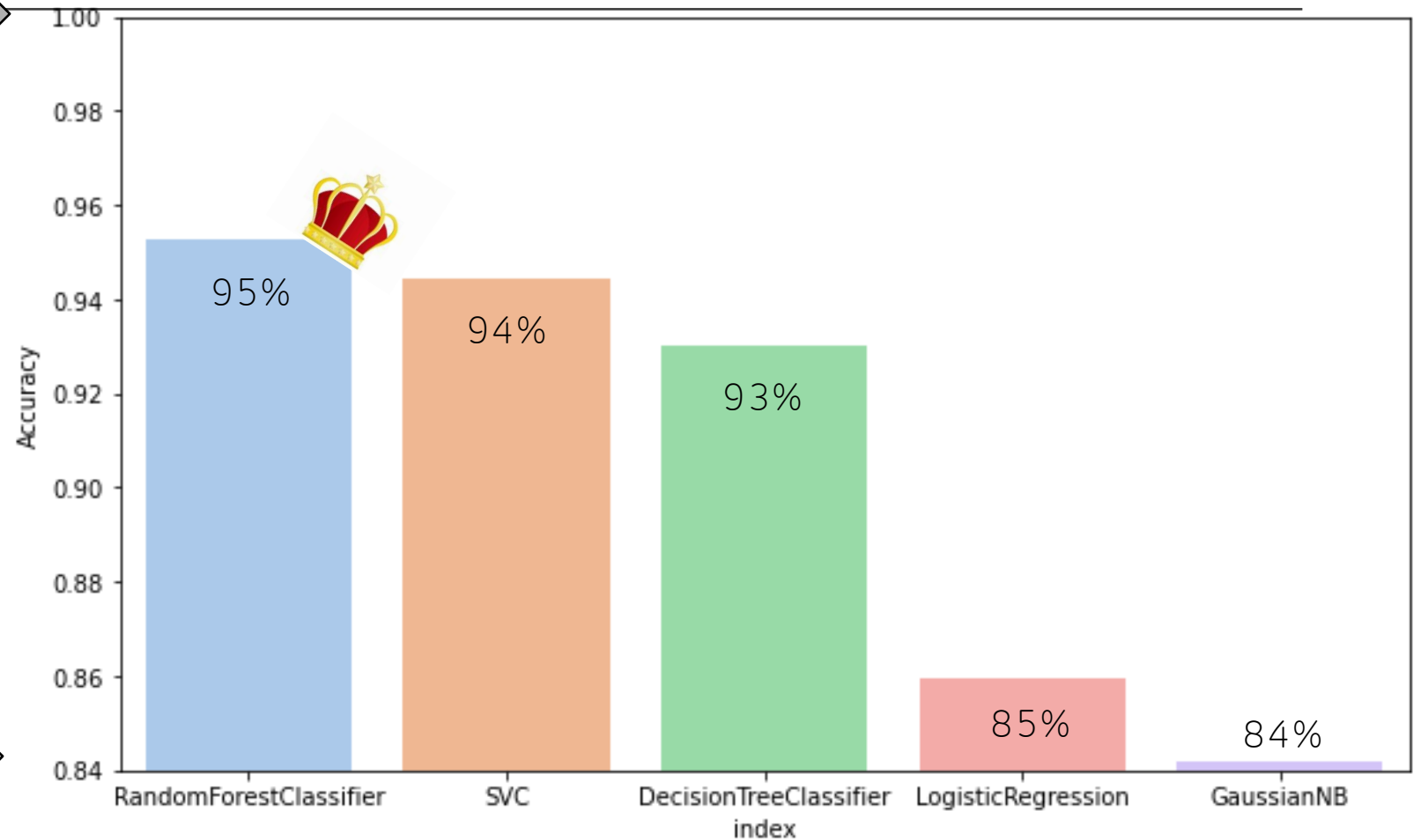


# Model Selection

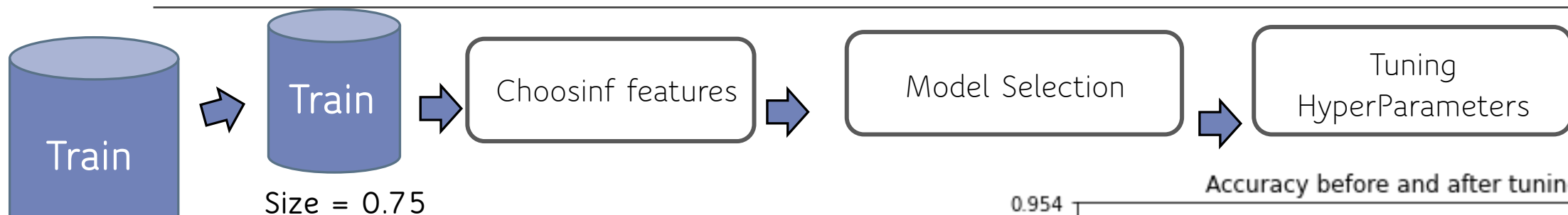
100%

Without removing features:  
84%

84%

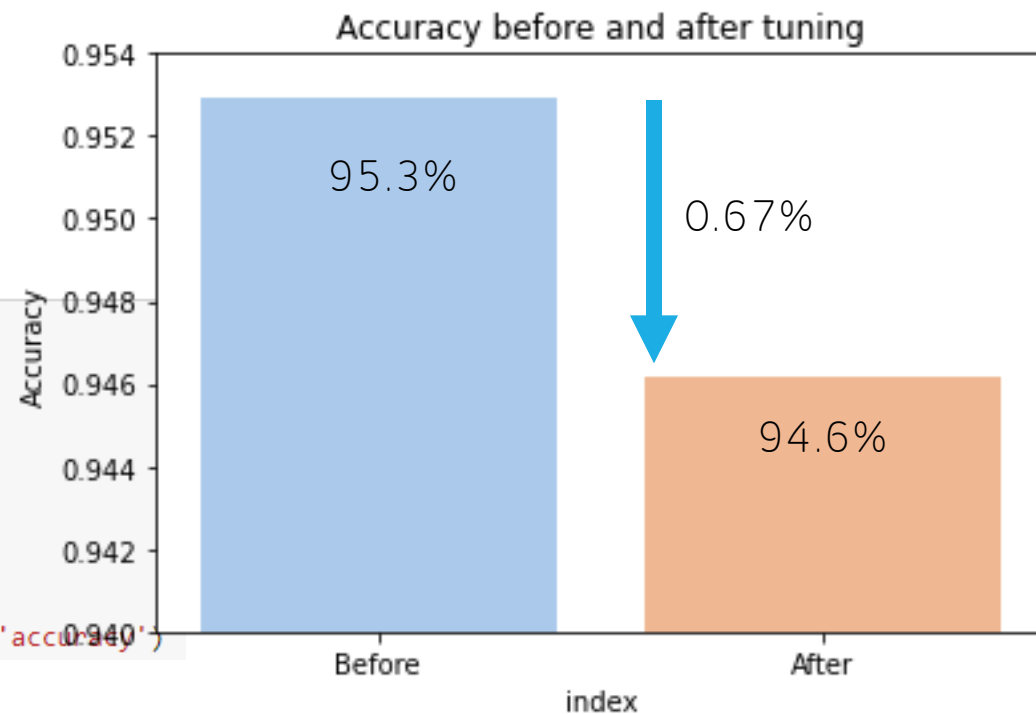


# Process

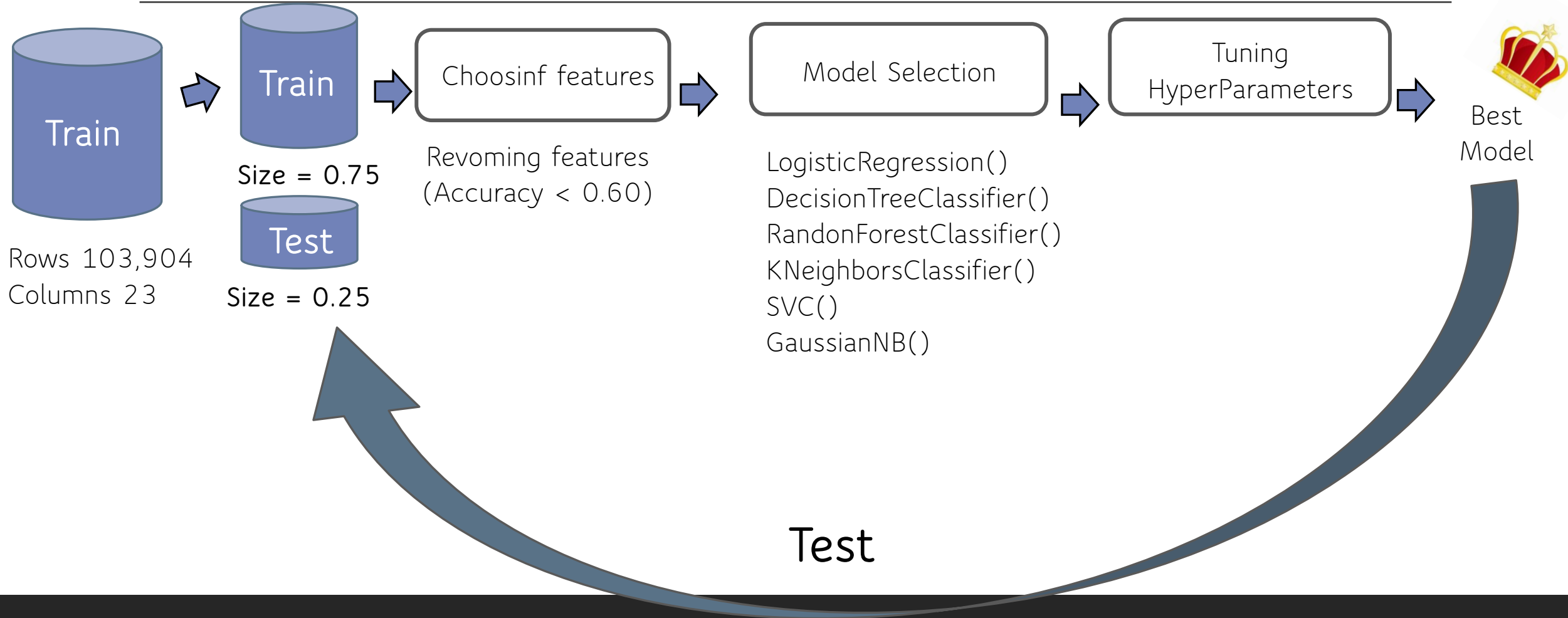


Rows 103,904  
Columns 23

```
1 rf_param_grid = {'randomforestclassifier__n_estimators': [10,100],
2                  'randomforestclassifier__criterion': ['gini', 'entropy'],
3                  'randomforestclassifier__max_depth': [3,5,10],
4                  'randomforestclassifier__min_samples_leaf': [1, 2, 4],
5                  'randomforestclassifier__max_features':['auto', 'sqrt', 'log2'],
6                  'randomforestclassifier__min_samples_split': [2, 5, 10]}
7
8 pipe = make_pipeline(preprocessor, RandomForestClassifier())
9
10 grid_a = GridSearchCV(estimator=pipe, param_grid=rf_param_grid, cv = 5, scoring = 'accuracy')
```



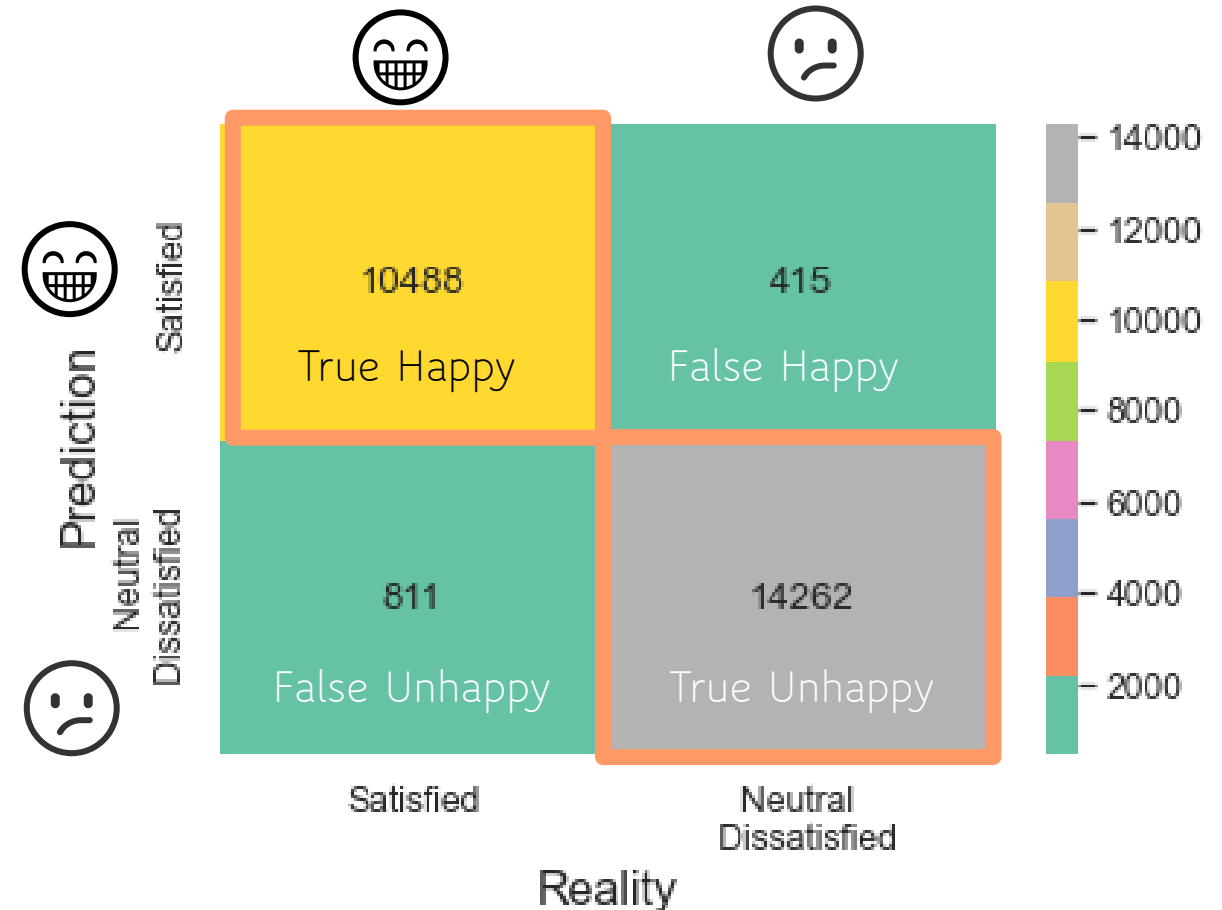
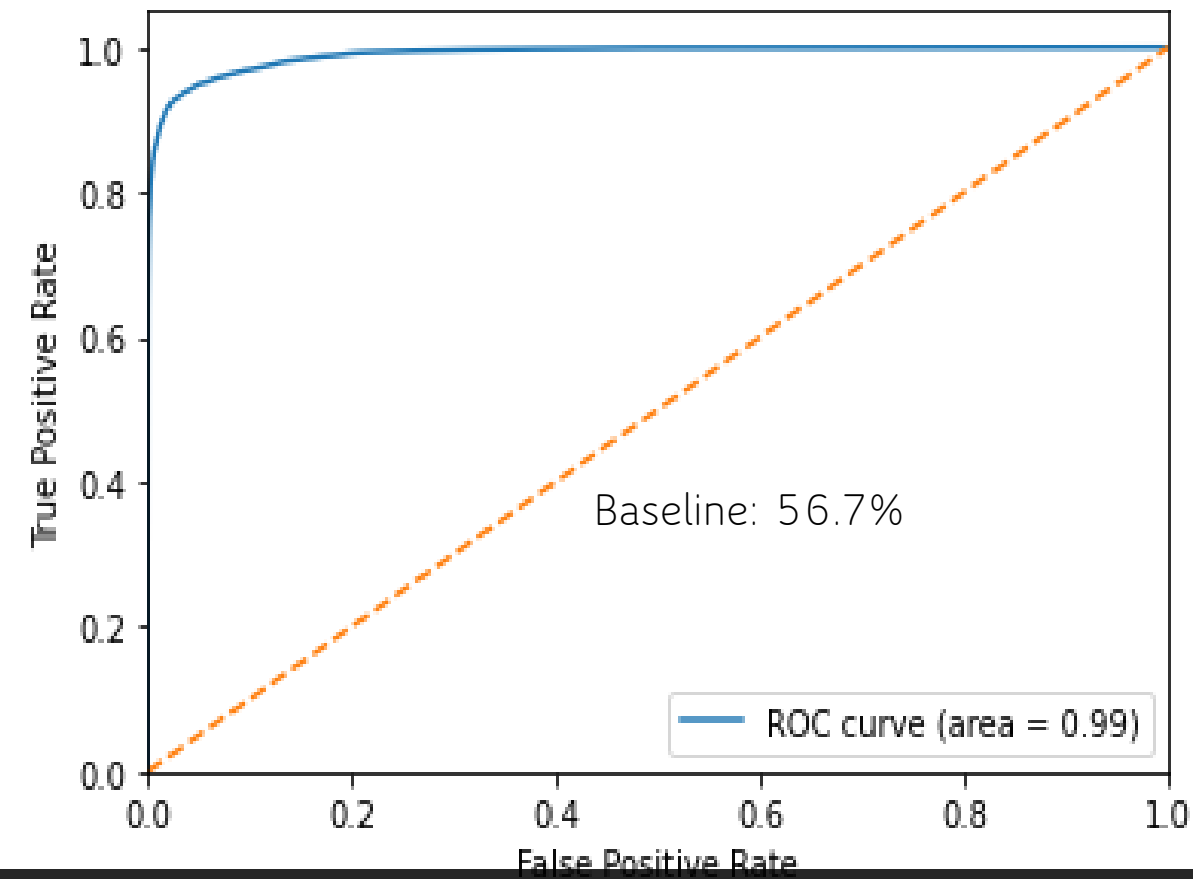
# Process



# Model Evaluation

Accuracy: 95.38%

ROC Curve



# What factors affect satisfaction?

---

Uncontrolable factors

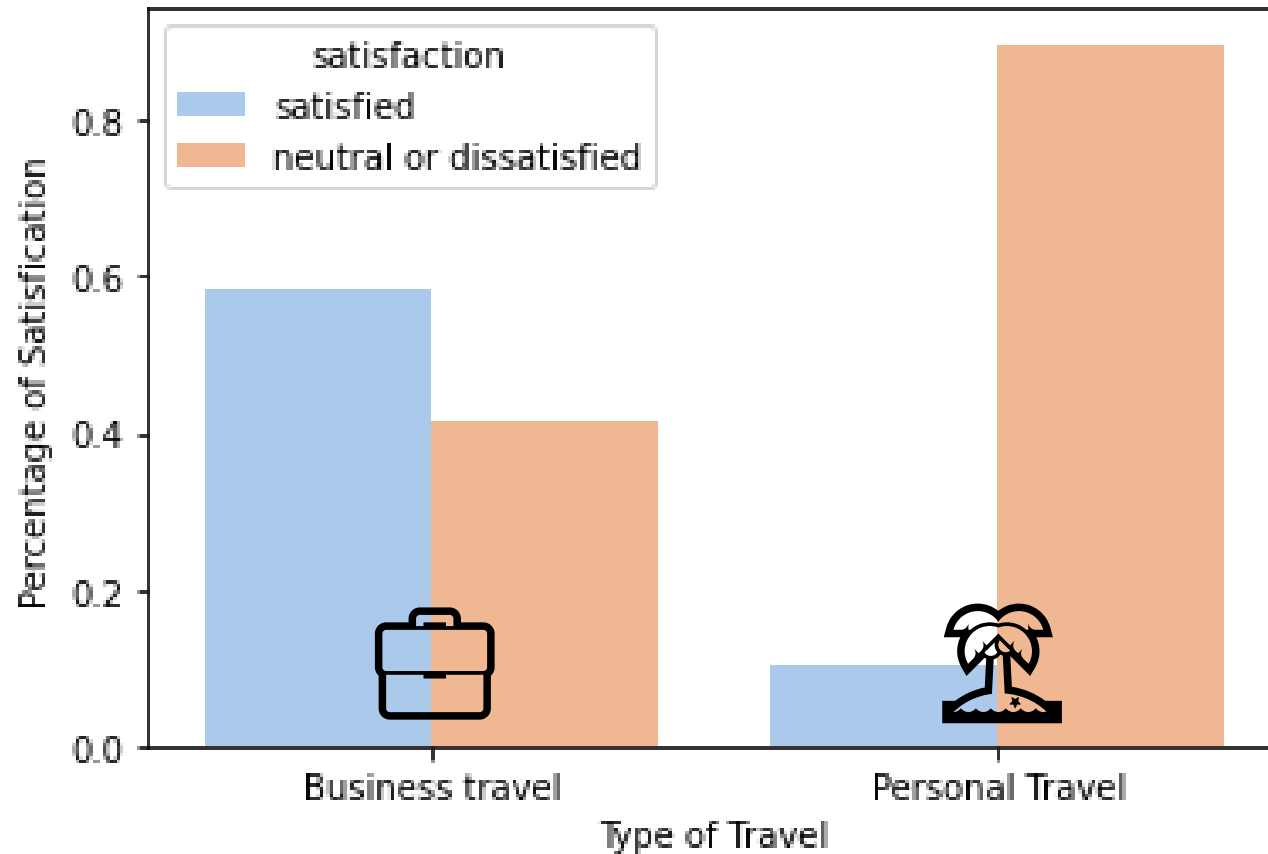
Controlable factors





# Uncontrollable factors – Travel Type

---



People are happy

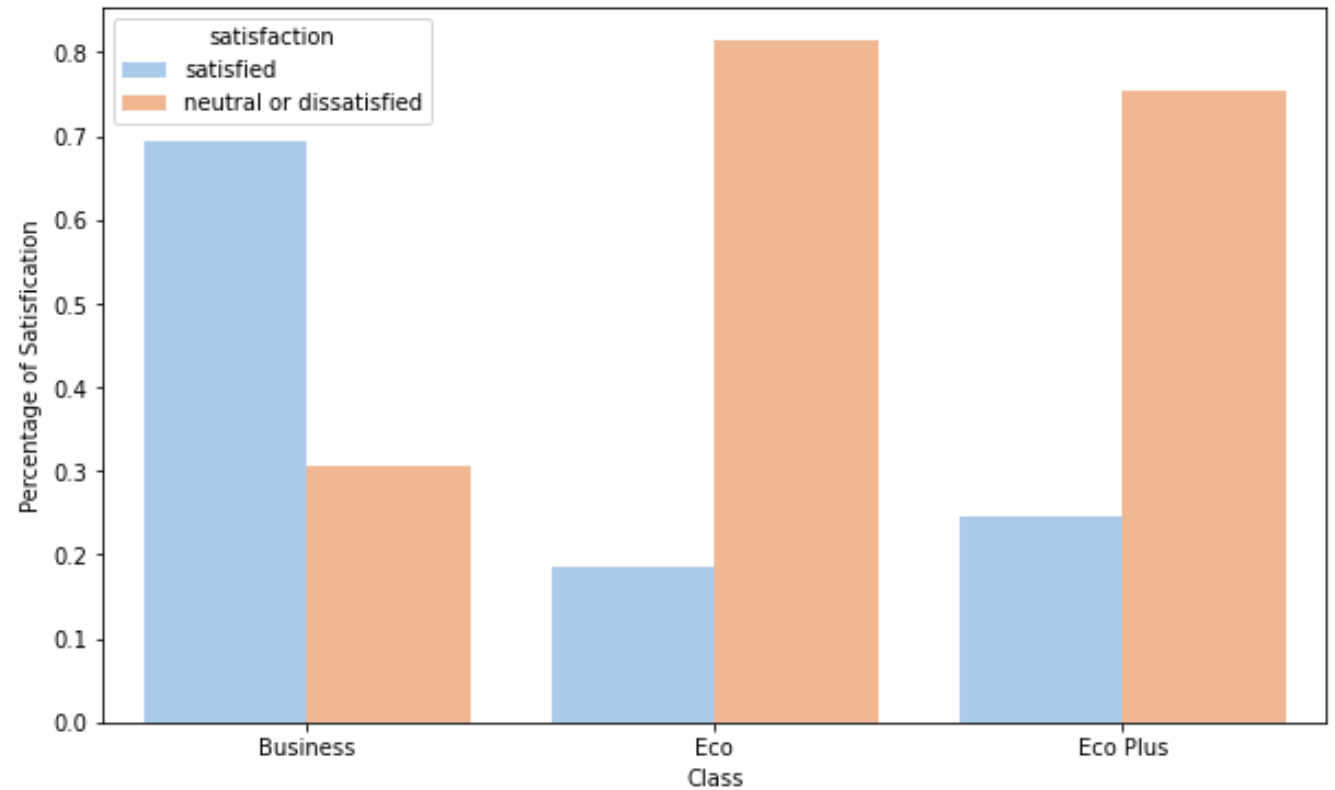
when they did not pay their tickets

# Uncontrollable factors – Class

---

Eco/Eko Plus people are unhappy/nutral

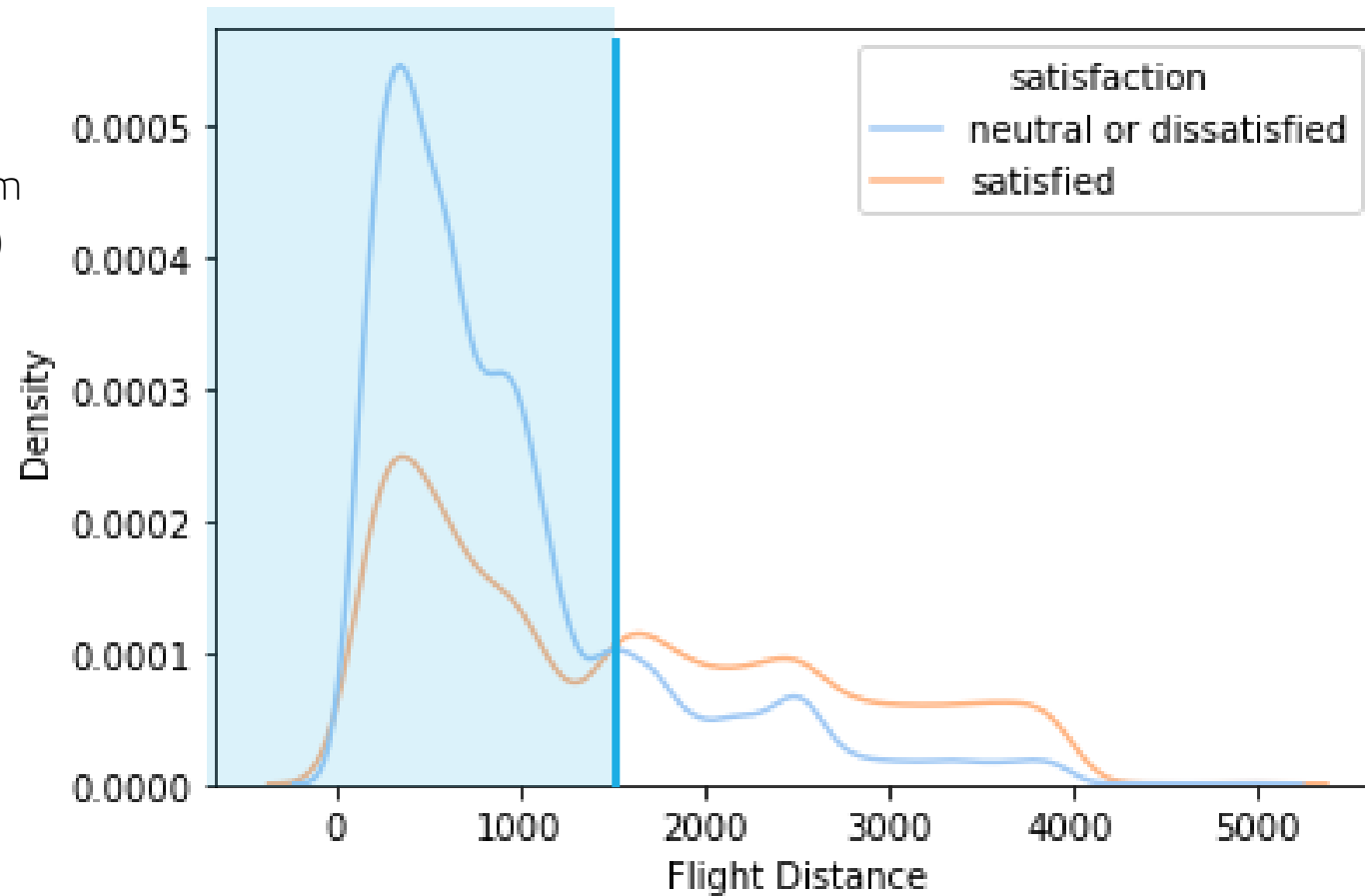
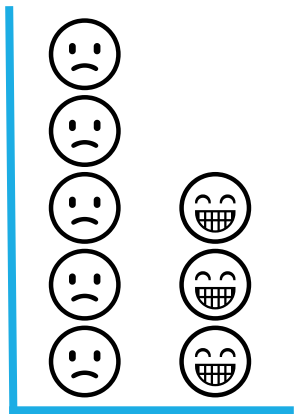
Businesspeople are happy



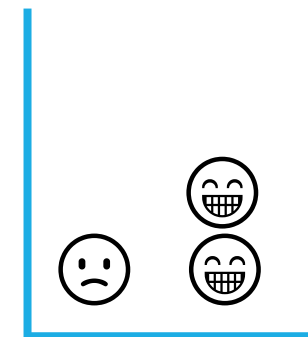
# Uncontrollable Factors: Travel Distance

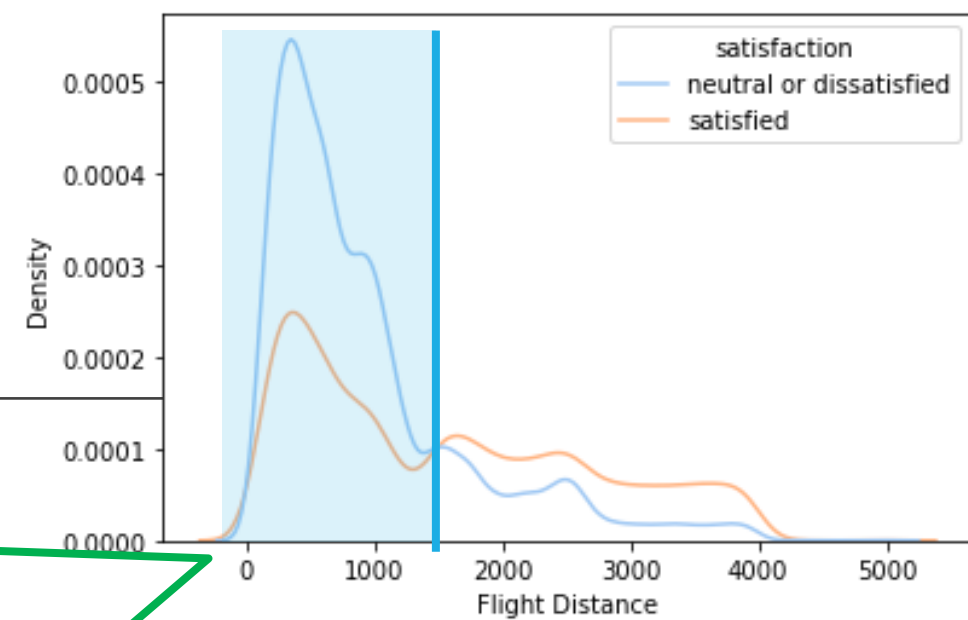
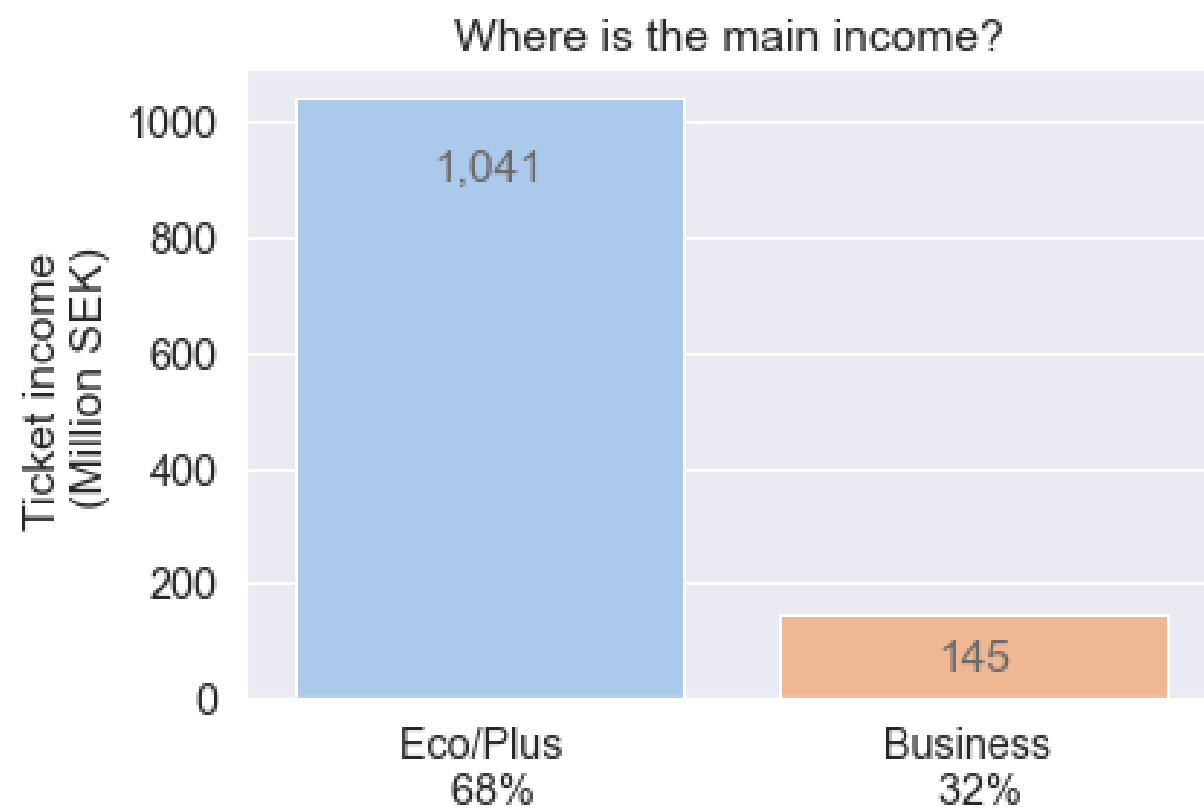
## Distance

Distance < 1500 km  
(Arlanda -> Prague)

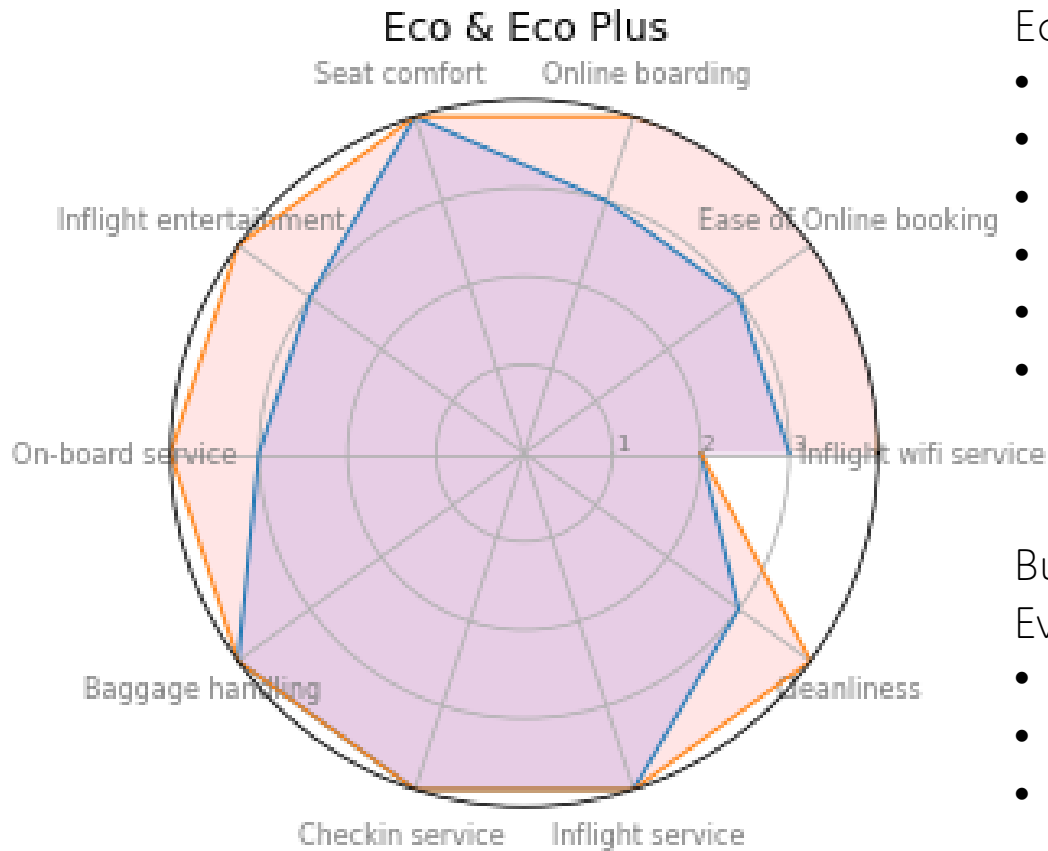


Distance > 1500 m





# How to make people happy?



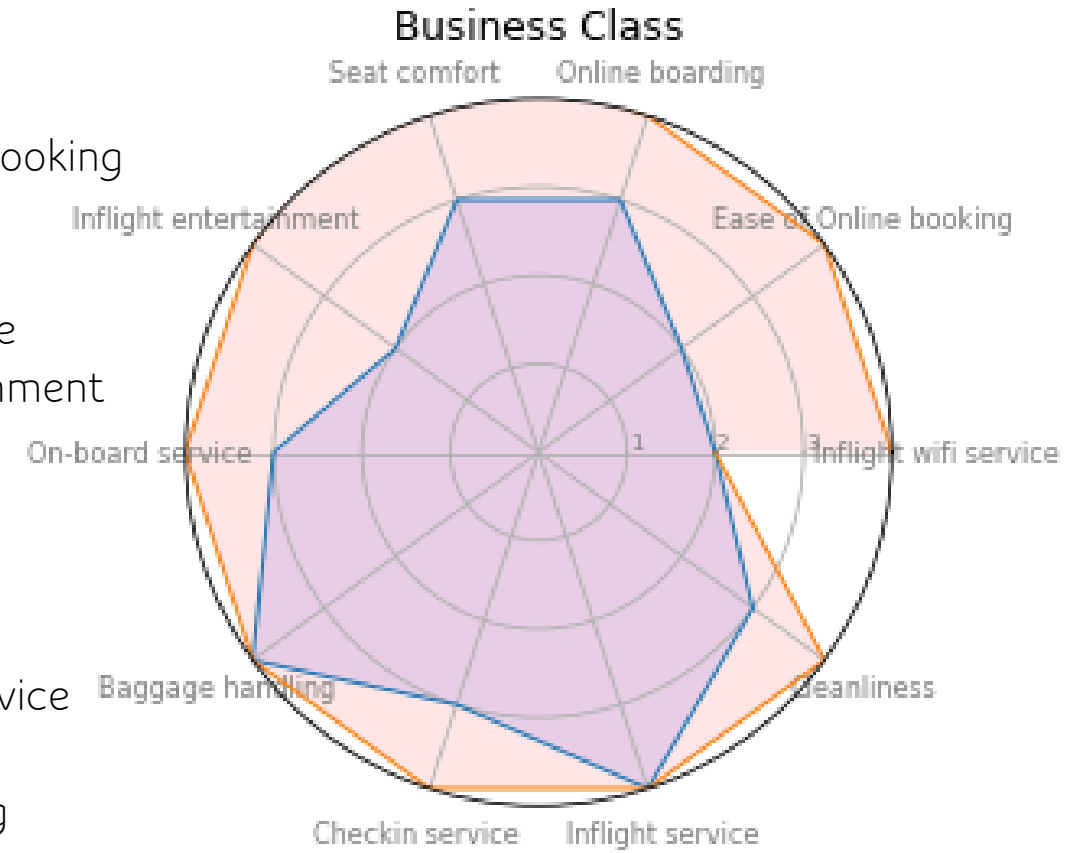
## Eco & Eco Plus

- Online boarding
- Easy of Online booking
- Wifi service
- Cleanliness
- On-board service
- Inflight entertainment

## Business Class

### Everything Except

- Inflight wifi service
- Inflight service
- Bagging handling



# Thank you!

---

Questions?

