



Airline Satisfaction

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Problem Statement

No one likes flying

Airlines want to provide a good experience to everyone

People value different things

What services are worth focusing on?



Overview

Dataset

Approach

Expectations

Available Data

2015 Customer satisfaction survey – 30k responses w/ 15 attributes



Target variable is recommendation (Yes/No)



Flight info (seating, country, date-time)



Service ratings 1-5 (seats, food, staff)



Additional Comments

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EDA

- Over 2,400 reviews
 - Airline name
 - Date-time of review
 - Overall rating
 - Food, Seats, Value, etc.
 - Additional comments
- 1,600 reviews from the US
- 1,800 reviews from economy seats

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Approach

Exploratory data analysis – Attribute importance

Visualizations in Tableau accessing a SQL database

Predicting customer satisfaction overall and in segments

Summarization and filtering using MapReduce

Compare computational efficiency on a cloud vs local machine



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Expected Outcomes

Help airlines identify opportunities and risk factors to confidently make game-changing decisions

- Enhancing marketing effectiveness
- Increasing loyalty
- Improving operational performance
- Driving competitive differentiation



US Airline Reviews

- United and American have high variability in ratings
- Delta and Allegiant have a large majority of positive ratings
 - Delta is the only one with >50% positive sentiment in reviews
- Food and entertainment have high variability between airlines
- First class does not have significantly different ratings distributions
 - Low ratings still make up ~80% of reviews
- No airline is rated as high value, not even Frontier

Time on Local & Microsoft Azure

Parameters	Local System Time	Cloud Time
RF with fewer parameters	6.7 mins	6.06 mins
RF with more parameters	70 mins	40 mins

```
## Time taken to run the entire code  
end = time.time()  
print(end - start)
```

#6.7 minutes

405.866999865

```
end = time.time()  
print(end - start)
```

364.2236406803131

The image is a composite background. On the left, there is a circular airplane window looking out onto a coastal city with a harbor, featuring a prominent yellow building and various ships. On the right, there is a close-up of an airplane seat headrest and shoulder area. The word "Questions" is centered over the image.

Questions