IMPROVE CUSTOMER SATISFACTION FOR EMIRATES AIRLINE

Motivation

- Airline is a service industry, so customer satisfaction is an important metrics

- The rating for Emirates airline is quite low (6/10)

- Emirates needs to know where its investment in service improvement would be most profitable

- Supervised learning models may help to find these features and quantitative metrics for improvement

Data

▶ Reviews of airline travelers on Skytrax

▶ Number of observations: 961

▶ Attributes: 20

▶ Types of data: ordinal (rating), text (reviews), binary (recommended)

▶ The ratings for each attribute range from 1 to 5, while overall rating is from 1 to 10

Data wrangling approach

- Only choose data since 2010
- Drop data without overall rating
- Drop information that is not needed for modelling purpose: link, title, author, author country, date, content, aircraft type, route, recommended
- Encode missing values as 0
- Get dummies for traveller type and cabin flown

Descriptive

Business and couple show much more preference in Emirate services than family and solo traveller

Overall rating over traveller type
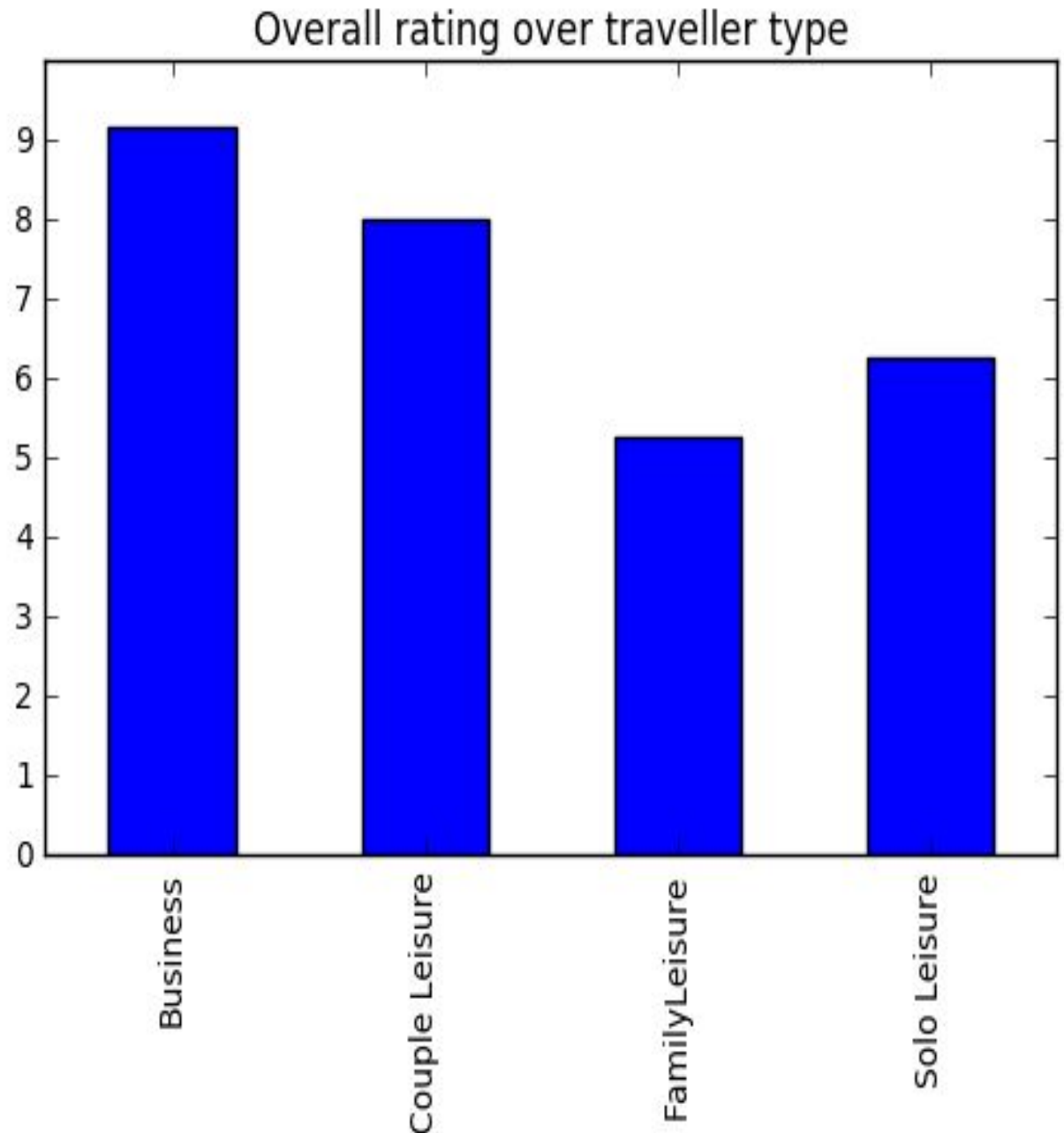
Descriptive

Business and couple also value cabin staff and value money rating higher than the other two groups. This is statistically significant at 1%.

Feature ratings over traveller type
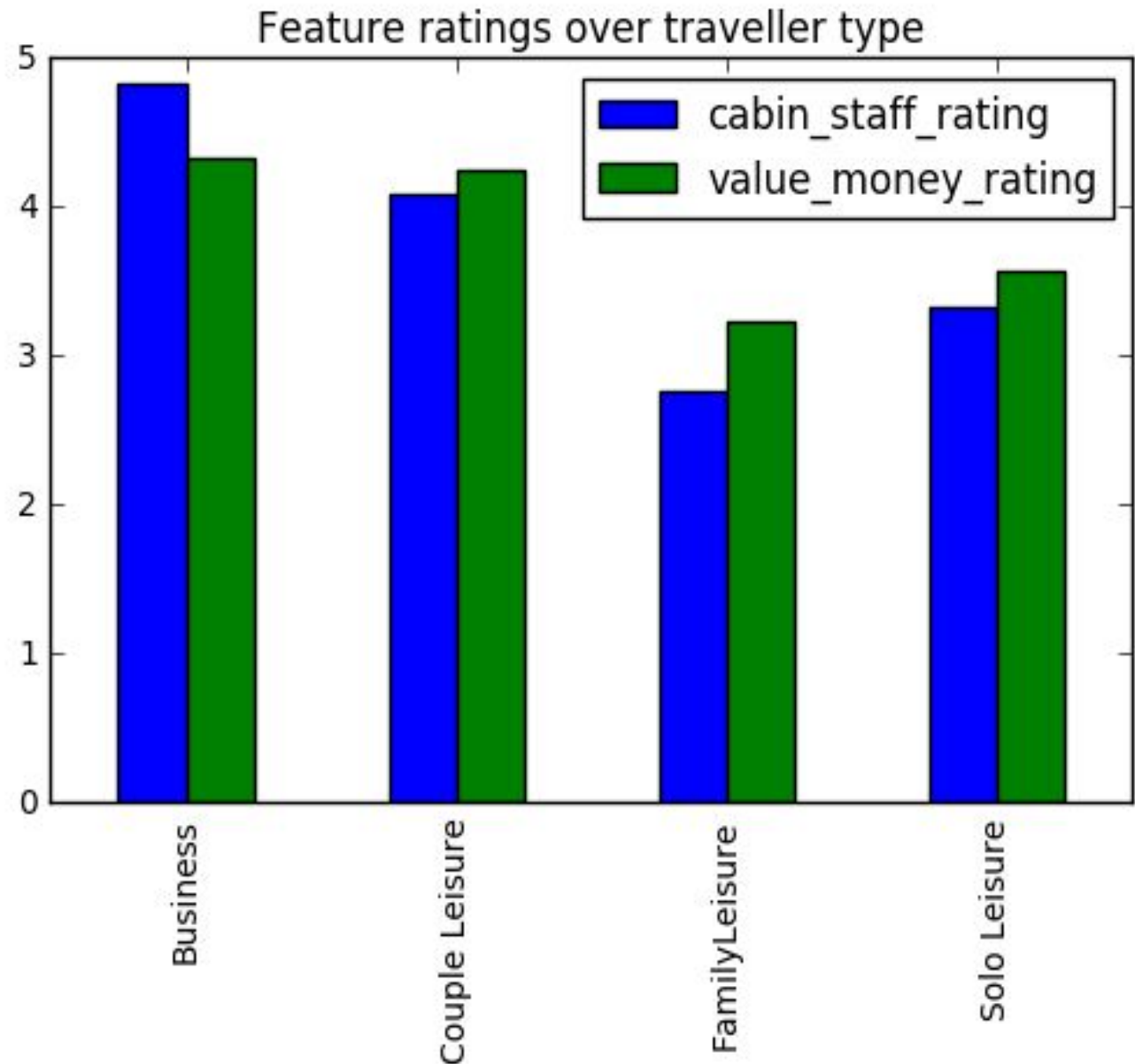
Modelling

- First, I build a model that can predict well the overall rating based on each feature's rating. Classifiers: OLS Linear model, Ridge regression and random forest.
- Then, select the best model
- Finally, the final reference table together with Ridge model and cost benefit analysis, Emirates airlines can build a good strategy on where to invest their resources to achieve better customer satisfaction and profits.

Result

▸ Ridge regression has the best performance among the 3 models

Model	MSE
OLS	1.69155
Ridge regression	1.63583
Random forest	1.78227

Result

Rating	Estimated Coefficients
Money value	0.693824
Cabin staff	0.611933
Food beverages	0.508751
Seat comfort	0.413674
Inflight entertainment	0.204450
Ground service	0.085897

Recommendations

- Based on its corporate strategy and cost benefit analysis, Emirates may use the reference table and Ridge model to plan their target for improvement in some services.
- While pricing is related closely with business strategy and positioning, Emirates might find it easier to improve its cabin staff and food beverages while still have huge effect on overall rating.

Further research

Do topic and sentiment analysis on the travellers' reviews for Emirates airline to see which topics are most discussed, and alerts on negative reviews.