Price Prediction Project with QL2 Software

Team: Bramantyo Danur Jati, Jiabin Chen, Raghav Sood, Shruti Karandikar, Sukriti Bharti, Yuhan He
Client: QL2 Software LLC **Advisor:** Beibei Li

Carnegie Mellon University
HeinzCollege
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Problem Statement

Our client hypothesizes that the price trends in airline and car rental industries are inter-connected.

Without substantiating this, their analysis is limited to within a given industry.

Business Value

Establish travel trends across verticals

Identify changes in travel demand

Adjust pricing and inventory decisions

Challenge

Huge data to be downloaded

Solutions:
- Aggregations
- GCP/AWS
- Jupyter to snowflake connector

Features

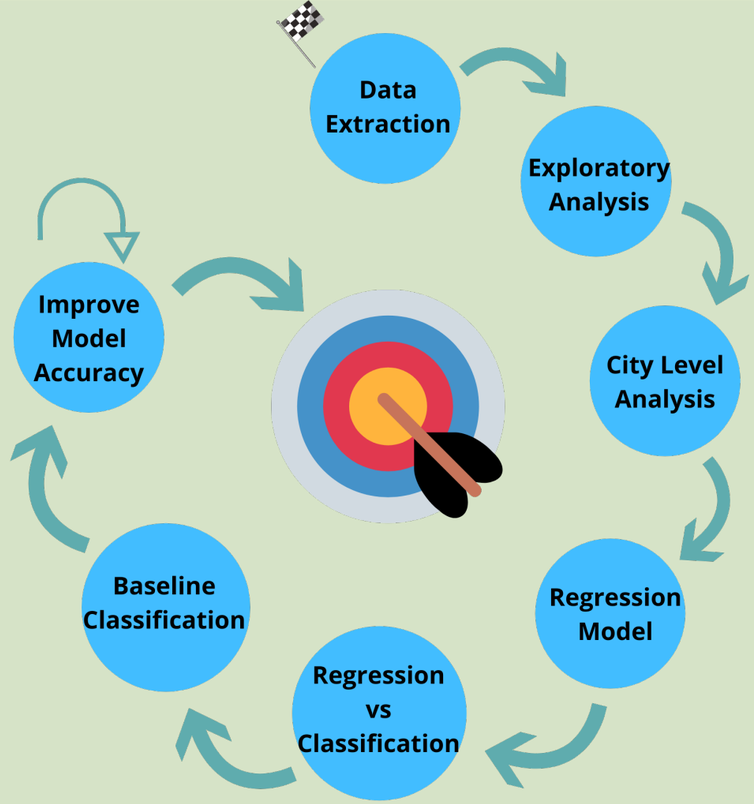
Airfare Features
Departure Airport
Airline Carrier
Departure Date / Time
Avg Fare Fluctuation
Rolling Average Fare
% Change Trend

92 million

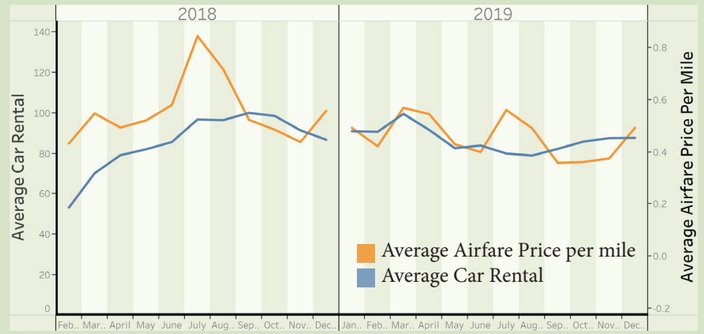
Car Rental Features
Location
Agency & Type of Cars
Length of Rental
Public Holidays
Pickup and Drop Date
Daily Fare

8.5 billion

Approach



2018, 2019 Price Trends for Los Angeles



Outcomes

Regression

Linear Regression
Price Varies For

Airfare	Holiday, Weekday / Weekend, Carrier
Car rental	Car type, agency, Length of Rental

Classification

Random Forest Classifier
Accuracy of Baseline Model: 49%
Accuracy of Improved Model: 51%

Inference

- **Addition of airfare features improve performance for car rental prediction model**
- **Air fare fluctuations (short term, mid term and long term) prove to be important factors**
- **Further enriched features will help improve accuracy of the predictions.**

Classification Models Used
Random Forest, Logistic Regression, KNN, SVM, HMM