STAT232 Progress Report

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Contributions:

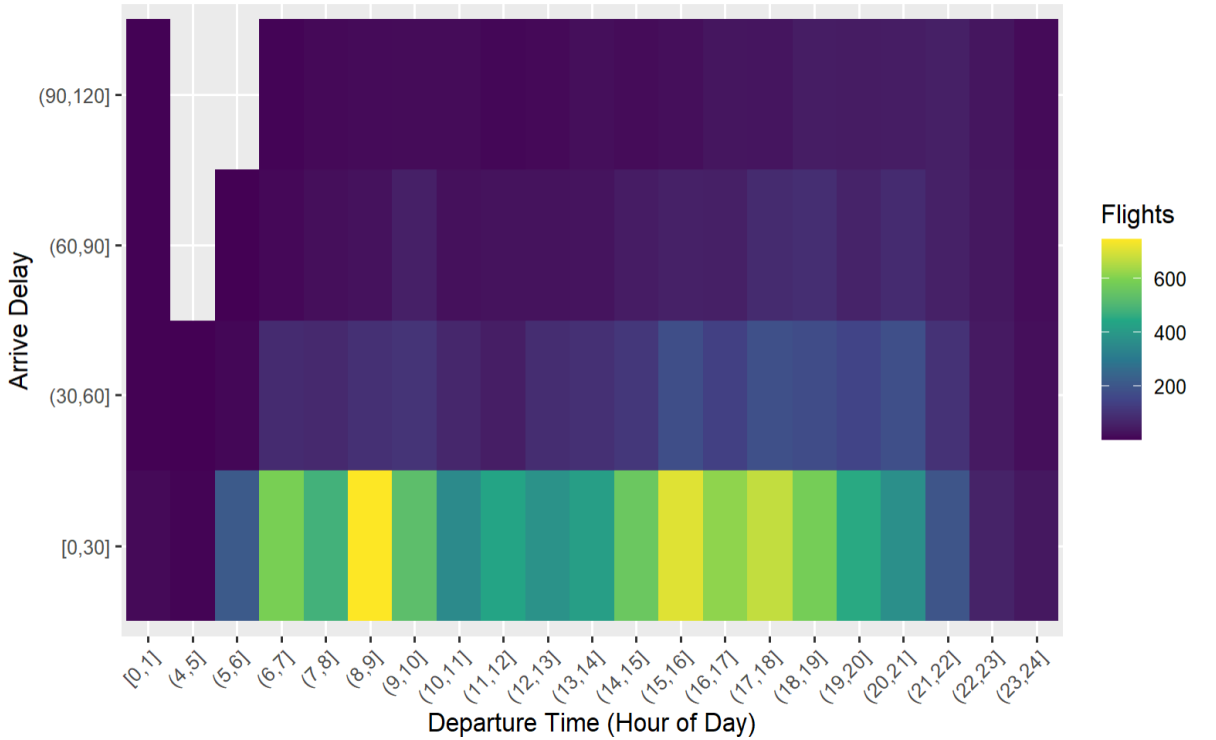
- Ashwin Satra: Coder, Data cleaning and hypothesis
- Dushyant Vaishnaw: Coder, Group Leader and project lead
- Wenjie Ji: Data interpretation, Communication
- Sunny Khade: Writer, Code debugs and internal communication
- Houze Zhao: Presenter, Speaker, Data analysis

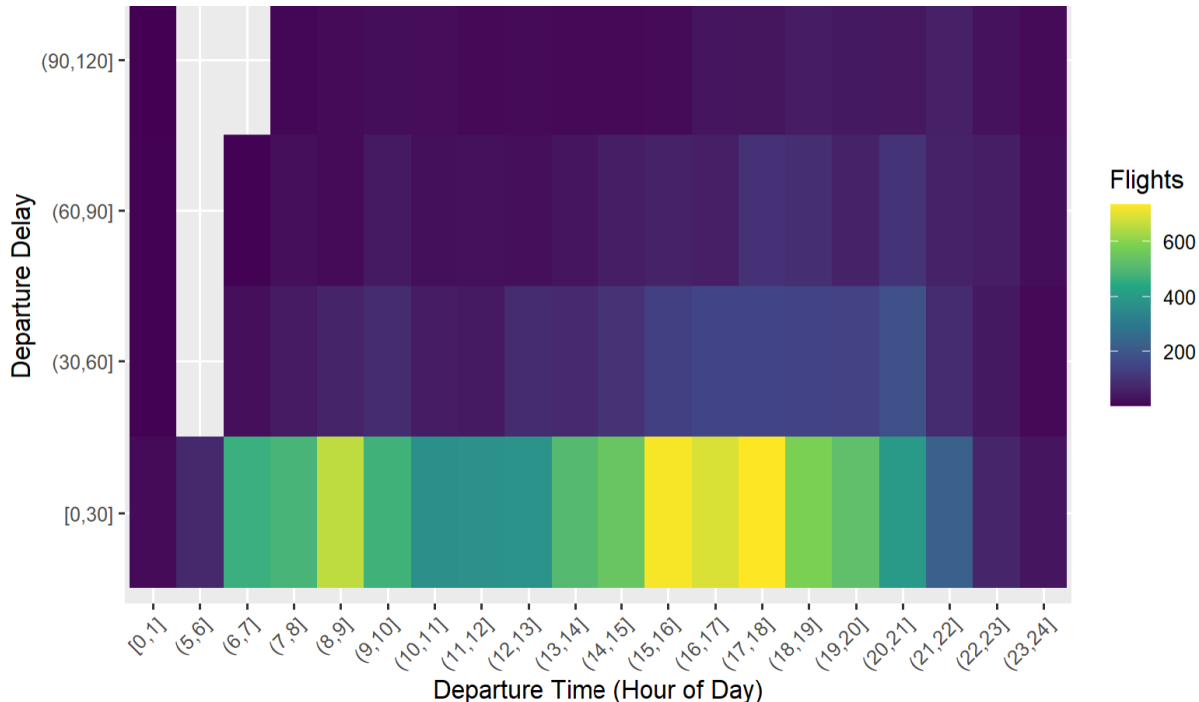
Research Questions:

- How do departure times impact delays?
- Which departure airports experience the longest delays?
- Are there differences in airline performance?
- How does weather affect delays?
- Can we predict delays using machine learning?

Project Progress:

- Departure times have some impact on delays (both arrive and departure)
- Non-linear relationship between the two
- Used quadratic regression instead
- Both have significant p values
  - 2.09e-14 (arrive delay and depart time)
  - < 2e-16 (departure delay and depart time)
- Only have around 4~5% variation explain, need to identify more predictor

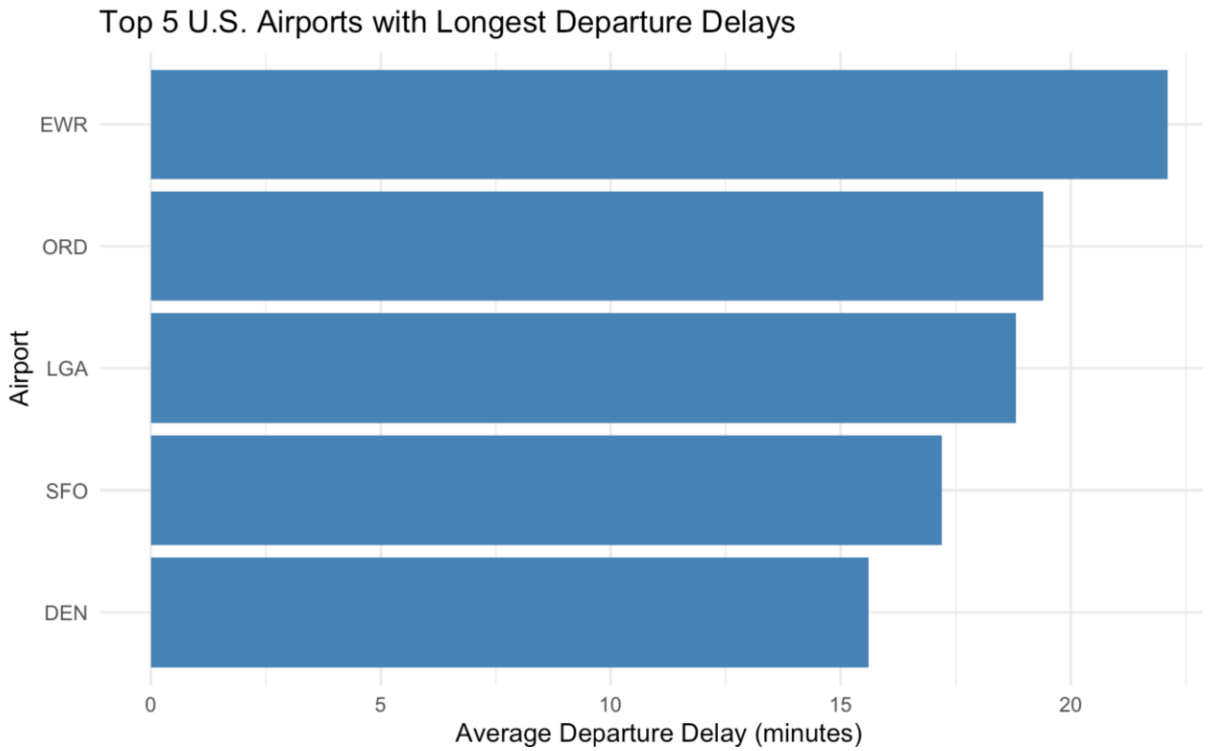




Project Progress:

Airport Average Departure Delay (mins):

- Newark Liberty International (EWR) 22.1
- Chicago O'Hare International (ORD) 19.4
- New York LaGuardia (LGA) 18.8
- San Francisco International (SFO) 17.2
- Denver International (DEN) 15.6



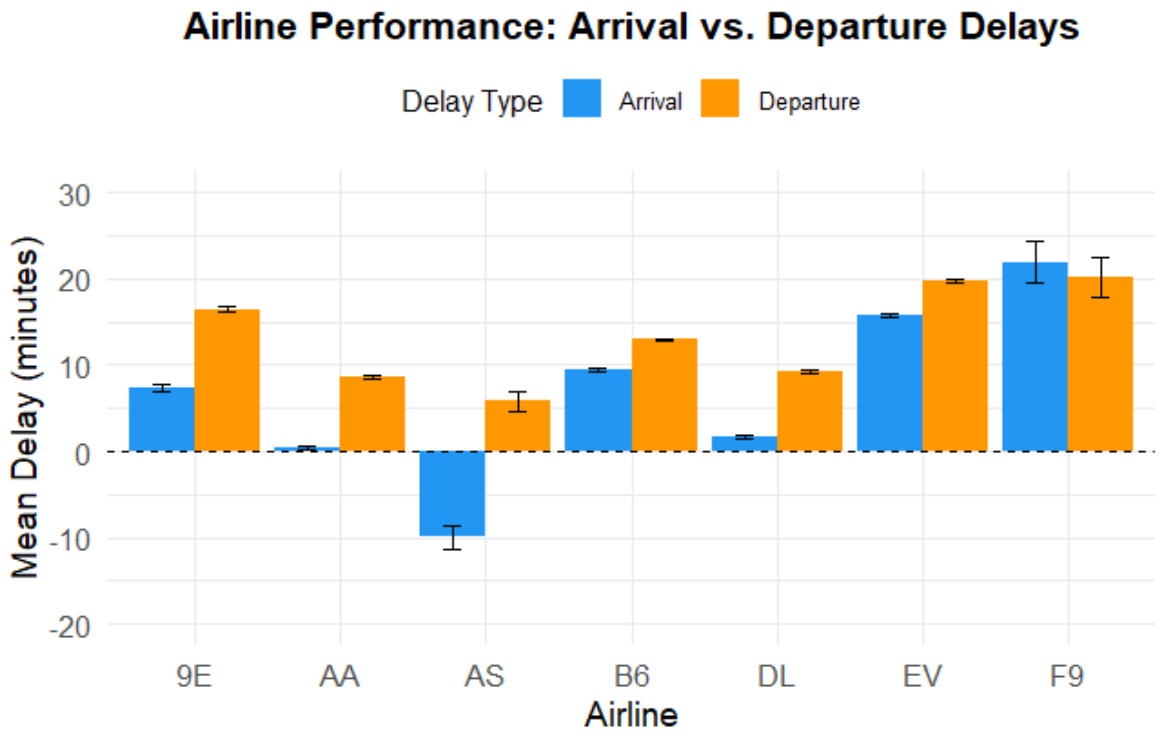
Project Progress:

Arrival:

- F = 332.9, p < 0.0001
- AS: -17.3 min | F9: +14.5 min | EV: +8.4 min
- (all p < 0.0001)

Departure:

- F = 261.8, p < 0.0001
- AS: -10.6 min | US: -12.7 min | EV: +3.4 min
- (all p < 0.0001)



Project Progress:

Assumption for the Project:

- Data will remain consistent in the foreseeable future
- The current available variables does contribute to arrival delay and departure delay

Hypothesis:

- It is possible to use airport, departure time (hour, day, month), and airline to predict possible delay

Next Objective:

- identification of key delay factors
- Airline and airport performance ranking
- Development of models for delay prediction

Thank You