



Predicting Holiday Flight Delays

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Agenda



Background



Objective



Data



Predicting Flight Delays



Findings



Future Work



Background

41 million people flew during*
Holiday Travel Season 2018

34% of flights were delayed on
December 23rd last year*

December 21st expected to be
busiest holiday travel day 2019^

*Mental Floss Worst Holiday Travel Days

^Conde Nast Traveler



Objective

PREDICT WHETHER A FLIGHT WILL BE DELAYED DURING THE HOLIDAY TRAVEL SEASON.

Data



Kaggle Dataset

7 million records of domestic flight delay statistics for 2018

Gathered from Bureau of Transportation Statistics



Top 3 Domestic Airlines*

Delta Airlines

United Airlines

American Airlines

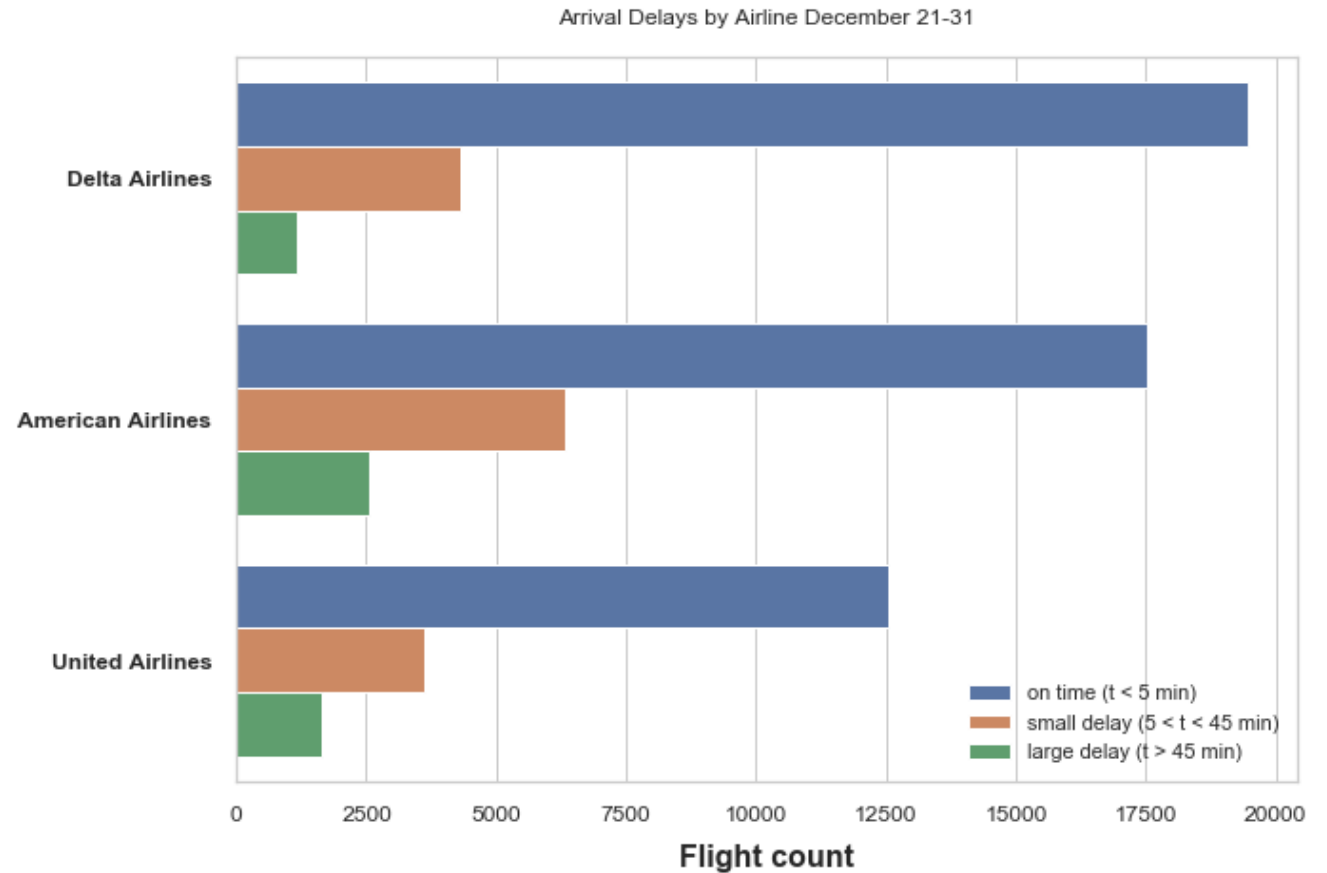


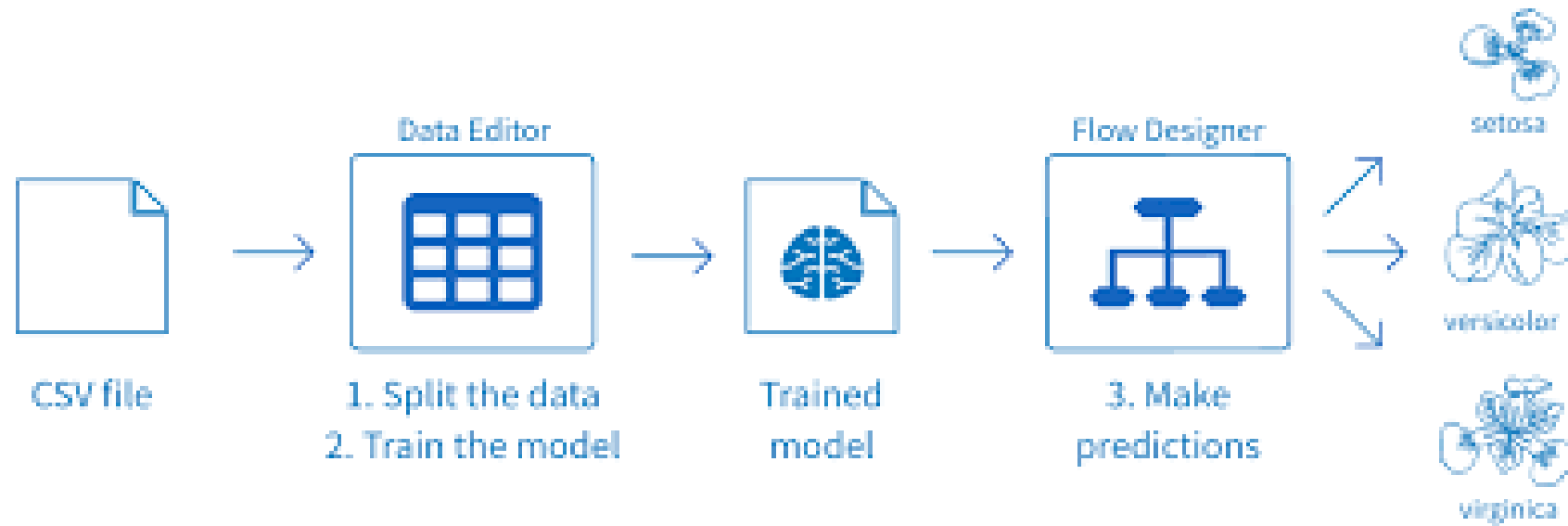
Holiday Travel Season

December 21-31

*ranked by the International Air Transport Association revenue passenger-kilometers

Arrival Delays During Holiday Travel Season 2018





Predicting Flight Delay

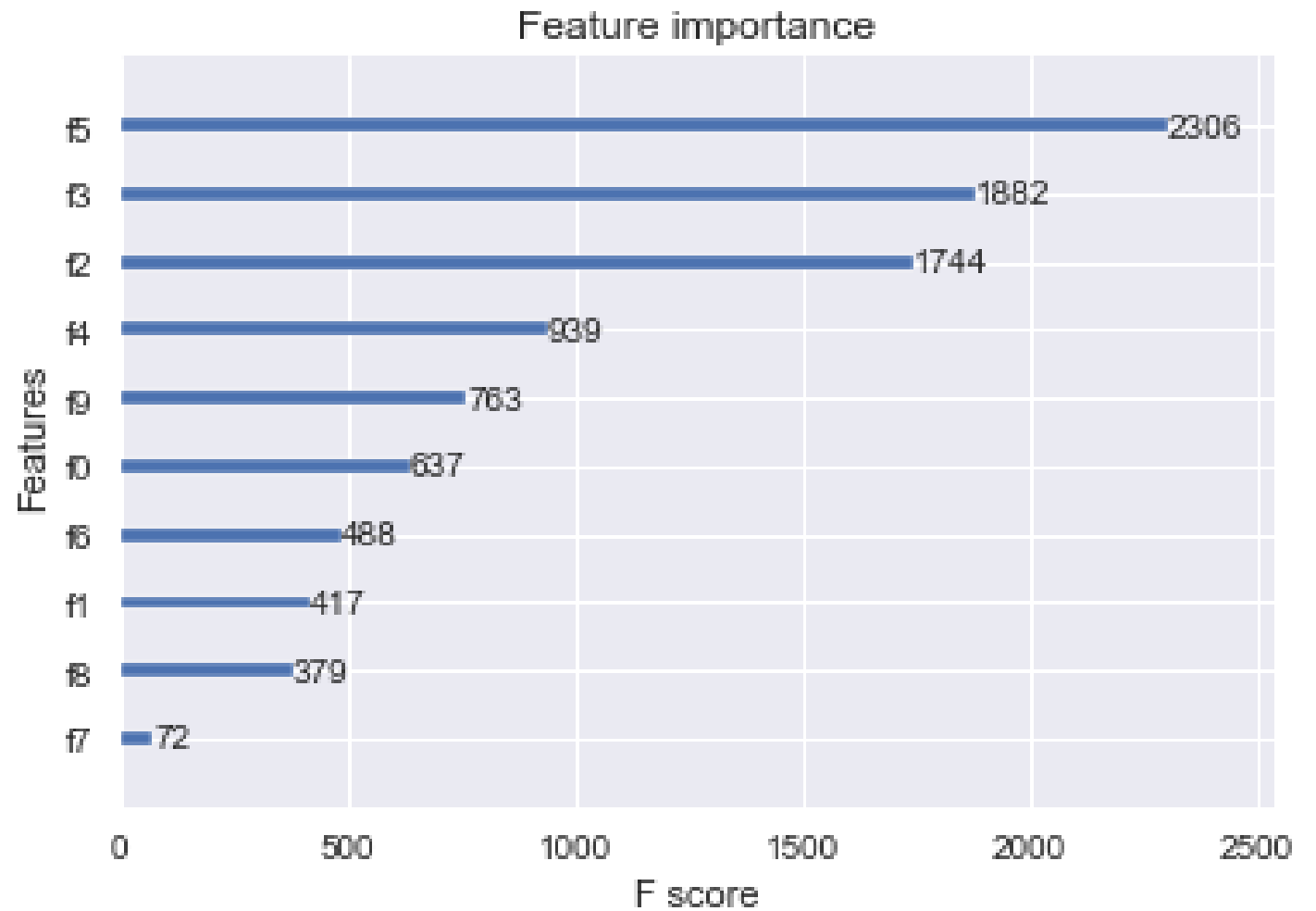
Classification Model

- Predict whether a flight will be delayed
- 93.7% accuracy

Findings

Top 5 Most Important Features

- Distance
- Destination
- Origin
- Departure Delay
- Arrival Time



Future Work



Determine which days are best for holiday travel



Study how time of departure impacts delays



Find which airports are best for avoiding delays



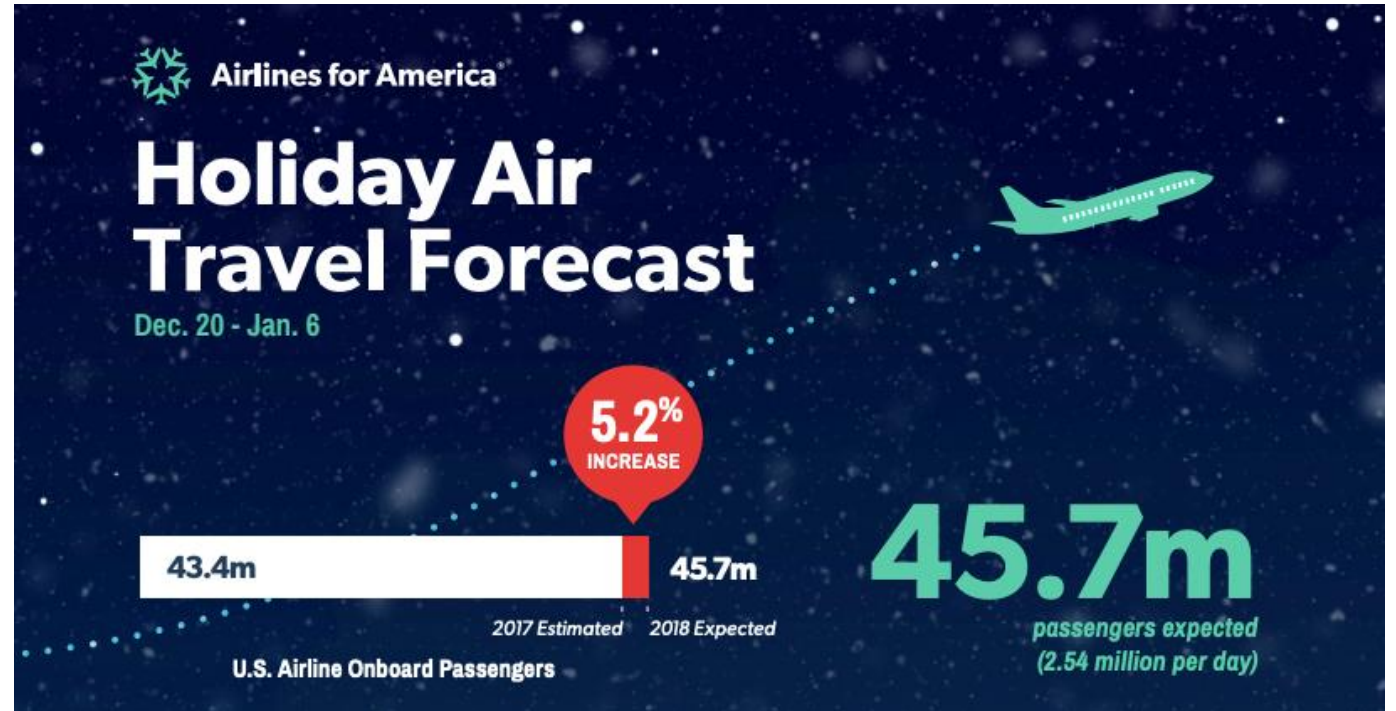
See how distance impacts delays

Thank
you

Appendix

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A4A Holiday Air Forecast 2018



Mental Floss Worst Holiday Travel Days



THE WORST DAYS TO TRAVEL AROUND CHRISTMAS

1

DECEMBER

27



% OF FLIGHTS
DELAYED

34%



% OF FLIGHTS
CANCELLED

2.3%



AVERAGE DELAY
(MINUTES)

59

2

DECEMBER

23



% OF FLIGHTS
DELAYED

34%



% OF FLIGHTS
CANCELLED

1.0%



AVERAGE DELAY
(MINUTES)

59

3

DECEMBER

29



% OF FLIGHTS
DELAYED

33%



% OF FLIGHTS
CANCELLED

1.6%



AVERAGE DELAY
(MINUTES)

60

4

DECEMBER

26



% OF FLIGHTS
DELAYED

33%



% OF FLIGHTS
CANCELLED

2.3%



AVERAGE DELAY
(MINUTES)

60

5

DECEMBER

22



% OF FLIGHTS
DELAYED

32%



% OF FLIGHTS
CANCELLED

0.9%



AVERAGE DELAY
(MINUTES)

52

Conde Nast Traveler

These Are the Busiest Days for Holiday Travel This Year

https://www.cntraveler.com/story/these-are-the-busiest-days-for-holiday-travel-this-year?utm_source=nl&utm_brand=cnt&utm_mailing=CN_T_Daily_PM_110519&utm_campaign=aud-dev&utm_medium=email&bxid=5bda451f3f92a40f7d4f609d&cndid=10799541&hasha=ab1a9602f106357125fad9b3d8b1ffe6&hashb=1609645c4a77e5036c1e6a36d81510b0cd033314&hashc=0c75784d8536eb549117cfd19ffa9aa9b961a504c0e1c277ccf0be095c40788&esrc=ETL_BATCH&utm_term=CNT_Daily