

Predicting Flight Delays

For Chicago O'Hare International Airport

TEAM 7



BU AIRLINES



BOARDING PASS

BOSTON

UNIVERSITY

PASSENGER NAME

ISHAN NAGRANI
RIDDHIMA SHUKLA
SUCHETA DAS
OJUS SINDWANI

FLIGHT

AB123

DATE

NOV 7

FROM

CHICAGO O'HARE INTERNATIONAL

TO

QUESTROM SCHOOL OF BUSINESS

GATE

B22

BOARDING TIME

14:00

SEAT

12B

BU AIRLINES

BOARDING PASS

NAME

I, R, O, S

FROM

LI

TO

QST

DATE

NOV 7

GATE

B22

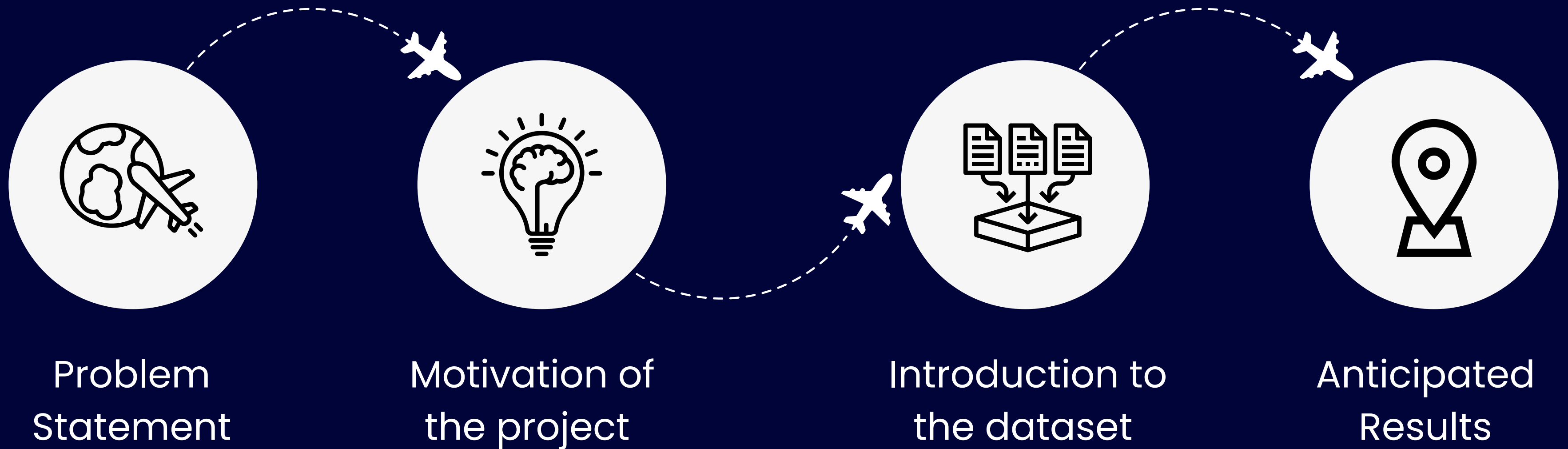
BOARDING TIME

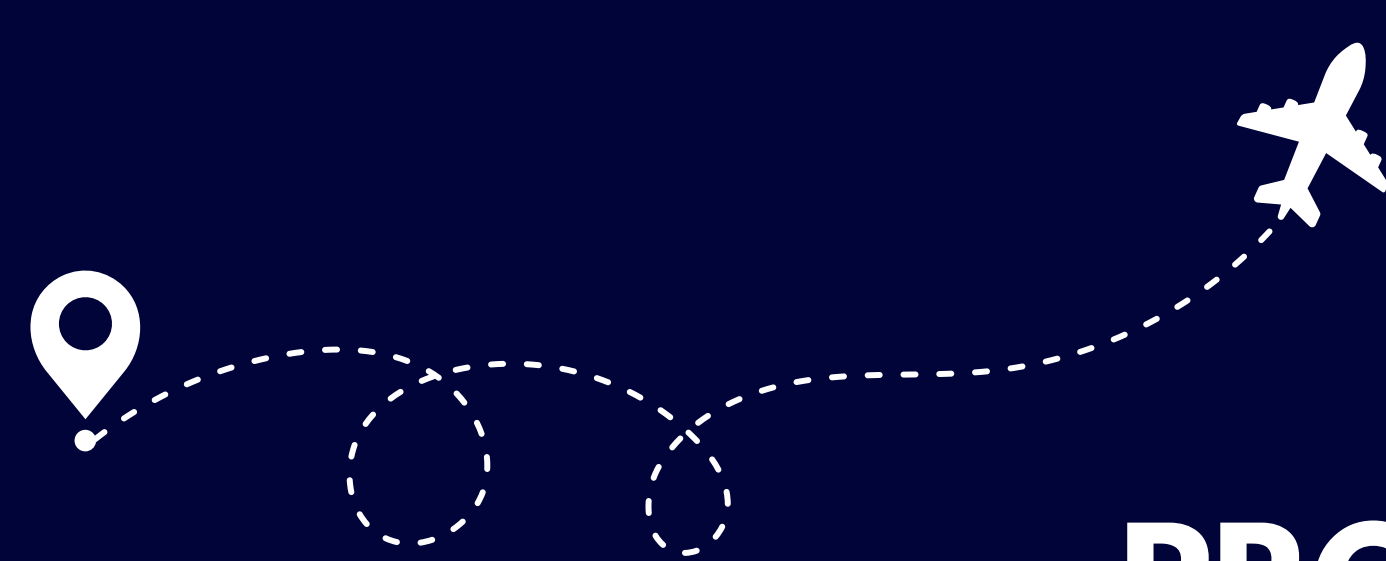
14:00

SEAT

12B

Table of Contents





PROBLEM STATEMENT

The project aims to predict whether a flight at the Chicago O'Hare International Airport will get delayed for more than 15 minutes based on the following variables:

- Airport (Previous airport and Departing Airport)
- Weather details of the Departing Airport
- Airport & Airline Operations
- Time, Day, and Month of departure



Worst U.S. Airports For Flight Cancellations This Week



TravelPath

LAST UPDATED: OCTOBER 10, 2022

BY: VINICIUS COSTA

LOCAL NEWS >

Severe Storms Delay Arriving Flights At O'Hare International Airport

This Is The Worst Airport In The U.S. For Flight Cancellations This Year

Chicago flight delays, cancelations continue at O'Hare Airport

By Elizabeth Matthews | Published August 8, 2022 | Travel News | FOX 32 Chicago

LOCAL NEWS >

Chicago We canceled du



NOVEMBER 5, 2022

CHICAGO SUN-TIMES

TRANSPORTATION NEWS POLITICS

Chicago flight delays: One in four flights to Midway, O'Hare airports delayed this summer

Airline travel in to Chicago was especially fraught at Midway. In June, two of every five flights were delayed.

By Charmaine Runes | Sept 2, 2022, 6:30am EST

LOCAL NEWS >

Chicago Area Bride Blames Southwest For Family Missing Her Wedding; 'I Didn't Have A Single Family Member Present'

Percentage Delays of more than 15 mins for Domestic Flights at the O'Hare International Airport (2019)

22%



Introduction to the Dataset



Raw Data

6.5M

26

Integer
Float
String

Number of Rows

Number of Columns

Data Types

Pre-processed
Data

329K

19

Integer
Float
String

Bureau of Transportation statistics: [https://www.transtats.bts.gov/databases.asp?](https://www.transtats.bts.gov/databases.asp?Zlqr_VQ=E&Zlqr_Qr5p=N8vn6v10&f7owrp6_VQF=D)

[Zlqr_VQ=E&Zlqr_Qr5p=N8vn6v10&f7owrp6_VQF=D](https://www.transtats.bts.gov/databases.asp?Zlqr_VQ=E&Zlqr_Qr5p=N8vn6v10&f7owrp6_VQF=D)

National Centers for Environmental Information (NOAA): <https://www.ncdc.noaa.gov/cdo-web/datasets>



Introduction to the Dataset



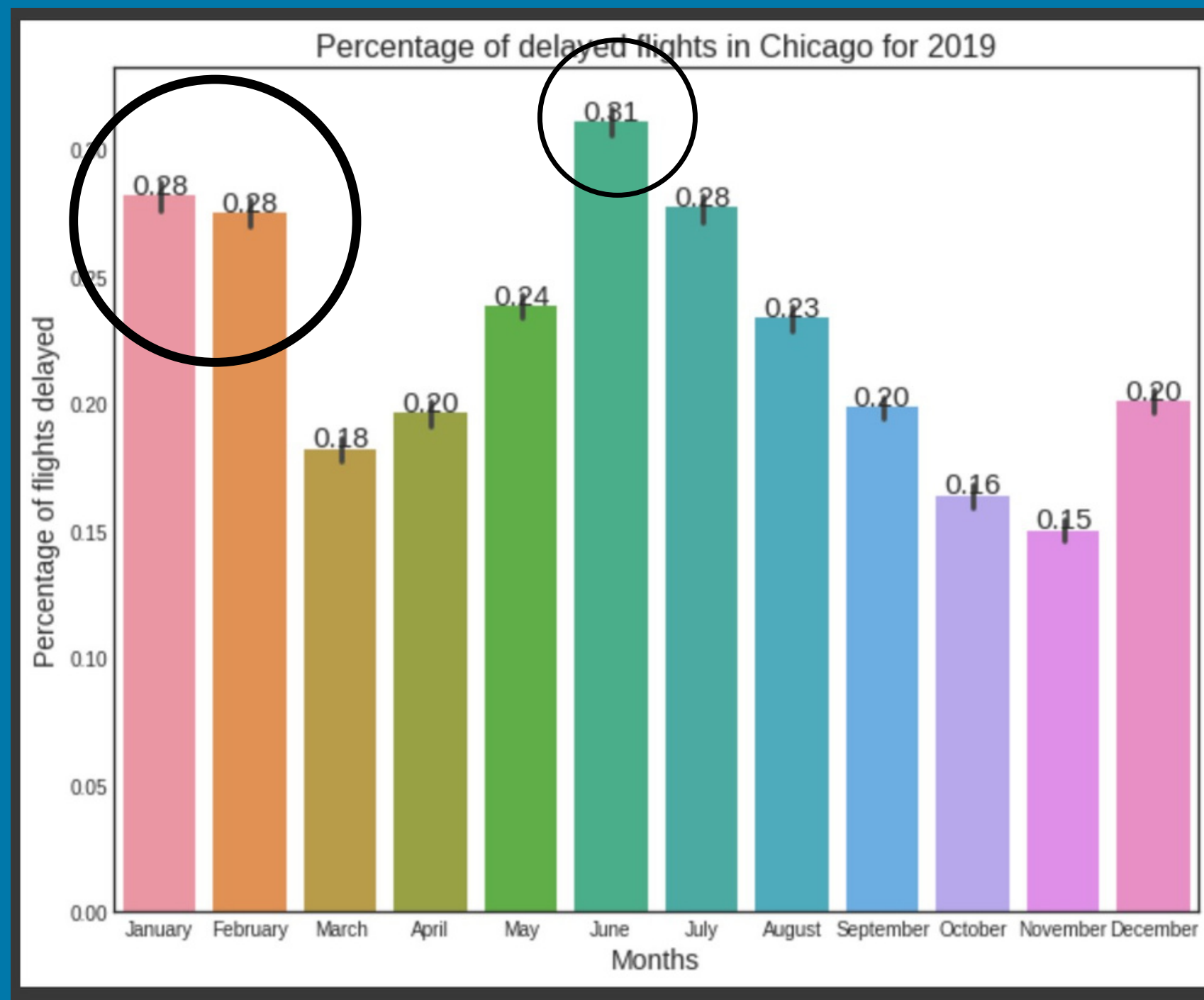
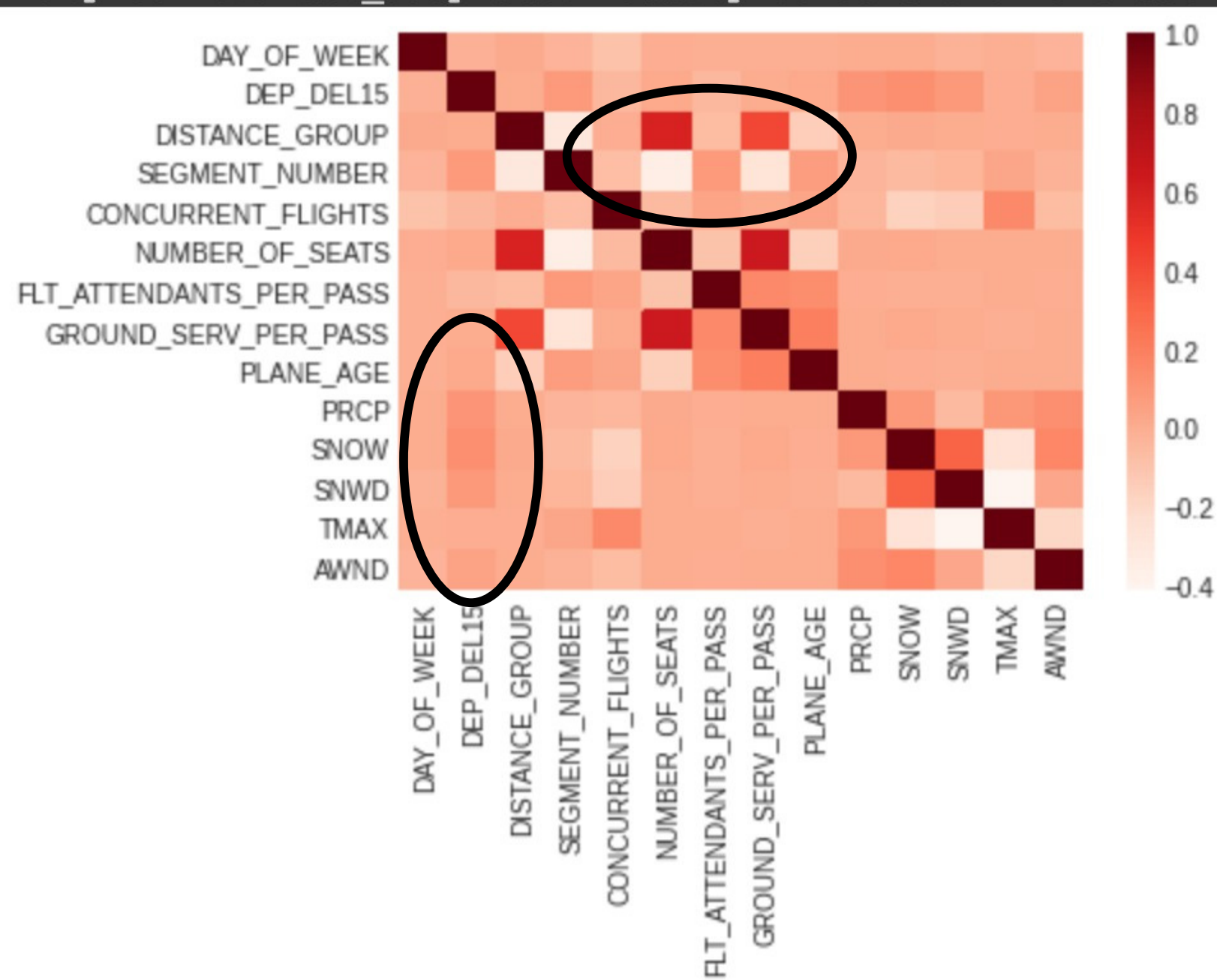
	DEP_DEL15	DISTANCE_GROUP	SEGMENT_NUMBER	CONCURRENT_FLIGHTS	NUMBER_OF_SEATS	PLANE_AGE	PRCP	SNOW	SNWD	TMAX	AWND
count	329045.00	329045.00	329045.00	329045.00	329045.00	329045.00	329045.00	329045.00	329045.00	329045.00	329045.00
mean	0.23	3.42	3.13	56.94	117.29	11.59	0.13	0.08	0.32	59.32	9.51
std	0.42	1.93	1.71	15.22	52.92	6.51	0.31	0.44	1.26	21.03	3.38
min	0.00	1.00	1.00	1.00	44.00	0.00	0.00	0.00	0.00	-10.00	2.91
25%	0.00	2.00	2.00	47.00	66.00	5.00	0.00	0.00	0.00	42.00	7.16
50%	0.00	3.00	3.00	58.00	124.00	13.00	0.00	0.00	0.00	61.00	9.17
75%	0.00	4.00	4.00	68.00	160.00	17.00	0.08	0.00	0.00	78.00	11.63
max	1.00	11.00	10.00	92.00	337.00	32.00	2.28	5.40	9.80	95.00	25.95



Initial Findings



<matplotlib.axes._subplots.AxesSubplot at 0x7f7ff92cf050>



Machine Learning Models

- Logistic Regression
- Naive Bayes
- K-Nearest Neighbors
- Decision Tree

Anticipated Results

Predicting whether the flight will be delayed for more than 15 mins



Implications of the Results



Optimize airport and
airline operations



Provide recommendations for
efficient staffing



Enhance Facility
management



Support Air Traffic
Control



Better manage
passenger flow

A photograph taken from the perspective of someone looking out of an airplane window. The left side of the frame shows the dark silhouette of the airplane's wing and engine nacelles. The sky is filled with a dense layer of white clouds, illuminated from below by a bright sun that is partially obscured by the wing. This creates a dramatic scene with long, golden rays of light filtering through the clouds. The overall color palette is dominated by warm yellows, oranges, and greys.

THANK YOU!