Predicting Flight Delays

For Chicago O'Hare International Airport

TEAM 7

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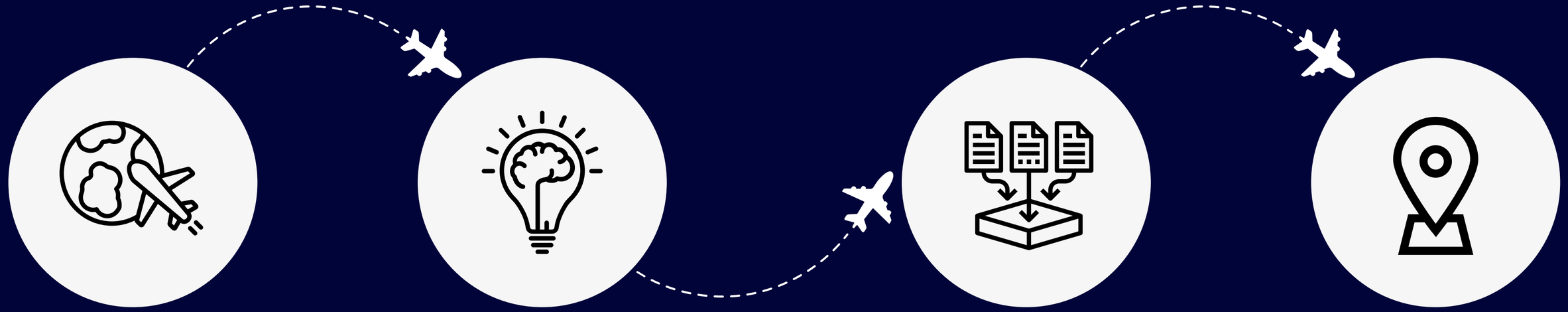


Problem Statement

Motivation of the project

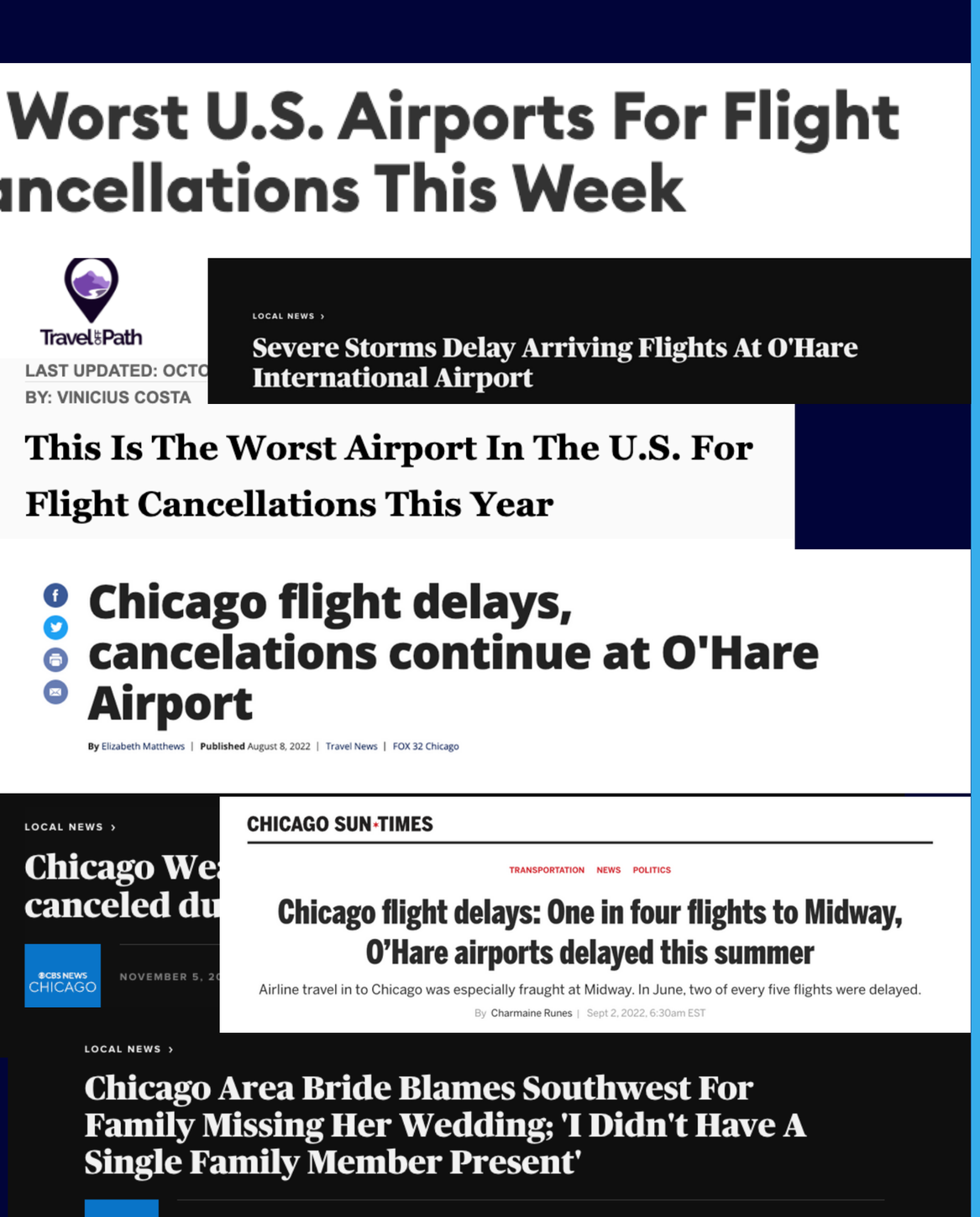
Introduction to the dataset

Anticipated Results

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



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

22%

Introduction to the Dataset

	Number of Rows	Number of Columns	Data Types
Raw Data	**6.5M**	**26**	**Integer Float String**
Pre-processed Data	**329K**	**19**	**Integer Float String**

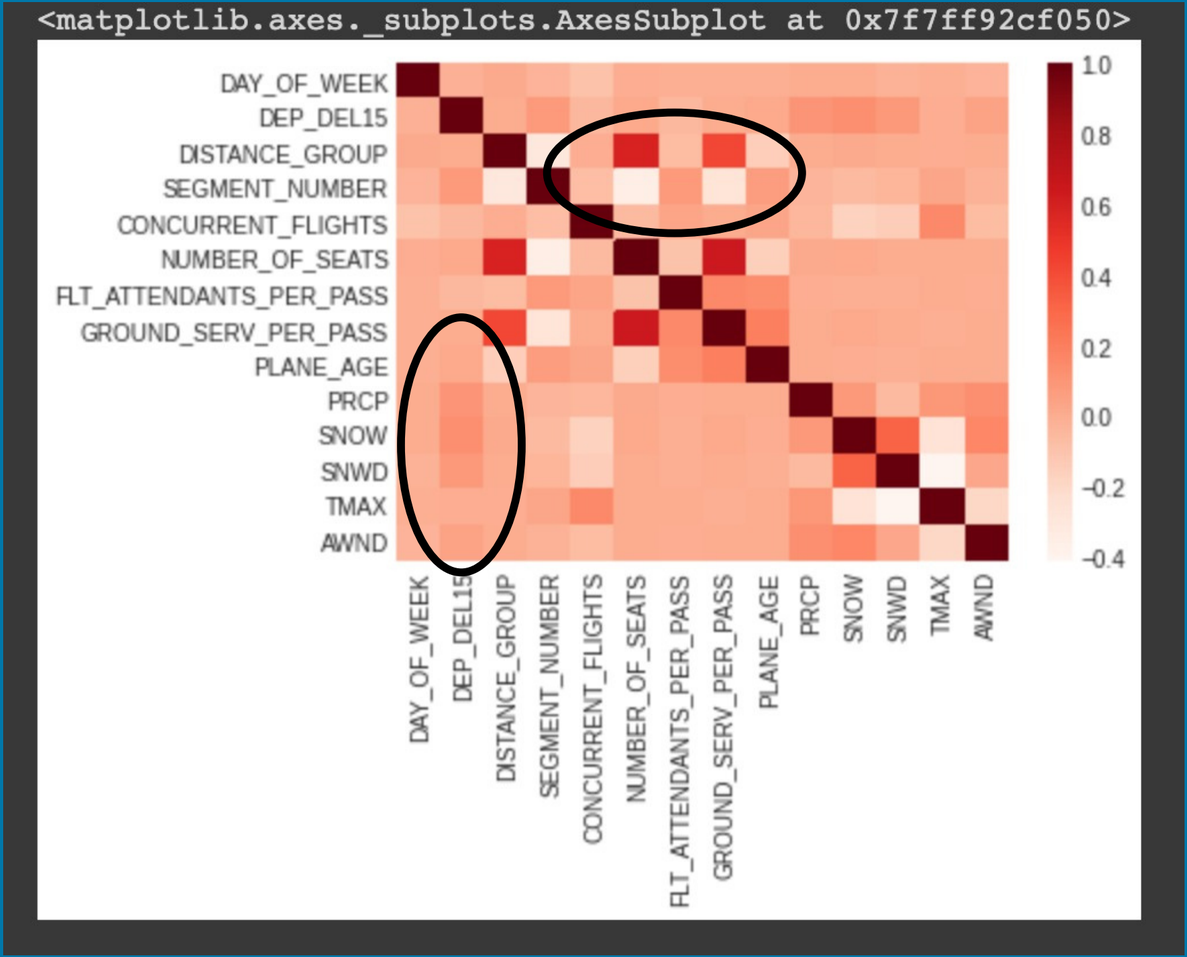
Bureau of Transportation statistics: https://www.transtats.bts.gov/databases.asp?Z1qr_VQ=E&Z1qr_Qr5p=N8vn6v10&f7owrp6_VQF=D

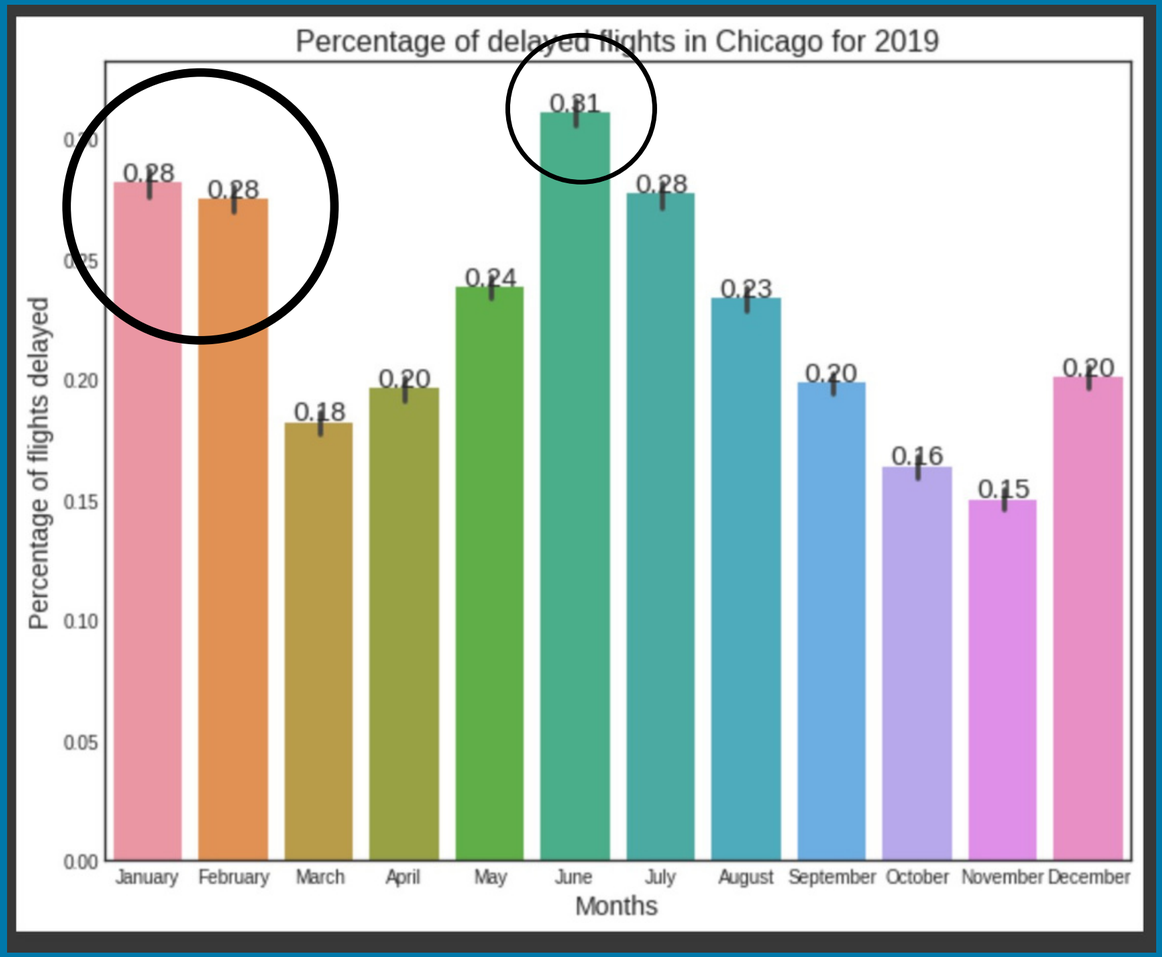
National Centers for Environmental Information (NOAA): https://www.ncdc.noaa.gov/cdo-web/datasets

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





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

THANK YOU!