



Scientific study on the discipline of flight schedules

SOUTHWEST AIRLINES

JANUARY 2020

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In this project we will study the discipline in the flights schedule, and we will generate graphical report to represent it to the management

we will be using python as a programming language and data science libraries such as import pandas, numpy, matplotlib & seaborn

*In this study we will depend on
data provided from: kaggle.com*

<https://www.kaggle.com/akulbahl/covid19-airline-flight-delays-and-cancellations>

WE WILL BE CONSIDERING ONLY JANUARY DATA FOR SOUTHWEST AIRLINES

This source provide important data for this study such as:

Flight Departure and Arrival Airport

Scheduled Departure and Arrival Time

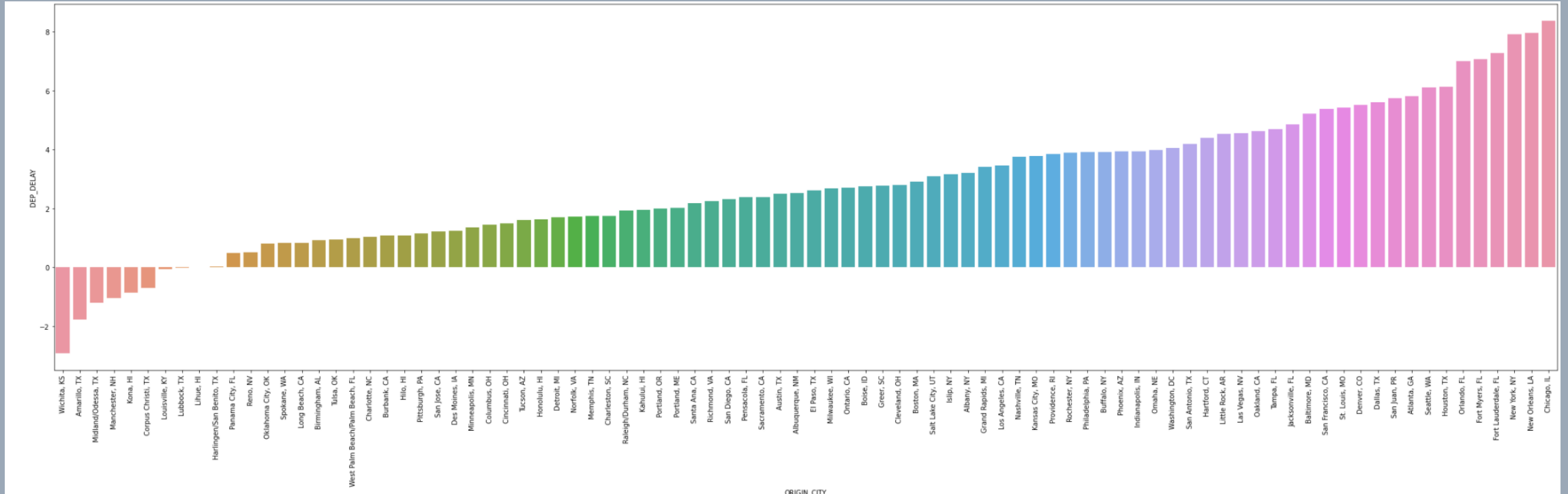
Actual Departure and Arrival Time

Departure Delay

Scheduled Total Flight Time

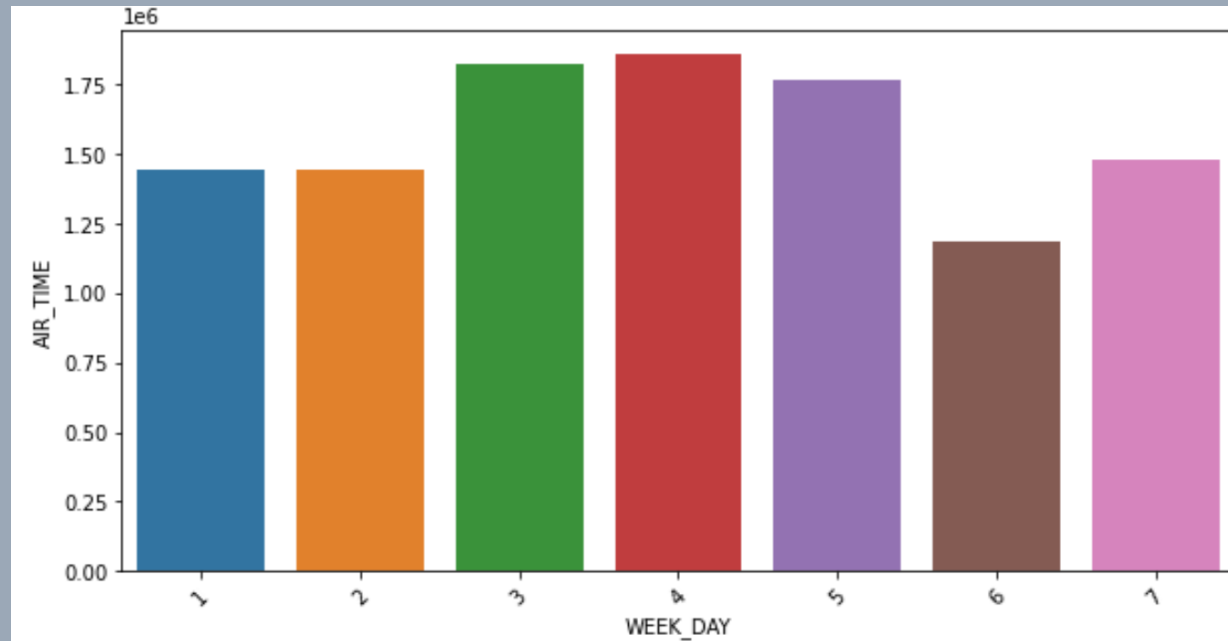
Reason for the delay by Time (Carrier, Weather, Security or National Aviation)

Report Sample



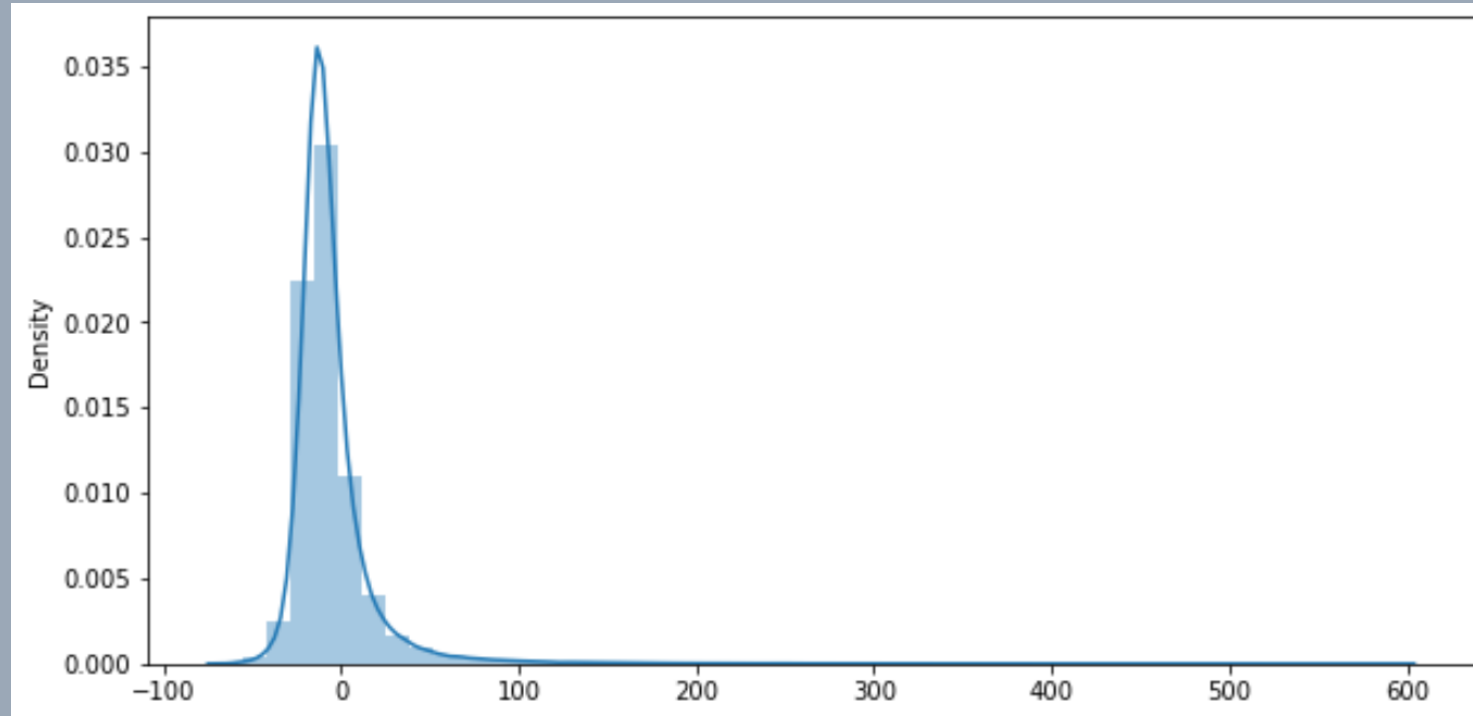
THE DELAY DEPARTURE TIME FOR EACH CITY, THE MINUS
NUMBER MEANS EARLY DEPARTURE

Report Sample



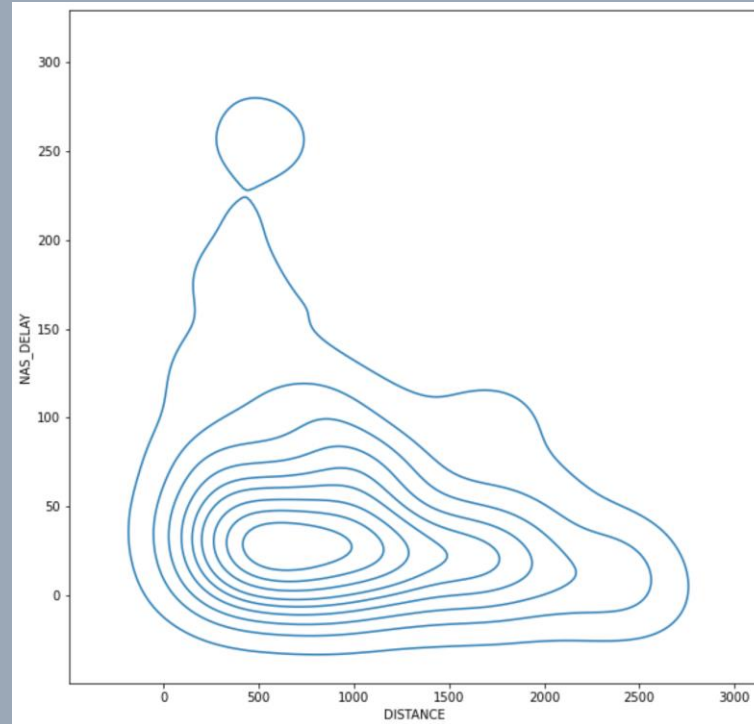
THE NUMBER OF FLIGHTS TIME IN EACH DAY OF THE WEEK (AIR TRAFFIC)

Report Sample



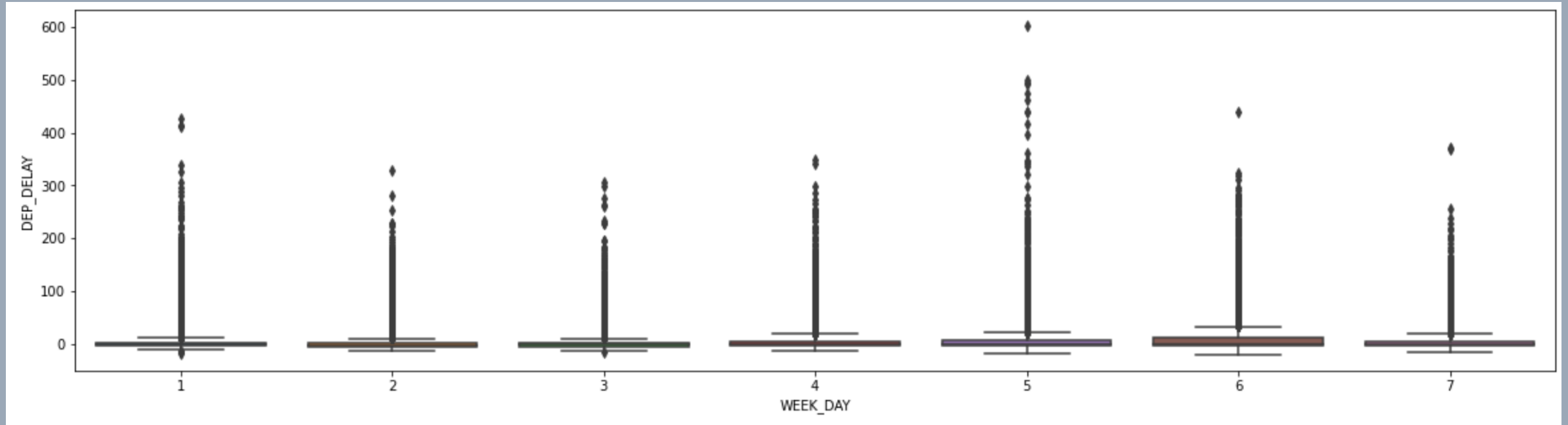
DIFFERENCE BETWEEN THE SCHEDULED ACCESS TIME AND THE
ACTUAL TIME

Report Sample



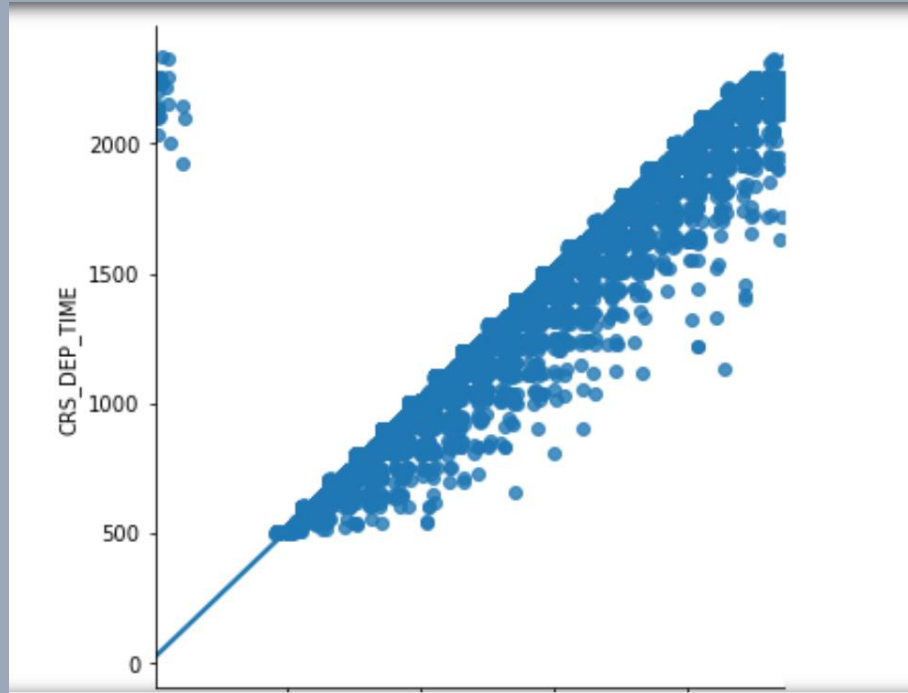
THE RELATIONSHIP BETWEEN FLIGHT DELAYS DUE TO CIVIL
AVIATION AND THE DISTANCE BETWEEN AIRPORTS

Report Sample



THE DEPARTIAL DELAY FOR EACH DAY OF THE WEEK

Report Sample



```
# import model and fit
from sklearn.metrics import r2_score
from sklearn.linear_model import LinearRegression

# grab the DEP_TIME and CRS_DEP_TIME
# define the independent column
X1 = df.DEP_TIME.values.reshape(-1, 1)
# then the dependent column?
y1 = df.CRS_DEP_TIME.values.reshape(-1, 1)

# 1 create an object to Linear Regression model formula
linreg_model = LinearRegression()

# 2 training the model == Train Model
linreg_model.fit(X1, y1)

: LinearRegression()

# round(linreg_model.score(X1, y1)*100)

: 99

# import numpy as np
x2 = np.array(100)
x2 = x2.reshape(-1, 1)

linreg_model.predict(x2)

: array([[117.81314602]])
```

MODELING WITH SKLEARN TO KNOW THE DISCIPLINE IN TAKE-OFF TIMES