**Python codes**

1. **Average time between agent pickup time and call started (AHT)-(AHT was 11 min 37 seconds)**

import pandas as pd

df = pd.read\_csv(r"E:\python codes\real files\calls.csv")

df['call\_end\_datetime'] = pd.to\_datetime(df['call\_end\_datetime'])

df['agent\_assigned\_datetime'] = pd.to\_datetime(df['agent\_assigned\_datetime'])

df['time\_diff'] = df['call\_end\_datetime'] - df['agent\_assigned\_datetime']

avg\_time\_diff = df['time\_diff'].mean()

print("Average time difference:", avg\_time\_diff)

1. **Avg time between call started and agent pick up (AST)-(AST was 7min 17 seconds)**

import pandas as pd

df = pd.read\_csv(r"E:\python codes\real files\calls.csv")

df['call\_start\_datetime'] = pd.to\_datetime(df['call\_start\_datetime'])

df['agent\_assigned\_datetime'] = pd.to\_datetime(df['agent\_assigned\_datetime'])

df['time\_diff'] = df['agent\_assigned\_datetime'] - df['call\_start\_datetime']

avg\_time\_diff = df['time\_diff'].mean()

print("Average time difference:", avg\_time\_diff)

1. **Frequences of reasons to call -(IRROPS=most , Unaccompanied minor=least)**

import pandas as pd

df = pd.read\_csv(r"E:\python codes\real files\reason.csv")

column\_of\_interest = df['primary\_call\_reason'].str.replace('-', ' ').str.replace('\s+', ' ').str.strip()

frequency = column\_of\_interest.value\_counts()

print(frequency)

1. **No of times an agent had to pick up the call – (some agents had to pick up calls more times as compared to other agents)**

import pandas as pd

df = pd.read\_csv(r"E:\python codes\real files\sentiment\_statistics.csv")

counts = df['agent\_id'].value\_counts()

#frequencies = counts

print(counts)

1. **Percentage difference between the average handling time for the most frequent and least frequent call reasons**

* **First calculate for most frequent reason for calling , that is, IRROPS(13 min 05 sec .It was more as compared to avg time of AHT)**

import pandas as pd

df = pd.read\_csv(r"E:\python codes\real files\reason.csv")

check\_column = 'primary\_call\_reason'

print\_column = 'call\_id'

# Check if the values in the column equal to "irrops"

if (df[check\_column] == 'IRROPS').any():

print(df.loc[df[check\_column] == 'IRROPS', print\_column])

else:

print("No matching rows found.")

df2 = pd.read\_csv(r"E:\python codes\real files\calls.csv")

call\_ids = df.loc[df['primary\_call\_reason'] == 'IRROPS', 'call\_id']

selected\_columns = ['call\_end\_datetime', 'agent\_assigned\_datetime']

matches = df2[df2['call\_id'].isin(call\_ids)][selected\_columns]

matches['agent\_assigned\_datetime'] = pd.to\_datetime(matches['agent\_assigned\_datetime'])

matches['call\_end\_datetime'] = pd.to\_datetime(matches['call\_end\_datetime'])

matches['diff'] = matches['call\_end\_datetime'] - matches['agent\_assigned\_datetime']

# Calculate the mean of the difference

mean\_diff = matches['diff'].mean()

print("Mean difference:", mean\_diff)

* **Second calculate for least frequent reason for calling , that is, Unaccompanied Minor (8 min 42 seconds. It was less as compared to average time of AHT)**

import pandas as pd

df = pd.read\_csv(r"E:\python codes\real files\reason.csv")

check\_column = 'primary\_call\_reason'

print\_column = 'call\_id'

if (df[check\_column] == 'Unaccompanied Minor').any():

print(df.loc[df[check\_column] == 'Unaccompanied Minor', print\_column])

else:

print("No matching rows found.")

df2 = pd.read\_csv(r"E:\python codes\real files\calls.csv")

call\_ids = df.loc[df['primary\_call\_reason'] == 'Unaccompanied Minor', 'call\_id']

selected\_columns = ['call\_end\_datetime', 'agent\_assigned\_datetime']

matches = df2[df2['call\_id'].isin(call\_ids)][selected\_columns]

matches['agent\_assigned\_datetime'] = pd.to\_datetime(matches['agent\_assigned\_datetime'])

matches['call\_end\_datetime'] = pd.to\_datetime(matches['call\_end\_datetime'])

matches['diff'] = matches['call\_end\_datetime'] - matches['agent\_assigned\_datetime']

mean\_diff = matches['diff'].mean()

print("Mean difference:", mean\_diff)

* **Lastly calculate their average AHT difference in percentage (It was 4min 38 sec or 0.304%)**

import datetime

time1 = datetime.time(0, 13, 5) # From IRROPS

time2 = datetime.time(0, 8, 42) # From Unaccompanied Minor

date = datetime.date.today()

datetime\_time1 = datetime.datetime.combine(date, time1)

datetime\_time2 = datetime.datetime.combine(date, time2)

time\_diff = datetime\_time1 - datetime\_time2

total\_seconds = time\_diff.total\_seconds()

minutes = total\_seconds / 60

total\_minutes\_in\_a\_day = 24 \* 60

percentage = (minutes / total\_minutes\_in\_a\_day) \* 100

print("Percentage:", percentage)

1. **Average sentiment count – (mostly sentiments were neural (0) and negative )**

import pandas as pd

df = pd.read\_csv(r"E:\python codes\real files\sentiment\_statistics.csv")

counts = df['average\_sentiment'].value\_counts()

print(counts)

1. **Call transcripts –(there were either delays in flights , rescheduling , complaints about their experience)**

import pandas as pd

df = pd.read\_csv(r"E:\python codes\real files\calls.csv")

counts = df['call\_transcript'].value\_counts()

print(counts)