Bahria University,

Karachi Campus



LAB EXPERIMENT NO.

11

LIST OF TASKS

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| --- | --- |
| TASK NO | OBJECTIVE |
| 1 | **You work for a major airline company, and your team is responsible for analyzing historical data on the number of monthly airline passengers in the United States. The dataset contains the number of passengers recorded over several years. Your task is to perform time series analysis using the Prophet model and generate a forecast for the next 6 months. Additionally, provide insights into any observed trends, seasonality, and forecasted passenger numbers that can be useful for the airline company's planning and decision-making.** |
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Task 1: **You work for a major airline company, and your team is responsible for analyzing historical data on the number of monthly airline passengers in the United States. The dataset contains the number of passengers recorded over several years. Your task is to perform time series analysis using the Prophet model and generate a forecast for the next 6 months. Additionally, provide insights into any observed trends, seasonality, and forecasted passenger numbers that can be useful for the airline company's planning and decision-making.**

import pandas as pd

from prophet import Prophet

dataframe=pd.read\_csv("/content/drive/MyDrive/Dataset/AirPassengers.csv")

dataframe.head()

dataframe.dtypes

dataframe['Month']=pd.to\_datetime(dataframe['Month'])

dataframe.dtypes

dataframe.columns=['ds','y']

dataframe.head()

p=Prophet(interval\_width=0.92,daily\_seasonality=True)

model=p.fit(dataframe)

future=p.make\_future\_dataframe(periods=6,freq='M')

future.tail()

forecast\_prediction=p.predict(future)

forecast\_prediction.tail()

import seaborn as sns

import matplotlib.pyplot as plt

import pandas as pd

import matplotlib.pyplot as plt

import numpy as np

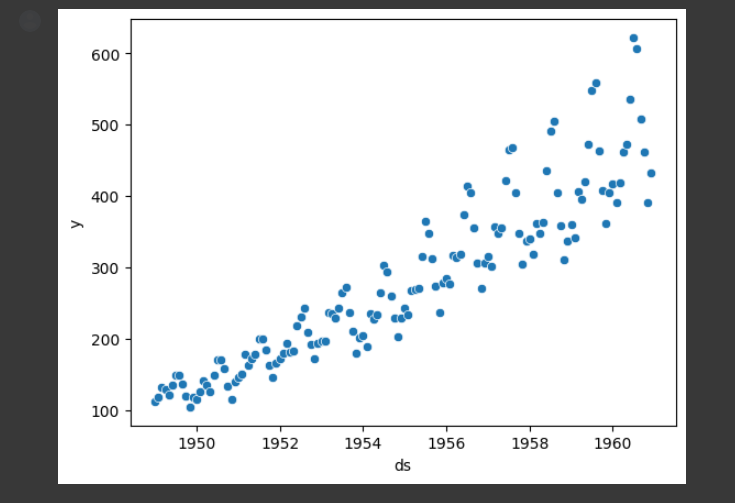
fig, ax = plt.subplots()

ax.plot(dataframe['ds'],dataframe['y'])

ax.set(xlabel='ds', ylabel='y')

ax.grid()

plt.show()

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Description automatically generated**