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| **EXP: 4**  **DATE: 04/03/2025** | Implementation of a python program to check  the stationarity of time series data |

# AIM:

To Implement of a python program to check the stationarity of time series data.

# CODE:

# # import python pandas library

# import pandas as pd

# # import python matplotlib library for

# # plotting

# import matplotlib.pyplot as plt

# # read the dataset using pandas read\_csv()

# # function

# data = pd.read\_csv("AirPassengers.csv",header=0, index\_col=0)

# # print the first 6 rows of data

# print(data.head(10))

# # use simple line plot to understand the

# # data distribution

# plt.plot(data)

# OUTPUT:

# 

# # import the python pandas library

# import pandas as pd

# # use pandas read\_csv() function to read the dataset.

# data = pd.read\_csv("AirPassengers.csv", header=0, index\_col=0)

# # extracting only the air passengers count from

# # the dataset using values function

# values = data.values

# # getting the count to split the dataset into 3

# parts = int(len(values)/3)

# # splitting the data into three parts

# part\_1, part\_2, part\_3 = values[0:parts], values[parts:(

# parts\*2)], values[(parts\*2):(parts\*3)]

# # calculating the mean of the separated three

# # parts of data individually.

# mean\_1, mean\_2, mean\_3 = part\_1.mean(), part\_2.mean(), part\_3.mean()

# # calculating the variance of the separated

# # three parts of data individually.

# var\_1, var\_2, var\_3 = part\_1.var(), part\_2.var(), part\_3.var()

# # printing the mean of three groups

# print('mean1=%f, mean2=%f, mean2=%f' % (mean\_1, mean\_2, mean\_3))

# # printing the variance of three groups

# print('variance1=%f, variance2=%f, variance2=%f' % (var\_1, var\_2, var\_3))

# OUTPUT:

mean1=158.375000, mean2=269.041667, mean2=413.479167

variance1=1071.859375, variance2=3041.289931, variance2=6033.624566

