**Applied Statistics - Lab 9**

**SAP Id:** 500083382

**Name:** Anurag Singh

**Batch:** AI&ML B2

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Topic:** Mean and Sampling Distribution

**Problem:**

Create a random variable and insert 1000 random numbers (population). Plot the distribution. Create 30 samples from the population each of size 100. Compute the means and finally find the sampling distribution (plot)

**Code:**

import numpy as np

import matplotlib .pyplot as plt

#Random population

population =np.random.rand(1000)

samples = np.ndarray((30,100))

mean = np.ndarray((30,1))

# 30 samples of size 100 and mean of samples

for i in range(30):

samples[i] = np.random.choice(population,100)

mean[i] = np.mean(samples[i])

plt.plot(population)

plt.title("Population plot")

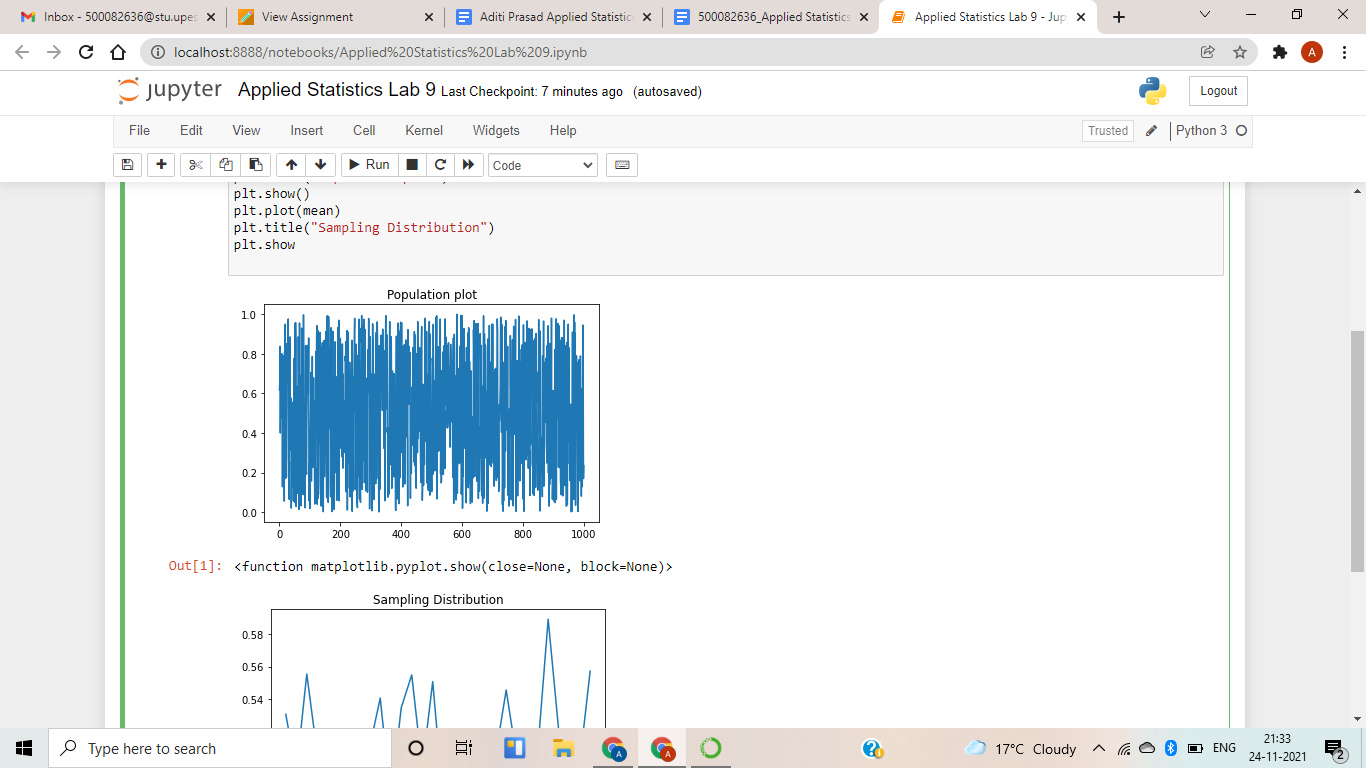
plt.show()

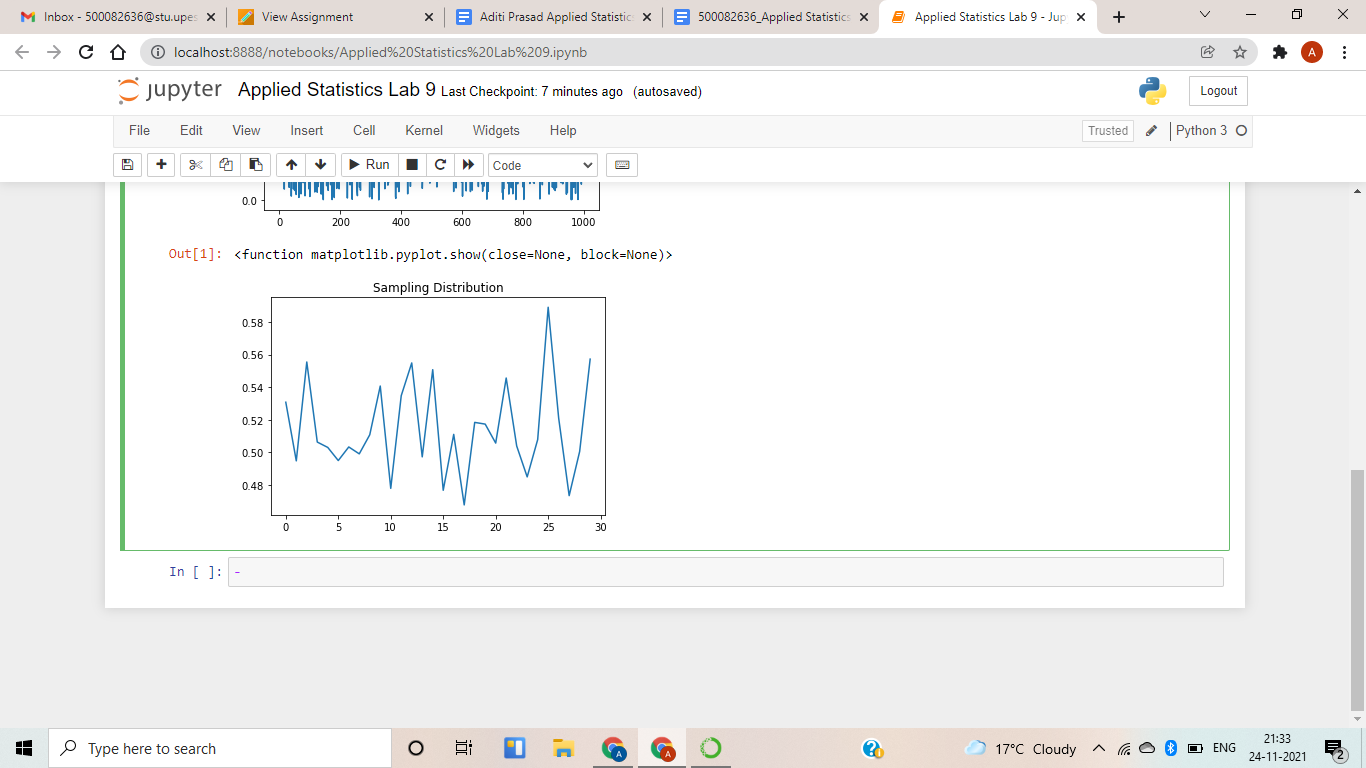
plt.plot(mean)

plt.title("Sampling Distribution")

plt.show

**Screenshot:**

****

****