ELISHA JOY R. YUMANG

CAS-05-601P

ACTIVITY 3

# -\*- coding: utf-8 -\*-

"""

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@author: Elisha Joy R. Yumang

"""

import numpy as np

import matplotlib.pyplot as plt

prior\_probs = np.array([[0.33,0.3],[0.2,0.17]])

plt.imshow(prior\_probs, cmap= 'gray')

plt.colorbar()

for i in range(2):

for j in range(2):

plt.annotate(prior\_probs[i,j], (j,i), color="red", fontsize=20, fontweight='bold', ha='center', va='center')

plt.title('Prior probabilities', fontsize=20)

def bayes\_theorem(p\_a, p\_b\_given\_a, p\_b\_given\_not\_a):

not\_a = 1 - p\_a

p\_b = p\_b\_given\_a \* p\_a + p\_b\_given\_not\_a \* not\_a

p\_a\_given\_b = (p\_b\_given\_a \* p\_a) / p\_b

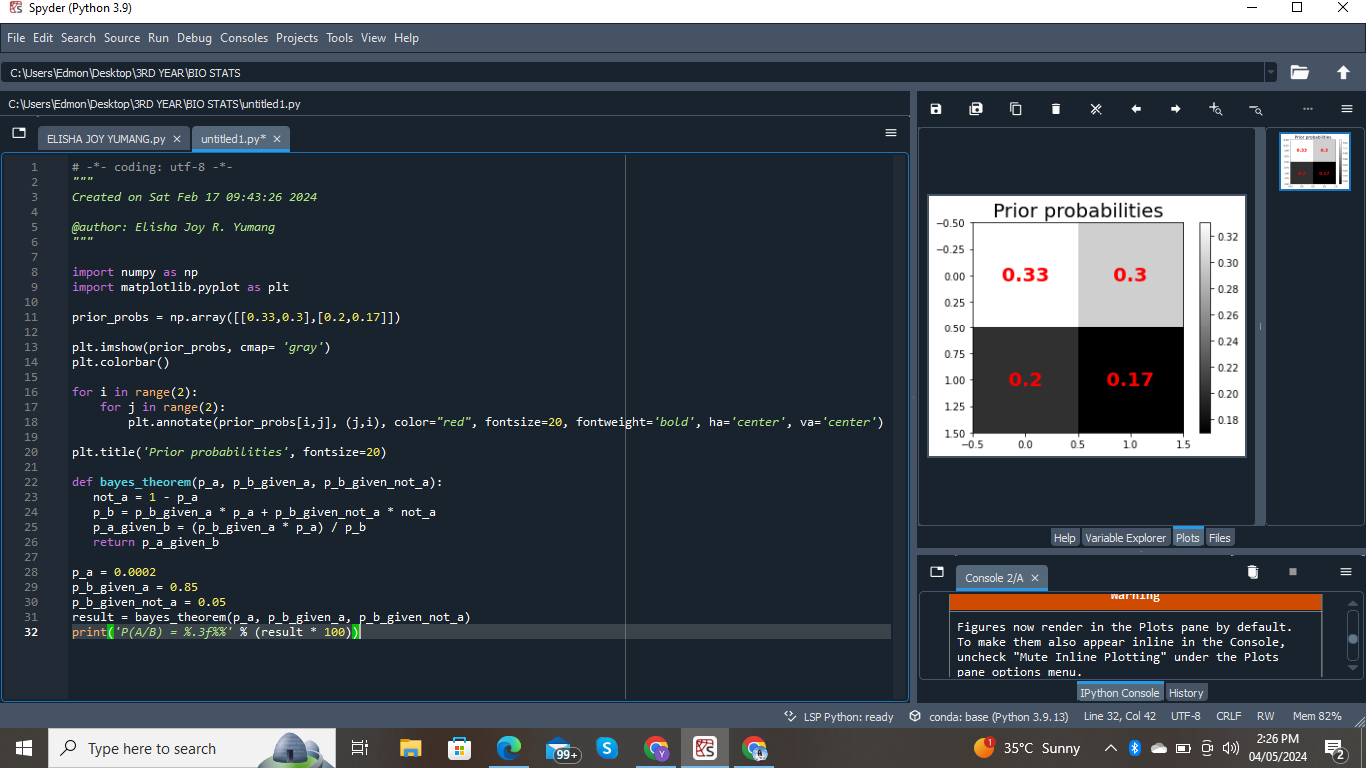
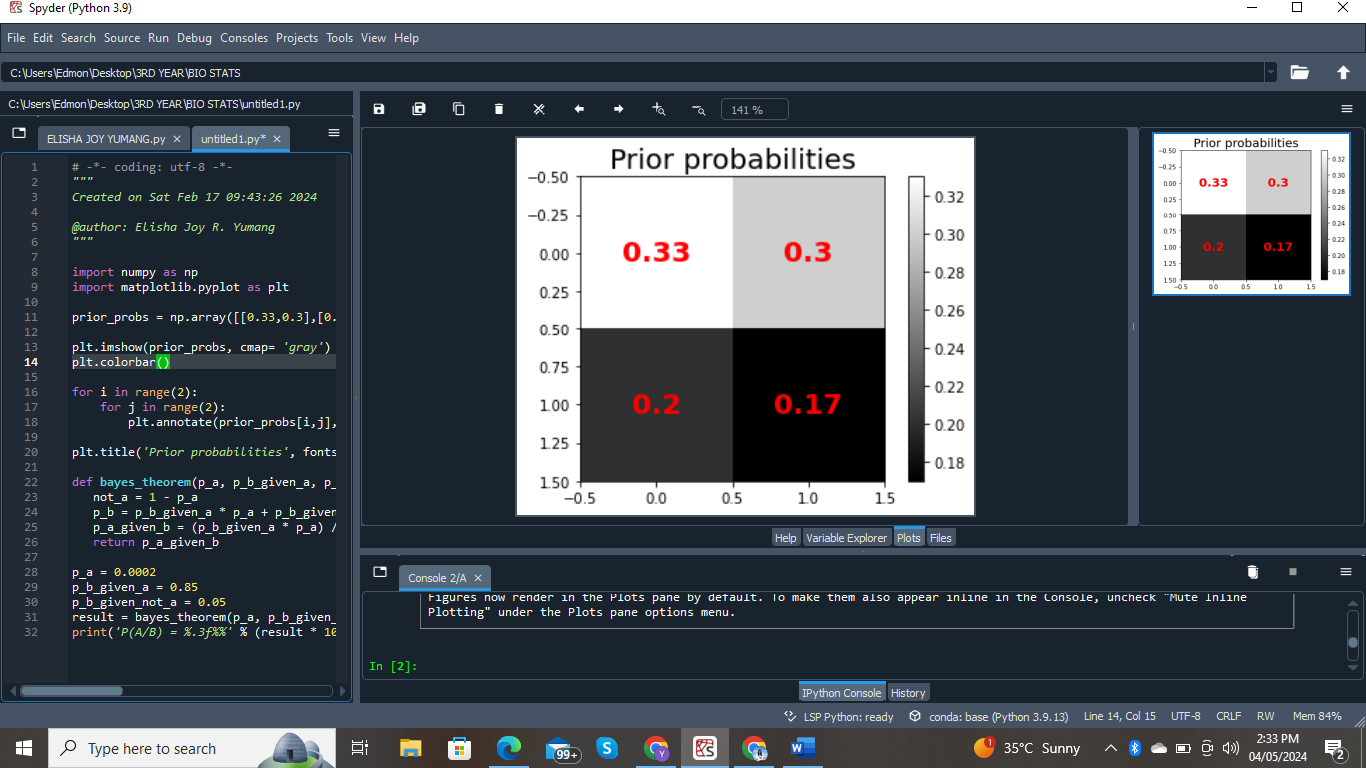
return p\_a\_given\_b

p\_a = 0.0002

p\_b\_given\_a = 0.85

p\_b\_given\_not\_a = 0.05

result = bayes\_theorem(p\_a, p\_b\_given\_a, p\_b\_given\_not\_a)

print('P(A/B) = %.3f%%' % (result \* 100))