**­Answer to question 1e by simulation**

def simulation():

wp = winProbability(60,40, 100000)

if wp > 0.9:

return 1

else:

for n in range (0,100):

prob = 0

for g in range(0, (2 \* n - 2)):

if g == 0:

prob += (wp \*\* n) \* ((1 - wp) \*\* (g))

else:

prob += (wp \*\* n) \* ((1 - wp) \*\* (g)) \* (math.factorial(n) / (math.factorial(n-1) \* math.factorial(n - (n - 1))))

if prob >= 0.9:

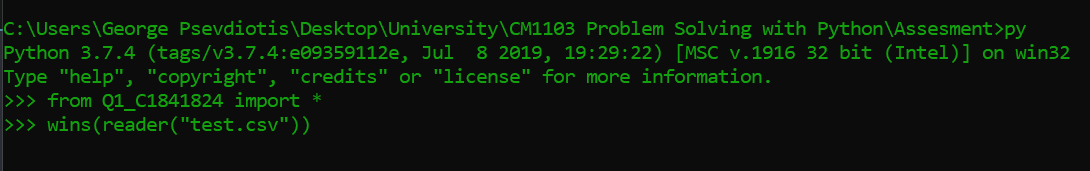
return n

print(simulation())

A close up of a logo

Description automatically generated

**Figure for 1d**

****A screenshot of a cell phone

Description automatically generated