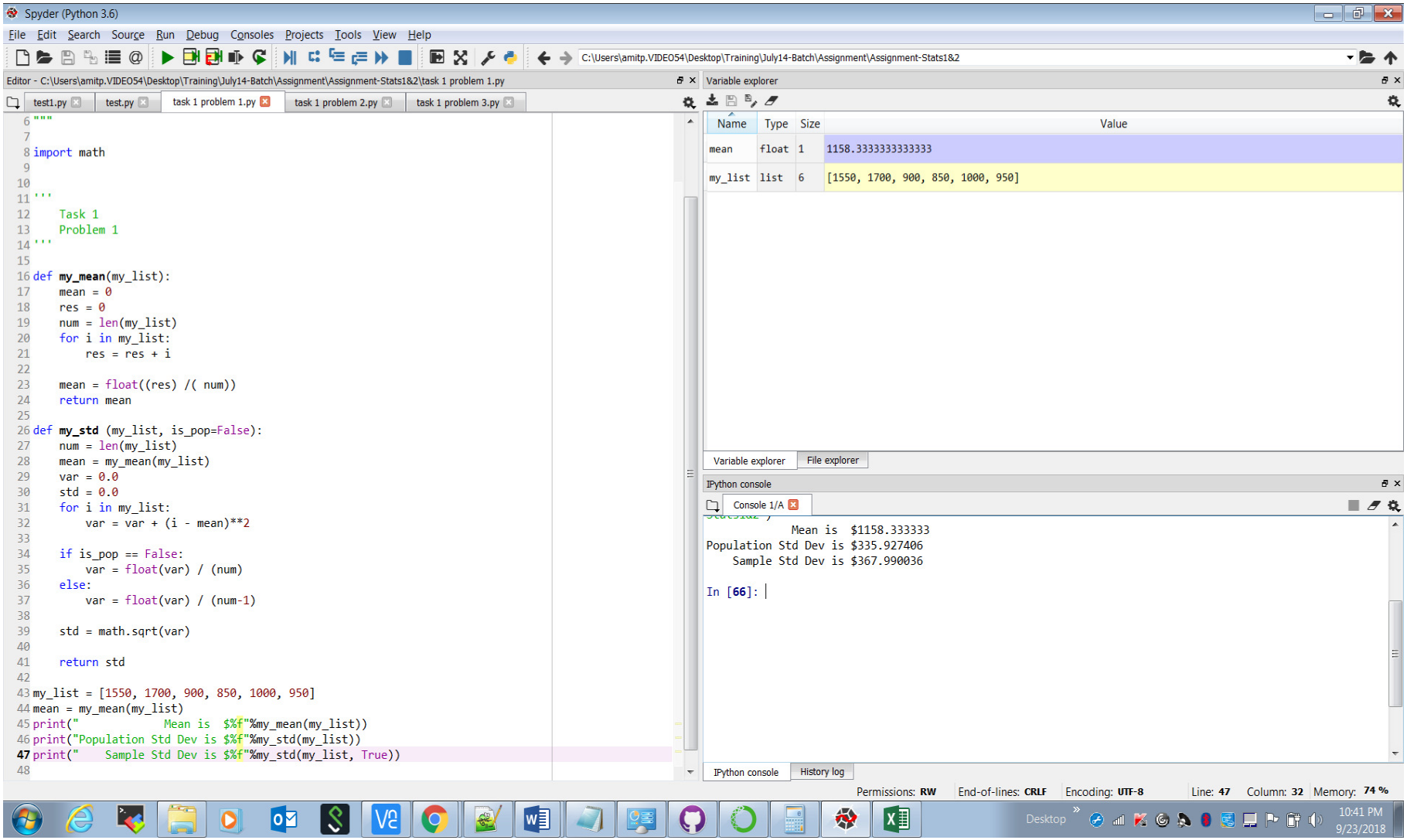
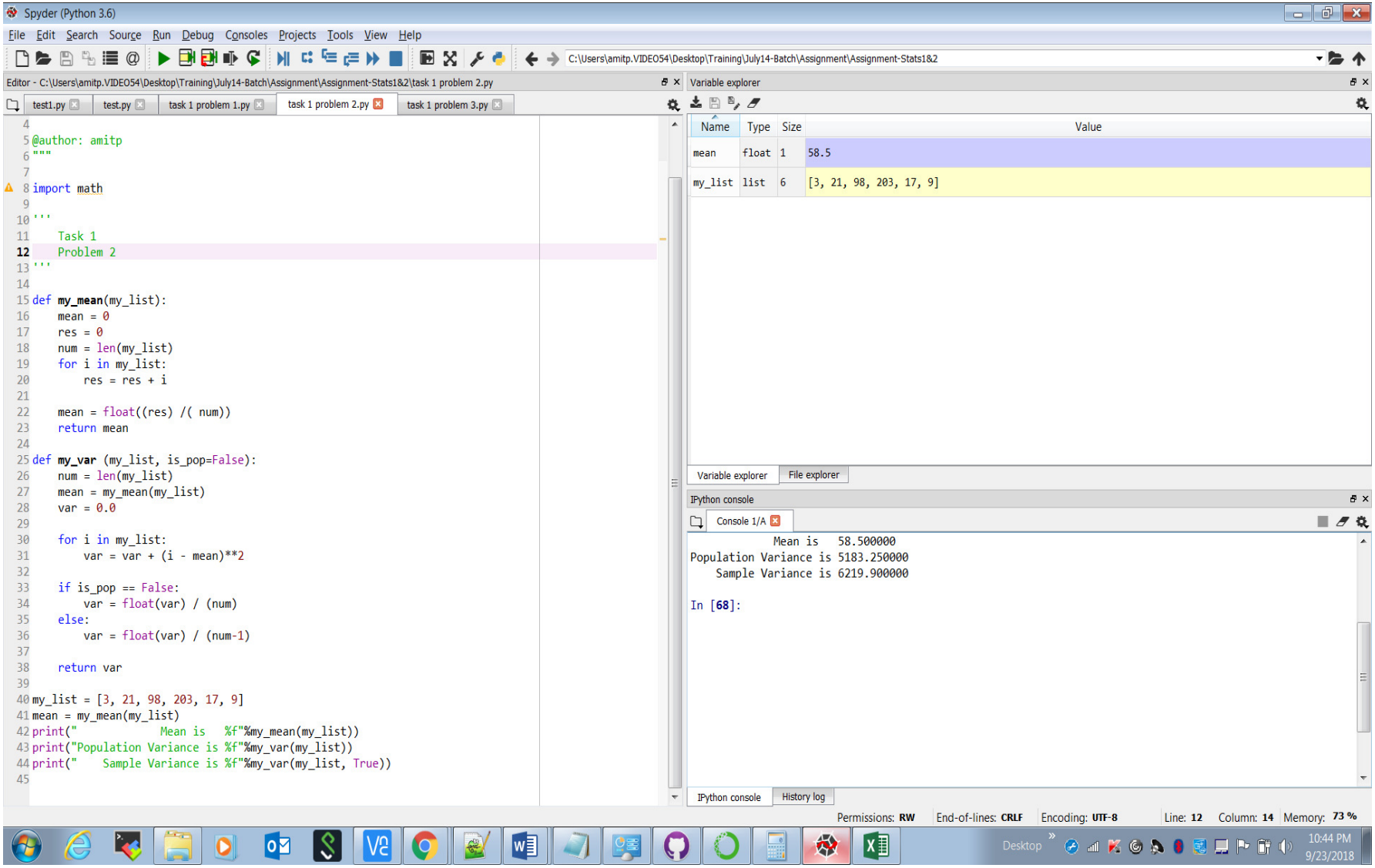
Task 1 Problem 1



Task 1 Problem 2



Task 1 Problem 3

The probability of failing in 0 subjects, P(X=0) = 0.8
The probability of failing in 1 subjects, P(X=1) = 0.1
The probability of failing in 2 subjects, P(X=2) = 0.07
The probability of failing in 3 subjects, P(X=3) = 0.03

The probability distribution can be shown as:

X	0	1	2	3
P(x)	0.8	0.1	0.07	0.03

Task 2 Problem -1

Probability of success = Probability of wrongly answering one question: ¾

Probability of failure = Probability of correctly answering one question: ¼

Using Binomial distribution, probability of 5 wrong question can be determined

Where n = 20, x = 5

$P(5) = 20C_5 (3/4)^5 (1/4)^{20-5}$

= 15504 * 0.237 * 0.00000000093

= 0.0000034

Task 2 Problem 2

Probability of success = Probability of getting 'D': 1/5

Probability of failure = Probability of not getting 'D': 4/5

Using Binomial distribution, probability of getting 'D' exactly 5 times

Where n = 50, x = 5

$P(5) = 50C_5 (1/5)^5 (4/5)^{50-5}$

$= 2118760 * 0.00032 * 3.5e-32$

$= 2.3855e-29$

Task 2 Problem 3

#	Ball 1	Ball 2	Probability
1	Red	Red	4/10 * 3/9 = 2/15
2	Red	Black	4/10 * 6/9 = 4/15
3	Black	Red	6/10 * 4/9 = 4/15
4	Black	Black	6/10 * 5/9 = 1/3

#	Possibilities	Probability
1	Probability of 2 Red ball	2/15
2	Probability of 1 Red ball	4/15 + 4/15 = 8/15
3	Probability of 0 Red ball	1/3