

### Aims and Objective:

1. Write program with flow control statement (loop)
2. Gain hand-on experience on nested for-loop

1. Write a program which reads a positive integer  $n$  and out all the factors  $k$  where  $k$  is larger than 1 and less than  $k$ . Use *for-loops* in this program. (hints: if  $n$  is a factor of  $k$ , the remainder of  $n/k$  should be equal to zero. Which operator in Python will give us the remainder of a division?)

Case	Input	Output
1	12	2 3 4 6
2	7	
3	-1	Error: Negative number
4	30	2 3 5 6 10 15

2. Modify the program in Q.1 such that it prints the number of factors for a positive input number. You should also handle error cases as shown in the following examples.

Case	Input	Output
1	12	4
2	2	0
3	-3	Error: Negative number

3. Use nested for-loop to generate  $m \times n$  Times Table, where  $m$  and  $n$  are two integers inputted by user. You may assume that the first input is  $m$  and the second input is  $n$ . Each output takes up 5 characters space in width

Case	Input	Output
1	2	1 2
	2	2 4
2	5	1 2 3 4 5 6
	6	2 4 6 8 10 12
		3 6 9 12 15 18
		4 8 12 16 20 24
		5 10 15 20 25 30

3	5	1	2	3					
	3	2	4	6					
		3	6	9					
		4	8	12					
		5	10	15					
4	6	1	2	3	4	5	6	7	8
	8	2	4	6	8	10	12	14	16
		3	6	9	12	15	18	21	24
		4	8	12	16	20	24	28	32
		5	10	15	20	25	30	35	40
		6	12	18	24	30	36	42	48