

Tutorial 5 Flow of Control (II)

Please test the correctness of your **program in Q.1 and Q.2** using PASS.

1) Write a program `factor.cpp` which reads a positive integer n and output all the factors of n . A number i is a factor of n if i divides n . and $2 \leq i \leq n-1$.

Let's use *for loops* in your program.

Hint: You may first use `cin>>` to read the number n . Then, you write a for-loop with an integer counter i . For each iteration, check if n is divisible by i (one way to perform such check is to use the `%` operator and see if the remainder is zero). If it is divisible, print the value of i , followed by a space.

Sample input and output:

Example 1: The user input 12 and the program outputs the four factors of 12	Example 2: There are no factor for the number 7
<u>12</u> 2 3 4 6	<u>7</u>

NOTE: The underlined number is user input, you do not need to print it again

2) Modify the program in Q.1 such that it prints the counts of factors for a positive input number. Name your program `factor2.cpp`. You should also handle negative number as shown in the following examples.

Hint: You need a new variable for the count and that variable should be initialized to 0

Example 1: There are 4 factors for the number 12 within the given range	Example 2: There are no factor for the number 2 within the given range.	Example 3: The user enters a negative number
<u>12</u> 4	<u>2</u> 0	<u>-3</u> Error: Negative number

NOTE: The underlined number is user input, you do not need to print it again