1) Write a Program to take a series of integers as input from the user. Use the continue statement to calculate the sum of the even integers only. After each iteration of the loop, ask the user if he wants to continue or not. If the user enters "Y", take another integer as input. If he enters "N", break the loop and print the sum. The number of integers to be entered cannot be taken as input.(10 Marks)

2) Write a C Program to print all the **prime** factors of a given number. The number has to be input by the user.   (20 Marks)

    Eg:

    A)   Input:

        14

        Expected Output:

         2

         7

    B)   Input:

        23

        Expected Output:

        23

Hint: Loop from 1 through N. For every number P:

            If P divides N:

                Loop from 1 through P. For every number X:

                    If X divides P:

                        Break;

                If No X divides P:

                    Print P;

3) Modify the above Program to print frequency of the prime factors as well (10 Marks)

Eg:

        Input: 14

        Output: Frequency of 2 is 1

                Frequency of 7 is 1

Hint: If No X Divides P:

           While remainder of N/P is 0:

                Divide N by P, increment counter

           Print counter value

4) Given a number N as user input, print all the palindromic integers in the range 1 to N. A palindrome is a sequence of characters that reads the same backwards as forwards. Example: 1221, 111 etc are palindromes. 1234, 546 are not. (20 Marks)

Hint:

    For each P in 1 to N:

        Calculate Reverse of P. Check if Reverse(P) = P.

5) Write a Program to print Floyd's triangle of N rows, where N is taken as input from the user. (20 Marks)

Eg:

Input: 4

Output:

    1

    2   3

    4   5   6

    7   8   9   10

6) Given a number N as user input, print the following pattern: (20 Marks)

Input: N=4

Output:

       1

      1 2

     1 2 3

    1 2 3 4

     1 2 3

      1 2

       1

Hint: Use separate For loops for upper and lower triangles. Figure out the number of spaces and the number of digits in each row. They will be in AP.