Programming 1: Lab 6 :

Write the python code for the following questions. Handle all the valid and invalid test cases. Write down relevant comments in your code:

1. Find the count of vowels and consonants, words in a string using a for loop. Assume there is a single space between consecutive words in a sentence.
2. Find the sum of the following series for N terms, where N is taken as input from the user and display the result till exactly 9 decimal places.
    1. 1 + 1/2 + 1/3 + 1/4 + 1/5 + 1/6 + ….. N terms.
    2. 1/1! + 1/2! + 1/3! + 1/4! + … + 1/N!
    3. $F(x) = 1 + x/1 + x^2/2 + x^3/3 + x^4/4 + \ldots$ + N terms (Take x also as input)

3. Find the sum of the series where x and a positive error ϵ is taken as input from the user. The value of F(x) is displayed along with the minimum number of terms that gives the valid result such that

    $| F_i(x) - F_{i-1}(x) | < \epsilon$ where i is the term count

    1. $F = \Sigma_n (1 / 2)^n$ where n is the term count
    2. $F(x) = x - x^3/3! + x^5/5! - x^7/7! + \ldots$
    3. $F(x) = 1 - x^2/2! + x^4/4! - x^6/6! + \ldots$