

Programming 1: Lab 7: Loops

- 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.
 - $1 + 1/2 + 1/3 + 1/4 + 1/5 + 1/6 + \dots$ N terms.
 - $1/1! + 1/2! + 1/3! + 1/4! + \dots + 1/N!$
 - $1 - \frac{1}{2^2} + \frac{1}{3^2} - \frac{1}{4^2} + \dots$ + N terms
 - $1 + x/1! + x^2/2! + x^3/3! + \dots + x^n/n!$ (Take x as input from user)
 - $F(x) = 1 + x/1 + x^2/2 + x^3/3 + x^4/4 + \dots$ + N terms (Take x also as input)
- 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
 - $F = \sum_n (1/2)^n$ where n is the term count
 - $F(x) = x - x^3/3! + x^5/5! - x^7/7! + \dots$
 - $F(x) = 1 - x^2/2! + x^4/4! - x^6/6! + \dots$
- Write a program to find the sum of prime numbers between x and y where x and y are given as input by the user.
- Print the following patterns (take number of lines as input from user):
 - A
AB
ABC
ABCD
 - A
AB
A B
A B
A B
ABCDE
 - A
ABC
ABCDE
ABCDEFG
 - * * * * *
* * *
* * *
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