



Lab 2

Loops

Lab Objectives

1. Getting Familiar with C programming language.
2. Practice Loops Problems.

Problem Set

1. Given an integer n (≤ 12), your program should calculate and print factorial n ($n!$).
2. Write a program to scan an integer n and if n is even, print all even numbers from n to 2 and if n is odd, print all odd numbers from n to 1.

Example :

$N = 10$

Output : 10 8 6 4 2

$N = 5$

Output : 5 3 1

3. Write a program to calculate the sum of the first N natural numbers (from 1 to N) (where N is given by the user).

BONUS : Try to solve it using only 1 expression.

4. The sine of x can be calculated approximately by summing the first N terms of the infinite series:

$$\sin(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \dots \quad (x \text{ in radians})$$

Write a program that will read in a value for x (in degrees) and then calculate its sine by summing the first N terms, where N represents a positive integer that is read along with the value of x .



NOTES

1. You are encouraged to ask any questions on MS teams, or in person.
2. Cheating will be severely penalized (for both parties). So, it is better to deliver nothing than deliver a copy!.
3. You are not allowed to use any AI Tool.
4. Submission details will be announced on MS Teams.

Good Luck