University of Mila

Faculty of Science and Technology

Department of Process Engineering

Practical Work 01

Course : Introduction to Programming

Level: 1st year ST - ENG & LMD

Semester 02

By:

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Exercise 01: Sum of Natural Numbers Using Different Loops

Question 01: Write a C program to find sum of natural numbers from 1 to N using **for** loop.

Question 02: Write a C program to find sum of natural numbers from 1 to N using **while** loop.

Exercise 02: Print Natural Numbers Using Different Loops

Question 01 : Write a C program to print all natural numbers from 1 to N using **for** loop.

Question 02 (Optional): Write a C program to print all natural numbers from 1 to N using **while** loop.

Question 03: Write a C program to print all natural numbers from 1 to N using **do while** loop.

Exercise 03: Even and Odd Numbers Using Loops

Question 01: Write a C program to print all even numbers from 1 to N using loops.

Question 02: Write a C program to print all odd numbers from 1 to N using loops.

Exercise 04 (Optional): Sum of Even Numbers Using Loops

Question 01: Write a C program to find sum of all even numbers between 1 to N using **for** loop.

Question 02: Write a C program to find sum of all even numbers between 1 to N using **while** loop.

Exercise 05: Sum of Even Numbers from User Input

Question : Write a C program to input N numbers from user and find sum of all even numbers using loops.

Exercise 06: Counting and Conditional Summation

Question 01: Write a C program that prompts the user to enter N integers and then calculates and prints the number of even and odd numbers using a do-while loop.

Question 02: Write a C program that repeatedly asks the user to enter a positive number and calculates the sum of all positive numbers entered. The program should stop when the user enters a negative number.

Exercise 07 (Optional): Reverse Natural Num. Using Loops

Question 01: Write a C program to print all natural numbers in **reverse** from N to 1 using **for** loop.
Question 02: Write a C program to print all natural numbers in **reverse** from N to 1 using **while** loop.
Question 03: Write a C program to print all natural numbers in **reverse** from N to 1 using **do while** loop.

Exercise 08 : Pattern Printing

Question: Write C programs to display each of the following patterns.

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Pattern 1:        Pattern 2:        Pattern 3 (Optional):
*                 1                 1 2 3 4 5
**                1 2               1 2 3 4
***               1 2 3             1 2 3
****              1 2 3 4           1 2
*****             1 2 3 4 5         1
```

Exercise 09: Factorial Calculation

Question: Write a C program to find and print the factorial of a given number using for loop.
In this problem, you have to write a program to calculate the factorial of a number entered by the user.
Remark: A factorial is denoted by "!". So, suppose you want to find the factorial of the number n, then:

$$n! = n \times (n-1) \times (n-2) \times (n-3) \times \cdots \times 1$$

Exercise 10 (Optional): Factorial Series

Question: Write a C program to calculate and print the factorial of numbers from 1 to n. In this problem you can do a nested loop, where you have to write a program to calculate the factorial of numbers from 1 to n entered by a parent loop from 1 to n, and the nested loop will be your already working for loop.

Exercise 11 Homework : Fibonacci Series

Question: Write a C program to print Fibonacci series up to 100.
Steps:

- Initialize first and second number as 0 and 1
- Print the first and second number
- Third number will be sum of first and second
- Fourth number will sum of second and third and so on

Remark: Fibonacci Series is a series of numbers in integer number sequence. First two numbers are 0 and 1, and every next number is an addition or sum of previous two numbers.