
Lab Manual 07

Repetitions-I (while Loop)

Lab Tasks

Problem 01

In this task, you would ask the user to enter some integers. User can enter as many numbers as he wants to. When the user wants to stop entering the numbers, he would press 0. When the user presses 0, you would display the sum and average of the numbers being entered by the user and number of even and odd numbers that were entered. Use While Loop for this program.

Problem 02

In mathematics, the factorial of a positive integer n , denoted by $n!$, is the product of all positive integers less than or equal to n . For Example

$$5! = 5 * 4 * 3 * 2 * 1$$

Write a program to compute factorial to an integer that entered by user. if the number is less than zero display "invalid Input"

Note : $0! = 1$

Problem 03

In a previous Lab you have learned to break a number into separate digits. Write a program to find the sum of the digit of the number. (Use while loop)

For example:

2356

$$2+3+5+6 = 16$$

Problem 04

Armstrong number is a number that is equal to the sum of cubes of its digits. For example 0, 1, 153, 370, 371 and 407 are the Armstrong numbers.

$$1^3 + 5^3 + 3^3 = 153$$

Write a Program to find whether a number entered by the user is Armstrong or not.

Problem 05

Write a while-loop that will tell you how many numbers between 1 and 100 (both inclusive)

- i) are divisible by 2.
- ii) are divisible by 3.

iii) are divisible by 7.

Note: You have to do all of them using a single loop. At the end of the program, you should display how many numbers are divisible by 2, divisible by 3 and divisible by 7.

Problem 06

Write a C++ program using the while loop to find the sum of the even integers 2,4,6,8,...,500. Display the resulting sum.

Problem 07

In this task, you need to take a positive integer input from the user and check whether the number is prime or not. If the number is prime, you should display the message "*The number is a Prime number*". If the number is not prime, you should display the message "*The number is not a Prime number*".

If the user inputs a negative value, you should display the error message, "*Please enter a positive integer*"

Submission Instructions:

1. Save all **.cpp** files with your roll no and task number
e.g. **i19XXXX_Task01.cpp**
2. Now create a new folder with name *ROLLNO_LAB07* e.g. **i19XXXX_LAB07**
3. Move all of your .cpp files to this newly created directory and compress it into **.zip** file.
4. Now you have to submit this zipped file on Slate.

THE END