

School of Engineering Jawharlal Nehru University

B. Tech. (2nd Semester)

Subject: Data Structure

Instructions:

1. You are advised to use Google Document to write your program.
2. Write your document name as (Branch_RollNumber_Lab_1) [Example: CS_01_Lab_1]
3. Each program should start with new page.
4. At least four Test Cases should be provided with each program.
5. Plagiarised content (program) will be penalised.
6. Submit assignment on time (request for date extension will not be entertained)
7. Check linked Sample Copy for further clarification.

https://docs.google.com/document/d/1TfnEi_MgEwByxG_9Ez_s51Ss_GYh_5G6FBA0KoFh_j8/edit?usp=sharing

Lab Assignment No. 1 (Preparatory)

Concept: Printing the string

1. Write a C++ program to print a string
Sample Test Case
Sample Output:
This is my first C++ Program
2. Write a C++ program to print a string without using 'namespace std'
Sample Test Case
Sample Output:
This is my first C++ Program

Concept: Variable Types

3. Write a C++ program to print the size of int, char, float and double type variables
Sample Test Case
Output:
2
1
4
8

Concept: Control Statements

4. Write a C++ program to find the minimum of three numbers using user defined input
Sample Test Case
Sample Input:
3
5
2
Sample Output:
2

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- 5. Write a C++ program where you take a sentence as an input from the user and output each word of a sentence in a separate line**

Sample Test Case

Sample Input:

This is a program to get the idea of control statements

Sample Output:

This
is
a
program
to
get
the
idea
of
control
statements

- 6. Write a C++ program to find a sum of first 'n' natural numbers (where n is defined by user)**

Sample Test Case

Sample Input:

Enter a positive number:5

Sample Output:

Sum = 15

Explanation

Sum of first 5 natural numbers is 1+2+3+4+5

- 7. Write a C++ program to find a difference of place values of $n+1^{\text{th}}$ and n^{th} digits in a number x (where x and n are defined by user and n is less than the number of digits in the x).**

Sample Test Case

Sample Input:

Enter a positive number x (At least two digit number): 695

Enter a positive number n (less than the length of X) : 2

Sample Output: 510

Explanation

Place value of n^{th} digit = 90

Place value of $n+1^{\text{th}}$ digit = 600

Output = 600 – 90 =510

- 8. Write a C++ program to sum the series $x - x^2/2! + x^4/4! - x^6/6! - \dots - n$ terms.**

Sample Test Case

Sample Input:

Enter the value of x : 7

Enter the value of n: 1

Sample Output: 7

Sample Input:

Enter the value of x : 4

Enter the value of n: 2

Sample Output: -4

Explanation

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$$4 - 4_2/2! = 4 - 16/2 = -4$$