National University of Computer and Emerging Sciences

Lab Manual 02
Object Oriented Programming

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1.1 Objectives

After performing this lab, students shall be able to:

- ✓ Have an improved understanding of pointers.
- ✓ Dynamically allocate and deallocate memory.
- ✓ Create and manipulate dynamic 1D array.
- ✓ Create and manipulate dynamic 2D array.

TASK 1:

A C++ program "**Incrementer**" creates an array of **size 10**. This function adds 3 to each element of the array. You have to add to the elements using pointer only. Array subscript notation cannot be used.

TASK 2:

Fibonacci sequence is a sequence in which every number after the first two is the sum of the two preceding ones. Write a C++ program that takes a number **n** from user and populate a dynamic array with first n Fibonacci numbers. De-allocation is also required.

For example:

For n=10

Fibonacci Numbers: 1, 1, 2, 3, 5, 8, 13, 21, 34, 55

TASK 3:

Write a C++ program that declares and initializes a float array dynamically and finds the index of the first occurrence of the second largest element in the array.

For Example:

Input:
Please enter size: 5
Please enter elements: 1.5
7.8
3.2
9.0
7.1

Output:
Second Largest element is: 7.8
Index of second largest element is: 1

TASK 4:

Given 3 sets of integer A, B and C with equal length; you are required to compute A∩B, B∩C and C∩A. The intersection results should be stored in a 2d integer array such that A∩B is in row 0, B∩C is in row 1, and C∩A is in row2 of the resultant array.

You'll have to do the following jobs:

1- Input the three integer Sets.

2- Calculate Intersection and store in 2d array.

3- Output the resultant 2d array.

For Example:

A={1,2,3,4,5,6,7,8,9,10}
B={1,2,5,6,9,10,13,14,18,20}
C={2,4,6,8,10,11,13,15,17,19}

Resultant array:

1	2	5	6	9	10
2	6	10	13		
2	4	6	8	10	