# Lab 11: Structures

## Objectives:

To learn how to declare a C++ record (structure) data type.

By the end of this activity, students will be able to apply the concept of structures to real world problems and make their own data types.

## Tasks:

1. A phone number such is (091) 767-8900 can be thought of as having three parts: the area code (091), exchange (767) and number 8900. Write a program that uses structure to store these 3 parts of a phone number separately. Assume name of the structure is ‘phone’. Create two structures of type ‘phone’, initialize one structure and take the other one from the user. Display both numbers.

Sample Run:

Enter you Area code, exchange, and number: 091 767 8900

My number is (042) 867-4982

Your number is (091) 767-8900Write a program to find the second largest element in an array

1. A point on a two dimensional space has two numbers: an ‘X’ coordinate and a ‘Y’ coordinate such as (4, 5). Write a program that uses a structure called ‘point’ to model a point and draw a rectangle of ‘\*’ based on the entered point and height and width of the rectangle.

Sample Run:

Enter the point coordinates: (x, y)

3 2

Enter width of the rectangle: 3

Enter Height of the rectangle: 2

\* \* \*

\* \* \*

1. Write a program that uses a structure named ‘complex’ and performs all mathematical operations such as sum, subtract, multiply and divide on complex numbers.
2. Write a program to develop student information system. This system should be able to take the student’s credentials, like name, reg no and semester no, as input and store them in a structure variable Student\_t. The system should be capable of storing the information of multiple students.

And it should be capable of displaying the student’s information, when asked to do so, via reg no.

1. Write a program to model a structure for date and performs mathematical operations such as add and subtract.
2. Write a program to model a structure for time and performs mathematical operations such as add and subtract.
3. C++ program to create a class to read and add two distance. Performs mathematical operations such as add and subtract.Use the following structure:

class Distance

{

public:

int feet;

int inch;

}

(NOTE: Use separate function for input and display in all tasks)