

## Lab 10 & 11: Structures and Classes

### Objectives:

To learn about data structures and classes in C++

### 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 objects of type 'phone', initialize one object 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) 767-8900

2. 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 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

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*      *      *
*      *      *
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3. 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 object 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.

4. Make a C++ Program that will have base class called input, the input class should have 3 data members name (string), reg no (string), semesterNo (int) and 2 special member functions, constructor, and destructor. The constructor must prompt the user to enter data into the three data members and the destructor should only output a simple phrase like “end of program”. Now make a second inherited class called output which will only have 1 member function called display(), this function will display the values of the data members of the input class.