

# Lab 06

## Structures in C++

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### Lab Objectives

The objective of this exercise is 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.

#### Task: 01

A phone number such as (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) 767-8900

#### Task: 02

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

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*   *   *  
*   *   *
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**Task: 03**

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

**Task: 04**

Write a program that uses a structure named '*complex*' and performs all mathematical operations such as sum, subtract, multiply and divide on complex numbers.