Programs/Assignments

Lab-4

Topic: Structures and Enumerated Data Types in C++

Objectives:

- To learn writing, executing and debugging C++ programs related to user-defined data types such as structures and enumeration.

Outcomes:

- After completing this, the students would be able to develop C++ programs applying struct and enum keywords to create and utilize user-defined data types.

Lab Assignments

1. Define a structure to represent a bank account. Include the following data members:
   Name of the account holder
   Account number
   Type of account (use SB for savings and CB for current)
   Balance amount in the account
   Write functions to deposit an amount in the account, withdraw an amount from the account and display balance amount after each deposit or withdraw.
2. Define an enumerated data type called SHAPE which contains circle, rectangle, triangle and square as enumerated constants. Write a C++ program to calculate the area of a circle, rectangle, triangle and a square using an enumerated data type called SHAPE and necessary functions.

2. Define a structure called Student with name, roll number and marks in 3 subjects as its members. Using the structure, enter name, roll number and marks in 3 subjects for n number of students. Write functions to:
   a. Find total marks obtained by each student and display the same.
   b. Find average marks obtained in each subject and display the same.

   Create an enumerated type variable GRADE and assign O, E, A, B, C, F. Print the grades of each student in each subject.

Marks range	Grade
90 - 100	O
80 - 89	E
70 - 79	A
60 - 69	B
50 - 59	C
< 50	F

Home Assignments

1. Define a structure called employee containing ID, name, age and basic salary as members. Write a C++ program to enter ID, name, age and basic salary of n number of employees. Calculate the gross salary of all the employees and display it along with all other details in a tabular form, using functions.

   [Gross salary= Basic salary + DA + HRA,
   DA = 80% of Basic salary
   HRA=10% of Basic salary]

2. Write a C++ program to calculate the volume of a cube, cylinder and a cuboid using function overloading. Apply the concept of enumerated data type and function calls.