Experiment No-01: Introduction to Structure in C++

Objectives

- Introduce with structure in C++.
- Learn how to use pointers and structure together.
- Learn how to use the structure with functions.

Example 1: Write a C++ to define a structure.

```
#include<iostream>
#include <string>
using namespace std;


// create struct with person1 variable
struct Person {
  string name;
  int citNo;
  float salary;
} person1;

int main() {


   // assign value to name of person1
    getline(cin, person1.name);


  strcpy(person1.name, "Ronaldo");

  // assign values to other person1 variables
  person1.citNo = 1985;
  person1. salary = 2500;

  // print struct variables
  cout<<"Name: "<< person1.name<<endl;
  cout<<"Citizenship No.: "<< person1.citNo<<endl;
  cout<<"Salary: "<< person1.salary;

  return 0;
}
```

Example 2: Write a C++ program to access structure members using pointers.

```
#include<iostream>
```

```
using namespace std;

struct person
{
   int age;
   float weight;
};

int main()
{
    struct person *personPtr, person1;
    personPtr = &person1;

    cout<<"Enter age: ";
    cin>>personPtr->age;

    cout<<"Enter weight: ";
    cin>>personPtr->weight;


    cout<<"Displaying:\n";
    cout<<"Age: "<< (*personPtr).age<<endl;
    cout<<"weight: "<< personPtr->weight<<endl;

    return 0;

}
```

Example 3: Write a C++ program to pass structs to a function.

```
#include<iostream>
#include <string>
using namespace std;


struct student {
   string name;
   int age;
};

// function prototype
void display(struct student s);

int main() {
   struct student s1;

   cout<<"Enter name: "<<endl;
```

```
    // read string input from the user
    getline(cin,s1.name);


    cout<<"Enter age: "<<endl;
    cin>>s1.age;

    display(s1); // passing struct as an argument

    return 0;
}

void display(struct student s) {
    cout<<"Displaying information"<<endl;
    cout<<"Name: "<< s.name;
    cout<<"\nAge: "<< s.age;
}
```

*** For better understanding please feel free to search on internet because it is the best source of learning. ***

Practice Exercise

1. Write a C++ program to store and print the roll no., name, age, and marks of a student using structures.
2. Write a C++ program to store roll no. (starting from 1), name and age of 5 students and then print the details of the student with roll no. 2.
3. Enter the marks of 5 students in Chemistry, Mathematics, and Physics (each out of 100) using a structure named Marks having elements roll no., name, chem_marks, maths_marks, and phy_marks and then display the percentage of each student.
4. Write a C++ program to add two distances in inch-feet using structure.
5. Write a C++ program to subtract two complex numbers.