Experiment No-05: Hierarchical and Multiple Inheritance in C++.

Objectives

- Explain the concept of Hierarchical and Multiple inheritance in OOP.

- Solve various problems in order to comprehend the above topics.

Example 1: A C++ program to demonstrate the Hierarchical inheritance.

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

class A //single base class
{
    public:
    int x, y;
    void getdata()
    {
        cout << "\nEnter value of x and y:\n"; cin >> x >> y;
    }
};
class B : public A //B is derived from class base
{
    public:
    void product()
    {
        cout << "\nProduct= " << x * y;
    }
};
class C : public A //C is also derived from class base
{
    public:
    void sum()
    {
        cout << "\nSum= " << x + y;
    }
};
int main()
{
    B obj1;         //object of derived class B
    C obj2;         //object of derived class C
    obj1.getdata();
    obj1.product();
    obj2.getdata();
    obj2.sum();
    return 0;
}
```

Example 2: A C++ program to illustrate the Multiple Inheritance.

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

class A  // base class 1
{
   public:
   int x;
   void getx()
    {
       cout << "enter value of x: "; cin >> x;
    }
};
class B   // base class 2
{
   public:
   int y;
   void gety()
   {
       cout << "enter value of y: "; cin >> y;
   }
};
class C : public A, public B //C is derived from class A and class B
{
   public:
   void sum()
   {
       cout << "Sum = " << x + y;
   }
};

int main()
{
   C obj1;   //object of derived class C
   obj1.getx();
   obj1.gety();
   obj1.sum();
   return 0;
}
```

*** 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 calculate the area and perimeter of a rectangle. Use Multiple Inheritance.
Hints: Create two base classes Area, Perimeter and One derived class Rectangle who inherits from both Area, Perimeter base class.

[Resource Link 1]
[Resource Link 2]