Lab Assignment 7

Multiple Inheritance

```
#include<iostream>
using namespace std;
class car
{
   public:
   char brand1[100];
   char function1[50];
   void getdatacar()
   {
      cout<<"Enter brand of car:";
      cin>>brand1;
      cout<<"Enter function of car:";
      cin>>function1;
   }
   void displaycar()
   {
      cout<<"Brand:"<<brand1<<endl;
      cout<<"Function:"<<function1<<endl;
   }
};
class bus
{
   public:
   char brand2[100];
   char function2[50];
   void getdatabus()
   {
      cout<<"\nEnter brand of bus:";
      cin>>brand2;
      cout<<"Enter function of bus:";
      cin>>function2;
   }
   void displaybus()
   {
      cout<<"Brand:"<<brand2<<endl;
      cout<<"Function:"<<function2<<endl;
   }
};
class vehicles: public car, public bus
{
```

```
    public:
    void displayall()
    {
        cout<<"Both are vehicles";
    }
};
int main()
{
    vehicles v;
    v.getdatacar();
    v.getdatabus();
    cout<<"\nData\n";
    v.displaycar();
    cout<<"\n";
    v.displaybus();
    cout<<"\n";
    v.displayall();
}
```

Output

```
Enter brand of car:Mercedes
Enter function of car:Travel

Enter brand of bus:Tata
Enter function of bus:Transport

Data
Brand:Mercedes
Function:Travel

Brand:Tata
Function:Transport

Both are vehicles
```

Multilevel Inheritance

```
#include<iostream>
#include<conio.h>
using namespace std;
class person
```

```
{
    char name[100],gender[100];
    int age;
    public:
    void getdata()
    {
        cout<<"Enter name:";
        cin>>name;
        cout<<"Enter age:";
        cin>>age;
        cout<<"Enter gender:";
        cin>>gender;
    }
    void display()
    {
        cout<<"Name:"<<name<<endl;
        cout<<"Age:"<<age<<endl;
        cout<<"Gender:"<<gender<<endl;
    }
};
class boss: public person
{
    char company[100];
    float salary;
    public:
    void getdata()
    {
        person::getdata();
        cout<<"Enter name of company:";
        cin>>company;
        cout<<"Enter salary:";
        cin>>salary;
    }
    void display()
    {
        person::display();
        cout<<"Name of company:"<<company<<endl;
        cout<<"Salary:"<<salary<<endl;
    }
};
class chiefexecutive: public boss
{
    int award;
```

```
    public:
    void getdata()
    {
        boss::getdata();
        cout<<"Enter number of awards received:";
        cin>>award;
    }
    void display()
    {
        boss::display();
        cout<<"Number of awards received:"<<award<<endl;
    }
};
int main()
{
    chiefexecutive c;
    cout<<"Enter data"<<endl;
    c.getdata();
    cout<<endl<<"Data"<<endl;
    c.display();
    getch();
}
```

Output

```
Enter data
Enter name:Tom
Enter age:58
Enter gender:Male
Enter name of company:Apple
Enter salary:15000
Enter number of awards received:5

Data
Name:Tom
Age:58
Gender:Male
Name of company:Apple
Salary:15000
Number of awards received:5
```

Lab Assignment 8

Hybrid Inheritance

```
#include<iostream>
#include<conio.h>
class student
{
   protected:
   int id;
   char name[20];
   public:
   void getdata()
   {
      cout<<"Enter student name:";
      cin>>name;
      cout<<"Enter student ID:";
      cin>>id;
   }
};
class marks:public student
{
   int a,b,c;
   public:
   void getmarks()
   {
      cout<<"Enter marks for three subjects:\n";
      cin>>a>>b>>c;
   }
};
class sports
{
   protected:
   int score;
   public:
   void getsports()
   {
      cout<<"Enter sports marks:";
      cin>>score;
   }
};
class result:public marks, public sports
{
   int total;
   float avg;
   public:
```

```
    void display()
    {
        total=a+b+c;
        avg=total/3.0;
        cout<<"Total="<<total<<endl;
        cout<<"Average="<<avg<<endl;
        cout<<"Average marks and sports marks are"<<avg+score;
    }
};
void main()
{
    result r;
    r.getdata();
    r.getmarks();
    r.getsports();
    r.display();
    getch();
}
```

Output

```
Enter student name:Tom
Enter student ID:102384
Enter marks for three subjects:
45
12
67
Enter sports marks:34
Total=124
Average=41.3333333
Average marks and sports marks are 75.3333333
```

Hierarchical Inheritance

```
#include<iostream>
#include<conio.h>
using namespace std;
class person
{
    char name[100],gender[10];
    int age;
    public:
    void getdata()
    {
```

```
        cout<<"Enter name:";
        cin>>name;
        cout<<"Enter gender:";
        cin>>gender;
        cout<<"Enter age:";
        cin>>age;
    }
    void display()
    {
        cout<<"Name:"<<name<<endl;
        cout<<"Gender:"<<gender<<endl;
        cout<<"Age:"<<age<<endl;
    }
};
class patient:public person
{
    char hospital[100];
    int no;
    public:
    void getdata()
    {
        person::getdata();
        cout<<"Enter name of hospital:";
        cin>>hospital;
        cout<<"Enter patient ID number:";
        cin>>no;
    }
    void display()
    {
        person::display();
        cout<<"Hospital name:"<<hospital<<endl;
        cout<<"Patient ID:"<<no<<endl;
    }
};
class student:public person
{
    char college[100],course[100];
    public:
    void getdata()
    {
        person::getdata();
        cout<<"Enter name of college:";
        cin>>college;
```

```
        cout<<"Enter course name:";
        cin>>course;
    }
    void display()
    {
        person::display();
        cout<<"College name:"<<college<<endl;
        cout<<"Course:"<<course<<endl;
    }
};
int main()
{
    patient p;
    student s;
    cout<<"PATIENT"<<endl;
    cout<<"Enter data"<<endl;
    p.getdata();
    cout<<"Display data"<<endl;
    p.display();
    cout<<"STUDENT"<<endl;
    cout<<"Enter data"<<endl;
    s.getdata();
    cout<<"Display data"<<endl;
    s.display();
}
```

Output

```
PATIENT
Enter data
Enter name:Arunda
Enter gender:Female
Enter age:19
Enter name of hospital:SUHRC
Enter patient ID number:8065
Display data
Name:Arunda
Gender:Female
Age:19
Hospital name:SUHRC
Patient ID:8065
```

```
STUDENT
Enter data
Enter name:Riya
Enter gender:Female
Enter age:19
Enter name of college:Symbiosis
Enter course name:B.tech
Display data
Name:Riya
Gender:Female
Age:19
College name:Symbiosis
Course:B.tech
```