Single Inheritance:

```
#include <iostream>
using namespace std;
class Base{
   protected:
   int a,b;
   public:
   void getdata(){
      cout<<"Enter the value of a:";
      cin>>a;
      cout<<"Enter the value of b:";
      cin>>b;
   }
};
class devrived:public Base{
   int sum;
   public:
   void add(){
      getdata();
      sum=a+b;
   }
   void display(){
      cout<<"--------------------------------"<<endl;
```

```
        cout<<"Addition of a & b is:"<<sum;
    }
};
int main() {
    devrived d1;
    d1.add();
    d1.display();
         return 0;
}
```

#OUTPUT:

```
Enter the value of a:12
Enter the value of b:488
Addition of a & b is:500
```

Multilevel Inheritance:

EX.01:

```
#include <iostream>
using namespace std;
class A{
    public:
    int a;
    void accept(){
        cout<<"Enter the value of a:";
        cin>>a;
```

```
    }
    void display(){
        cout<<"The value of a is "<<a<<endl;
        cout<<"------------------"<<endl;
    }
};
class B:public A{
    public:
    int b;
    void accept(){
        cout<<"Enter the value of b:";
        cin>>b;
    }
    void display(){
        cout<<"The vlaue of b is "<<b<<endl;
        cout<<"------------------"<<endl;
    }
};
class C:public B{
    public:
    int c;
    int sum=a+b+c;
    void accept(){
```

```
        cout<<"Enter the vaule of c:";
        cin>>c;
    }
    void display(){
        cout<<"The value of c is "<<c<<endl;
        cout<<"------------------"<<endl;

    }
    /*void output(){
        //accept();
        //accept();

        cout<<"The total is "<<sum<<endl;
    }*/
};
int main(){
    C c1,c2,c3;
    c1.A::accept(); //overridden function is used
    c1.A::display();
    c2.B::accept();
    c2.B::display();
    c3.C::accept();
    c3.C::display();
```

```
    //c3.C::output();
    return 0;
}
```

EX.02:

```
#include <iostream>
using namespace std;
class Base{
    public:
    void accept(){
        cout<<"Multilevel Inheritance\nIts the base class ";
    }
};
class Derived1:public Base{
    public:
    void accept1(){
        cout<<"\nIts derived1 class from Base class";
    }
};
class Derived2:public Derived1{
    public:
    void accept2(){
        cout<<"\nIts Derived2 class from derived1";
    }
```

```
};
int main(){
   Derived2 o;
   o.accept();
   o.accept1();
   o.accept2();
   return 0;
}
```

#OUTPUT:

```
Multilevel Inheritance
Its the base class
Its derived1 class from Base class
Its Derived2 class from derived1
```

Hierarchical Inheritance:

```
#include <iostream>
#include <string>
using namespace std;
class Person{
   public:
   string name;
   int age;
   void setdata_1(){
      cout<<"Enter the name:";
```

```
        getline(cin,name);
        cout<<"Enter the age:";
        cin>>age;
    }
    void display_1(){
        cout<<"----------------------"<<endl;
        cout<<"The name of Student/Employe is:"<<name<<endl;
        cout<<"The age of Student/Employe is:"<<age<<endl;
    }
};
class Student:public Person{
    public:
    float marks;
    void setdata_2(){
        cout<<"Enter the marks for student:";
        cin>>marks;
    }
    void display_2(){
        cout<<"----------------------"<<endl;
        display_1();
        cout<<"The marks of Student is:"<<marks<<endl;
    }
};
```

```
class Employe:public Person{
   public:
   double salary;
   void setdata_3(){
      cout<<"Enter the salary for Employe:";
      cin>>salary;
   }
   void display_3(){
      cout<<"---------------------"<<endl;
      //display_1();
      cout<<"The salary for Employe is:"<<salary<<endl;
   }
};
int main()
{
   Student s1;
   Employe e1;
   s1.setdata_1();
   s1.display_1();
   s1.setdata_2();
   s1.display_2();
   //e1.setdata_1();
   //e1.display_1();
```

```
    e1.setdata_3();
    e1.display_3();
    return 0;
}
```

#OUTPUT:

```
Enter the name:Sushilkumar Dhamane
Enter the age:19
----------------------
The name of Student/Employe is: Sushilkumar Dhamane
The age of Student/Employe is: 19
Enter the marks for student:95
---------------------
----------------------
The name of Student/Employe is: Sushilkumar Dhamane
The age of Student/Employe is: 19
The marks of Student is:95
Enter the salary for Employe:12000
---------------------
The salary for Employe is:12000
```

Multiple Inheritance:

```
#include <iostream>
#include <string>
```

```
using namespace std;
class General{
   public:
   string name;
   int age;
   string address;
   void input_1(){
      cout<<"Enter the name:";
      getline(cin,name);
      cout<<"Enter the age:";
      cin>>age;
      cout<<"Enter the address:";
      cin>>address;
   }
   void display_1(){
      //cout<<"-------------------"<<endl;
      cout<<"The name is "<<name<<endl;
      cout<<"The age is "<<age<<endl;
      cout<<"The address is "<<address<<endl;
   }
};
class Academic{
   public:
```

```
    float marks;
    char Grade[2];
    void input_2(){
        cout<<"Enter the marks:";
        cin>>marks;
        cout<<"Enter the Grade:";
        cin>>Grade;
    }
    void display_2(){
        //cout<<"---------------------"<<endl;
        cout<<"The marks is "<<marks<<endl;
        cout<<"The Grade is "<<Grade<<endl;
    }
};
class Employe:public General,public Academic{
    public:
    double salary;
    void input_3(){
        cout<<"Enter the salary:";
        cin>>salary;
    }
    void display_3(){
        cout<<"--------------------------"<<endl;
```

```
        display_1();
        display_2();

        cout<<"the salary is "<<salary<<endl;
    }
};
int main()
{
    Employe e1;
    e1.input_1();
    e1.display_1();
    e1.input_2();
    e1.display_2();
    e1.input_3();
    e1.display_3();
    return 0;
}
```

#OUTPUT:

```
Enter the name:Sushilkumar Dhamne
Enter the age:19
Enter the address:Akot,Maharastra
The name is Sushilkumar Dhamne
The age is 19
```

The address is Akot,Maharastra

Enter the marks:99

Enter the Grade:A+

The marks is 99

The Grade is A+

Enter the salary:1200000

The name is Sushilkumar Dhamne

The age is 19

The address is Akot,Maharastra

The marks is 99

The Grade is A+

the salary is 1.2e+006

********** END *********