

## 1. Explain Inheritance in details

Solution -

**Single Inheritance:** In single inheritance, subclasses inherit the features of one superclass.  
e.g.

```
using System;
namespace Abhishek
{
    class A
    {
        public int sum=0;
        public void cal(int x,int y)
        {
            sum=x+y;
        }
    }
    class B:A
    {
        public void display()
        {
            Console.WriteLine("Sum = "+sum);
        }
    }
    class Abhishek
    {
        public static void Main(string [] abhi)
        {
            int a,b;
            Console.WriteLine("Enter Two Values - ");
            a=Convert.ToInt32(Console.ReadLine());
            b=Convert.ToInt32(Console.ReadLine());
            B obj=new B();
            obj.cal(a,b);
            obj.display();
            Console.ReadKey();
        }
    }
}
```

**Multilevel Inheritance:** In Multilevel Inheritance, a derived class will be inheriting a base class and as well as the derived class also act as the base class to other class.

```
using System;
namespace Abhishek
{
    class A
    {
        public int a,b;
        public int sum=0;
        public void initialize(int x,int y)
        {
            a=x;
            b=y;
        }
    }
    class B:A
    {
        public void cal()
        {
            sum=a+b;
        }
    }
    class C:B
    {
        public void display()
        {
            Console.WriteLine("Sum = "+sum);
        }
    }
    class Abhishek
    {
        public static void Main(string [] abhi)
        {
            int a,b;
            Console.WriteLine("Enter Two Values - ");
            a=Convert.ToInt32(Console.ReadLine());
            b=Convert.ToInt32(Console.ReadLine());
            C obj=new C();
            obj.initialize(a,b);
            obj.cal();
            obj.display();
            Console.ReadKey();
        }
    }
}
```

```
}  
}
```

**Hierarchical Inheritance:** In Hierarchical Inheritance, one class serves as a superclass (base class) for more than one subclass.

```
using System;  
namespace Abhishek  
{  
    class A  
    {  
        public int n;  
        public void initialize(int x)  
        {  
            n=x;  
        }  
    }  
    class B:A  
    {  
        public void sumOfDigits()  
        {  
            int i,sum=0;  
            for(i=1;i<=n;i++)  
            {  
                sum=sum+i;  
            }  
            Console.WriteLine("Sum Of Digits Is "+sum);  
        }  
    }  
    class C:A  
    {  
        public void mulOfDigits()  
        {  
            int i,mul=1;  
            for(i=1;i<=n;i++)  
            {  
                mul=mul*i;  
            }  
            Console.WriteLine("Multiplication Of Digits Is "+mul);  
        }  
    }  
    class Abhishek  
    {  
        public static void Main(string [] abhi)  
        {
```

```
int a;  
Console.WriteLine("Enter The Limits - ");  
a=Convert.ToInt32(Console.ReadLine());  
B obj1=new B();  
C obj2=new C();  
obj1.initialize(a);  
obj1.sumOfDigits();  
obj2.initialize(a);  
obj2.mulOfDigits();  
Console.ReadKey();  
    }  
}  
}
```