

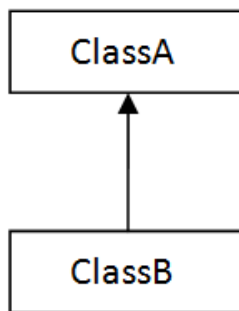
## TITLE: TO ILLUSTRATE THE TYPES OF INHERITANCE

### OBJECTIVE:

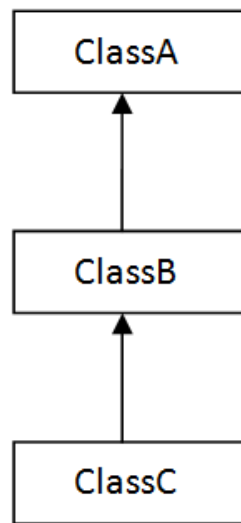
- To be familiar with the types of inheritance.

### Types of inheritance:

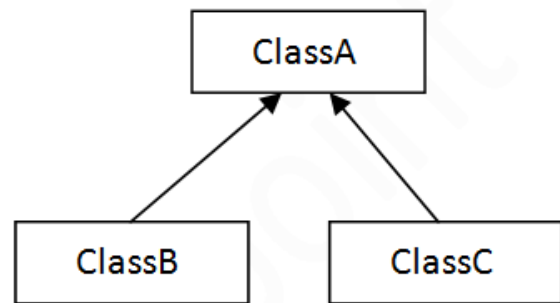
1. Single inheritance
2. Multilevel inheritance
3. Hierarchical inheritance



1) Single



2) Multilevel



3) Hierarchical

## 1. Single inheritance

When a class extends another one class only then we call it a single inheritance

```
class baseclass_name
{
    .... methods
}
class derivedClass_name extends baseClass
{
    methods ... along with this additional feature
}
```

Program Example1:

```
1.WAP to illustrate the concept of single inheritance
class Employee {
    void salary() {
        System.out.println("Salary= 50000");
    }
}

class Programmer extends Employee {
    void bonus() {
        System.out.println("Bonus=10000");
    }
}
```

```

class Single{
    public static void main(String args[]) {
        Programmer p = new Programmer();
        p.salary(); // calls method of super class
        p.bonus(); // calls method of subclass
    }
}

```

Output:

Salary= 50000

Bonus=10000

## 2. 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 another class. In the below image, class A serves as a base class for the derived class B, which in turn serves as a base class for the derived class C.

Program 2: program to illustrate the concept of multilevel inheritance.

```

import java.util.Scanner;
class Base //single base class
{
    int x;
    void getdata()
    {

```

```

        System.out.println("Enter value of x= ");
        Scanner sc=new Scanner(System.in);
        x= sc.nextInt();
    }
}
class Derived1 extends Base // derived class from
base class
{
    int y;
    void readdata()
    {
        System.out.println("Enter value of y= ");
        Scanner sc=new Scanner(System.in);
        y=sc.nextInt();

    }
}
class Derived2 extends Derived1 {
    int z;
    void indata()
    {
        System.out.println("Enter value of z= ");
        Scanner sc=new Scanner(System.in);
        z=sc.nextInt();

    }

public static void main(String[] args)
{

```

```

        Derived2 a=new Derived2();
a.getdata();
        a.readdata();
        a.indata();
        System.out.println("\nProduct= " +(a.x * a.y *
a.z));

    }                //end of program
}

```

Output:

```

Enter value of x=
1
Enter value of y=
3
Enter value of z=
4

Product= 12

```

Program 3: WAP to create a class to represent a Bank. Derive a class Department from the base class. Again derive a class Post from the class Department. Use proper members in the classes to make your program meaningful.

### 3. Hierarchical Inheritance:

When two or more classes inherit a single class, it is known as hierarchical inheritance.

Program 4:

WAP to create a class Box and its variables as length, breadth and height. Use parameterized constructor and method for calculating volume. Derive a class Subbox1 with a constructor and its own variable weight and take another variable from superclass Box. Also, derive a class Subbox2 which extends Box class that have its own variable as price and take other variables from superclass Box. Then, create a main class Main for accessing all variables of class and displaying them.

Program 5:

WAP to create classes to represent faculty\_member, staff, student from the base class Person. Derive a class faculty\_member as part-time and full-time faculty. Define data members and member functions as appropriate.