ACPCE
Where knowledge is second nature

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Semester: 3

Experiment Evaluation Sheet

Experiment No.: 8

Experiment Name:
Program on types of inheritance

Sr No.	Evaluation Criteria	Marks (Out of 9)	Performance Date	Correction Date and Signature of Instructor
1	Experiment Performance			
2	Journal Performance			
3	Punctuality			
Total				

Aim : Program on types of inheritance

Software required : Java, Javac.

Theory :

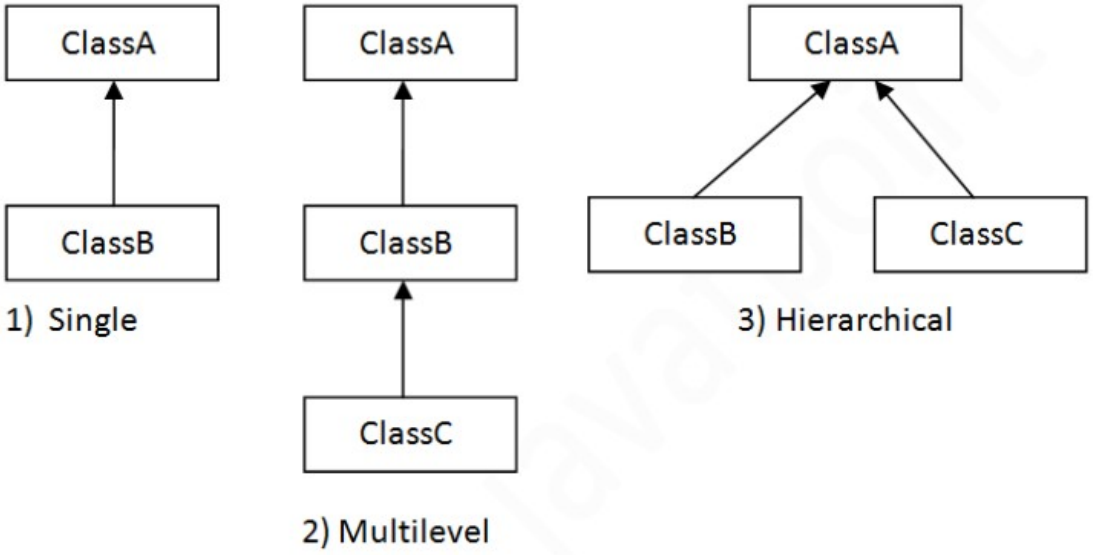
Inheritance in Java :-
Inheritance in Java is a mechanism in which one object acquires all the properties and behaviors of a parent object. It is an important part of OOPs (Object Oriented programming system).

The idea behind inheritance in Java is that you can create new classes that are built upon existing classes. When you inherit from an existing class, you can reuse methods and fields of the parent class. Moreover, you can add new methods and fields in your current class also.

Inheritance represents the IS-A relationship which is also known as a parent-child relationship.

Types of inheritance in java :
On the basis of class, there can be three types of inheritance in java: single, multilevel and hierarchical.

In java programming, multiple and hybrid inheritance is supported through interface only. We will learn about interfaces later.



Single Inheritance :-
When a class inherits another class, it is known as a single inheritance. In the example given below, Dog class inherits the Animal class, so there is the single inheritance.

Multilevel Inheritance :-
When there is a chain of inheritance, it is known as multilevel inheritance. As you can see in the example given below, BabyDog class inherits the Dog class which again inherits the Animal class, so there is a multilevel inheritance.

Hierarchical Inheritance :-
When two or more classes inherits a single class, it is known as hierarchical inheritance. In the example given below, Dog and Cat classes inherits the Animal class, so there is hierarchical inheritance.

Code 8.a :

```
class Employee{
   float salary=40000;
}
class Programmer extends Employee{
   int bonus=10000;
   public static void main(String args[]){
      Programmer p=new Programmer();
      System.out.println("Programmer salary is:"+p.salary);
      System.out.println("Bonus of Programmer is:"+p.bonus);
}
}
```

Output 8.a :

```
student@csiot-ThinkCentre-M70s:~/CHETAN_I_007/OOPs/Exp08$ java Programmer
Programmer salary is:40000.0
Bonus of Programmer is:10000
```

Code 8.b :

```
class Animal{
   void eat(){System.out.println("eating...");}
}
class Dog extends Animal{
   void bark(){System.out.println("barking...");}
}
class BabyDog extends Dog{
   void weep(){System.out.println("weeping...");}
}
class Multilevel{
   public static void main(String args[]){
      BabyDog d=new BabyDog();
      d.weep();
      d.bark();
      d.eat();
}}
```

Output 8.b :

```
student@csiot-ThinkCentre-M70s:~/CHETAN_I_007/OOPs/Exp08$ java Multilevel
weeping...
barking...
eating...
```

Code 8.c :

```
class Animal{
   void eat(){System.out.println("eating...");}
}
class Dog extends Animal{
   void bark(){System.out.println("barking...");}
}
class Cat extends Animal{
   void meow(){System.out.println("meowing...");}
}
class Hierarchical{
```

```
    public static void main(String args[]){
        Cat c=new Cat();
        c.meow();
        c.eat();
        //c.bark();//C.T.Error
        Dog d=new Dog();
        d.bark();
}}
```

Output 8.c :

```
student@csiot-ThinkCentre-M70s:~/CHETAN_I_007/OOPs/Exp08$ java Hierarchical
meowing...
eating...
barking...
```

Conclusion :

With this experiments we learn how to implement Inheritance in java programming language.