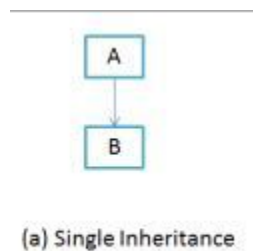


Inheritance in Java

Inheritance is a compile-time mechanism. A super-class can have any number of subclasses. But a subclass can have only one superclass. This is because Java does not support multiple inheritance.

Types of inheritance in Java: Single, Multilevel & Hierarchical

Single Inheritance: A class extends another one class only then we call it a single inheritance.

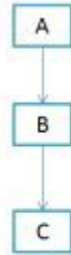


```
Class A{
    public void methodA()    {
        System.out.println("Base class method");
    }
}

Class B extends A{
    public void methodB({
        System.out.println("Child class method");
    }
    public static void main(String args[]){
        B obj = new B();
        obj.methodA(); //calling super class method
        obj.methodB(); //calling local method
    }
}
```

Multilevel Inheritance

Multilevel inheritance refers to a mechanism in OO technology where one can inherit from a derived class, thereby making this derived class the base class for the new class.

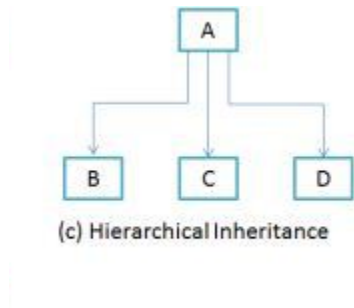


(d) Multilevel Inheritance

```
Class X {
    public void methodX(){
        System.out.println("Class X method");
    }
}
Class Y extends X {
    public void methodY(){
        System.out.println("class Y method");
    }
}
Class Z extends Y{
    public void methodZ()    {
        System.out.println("class Z method");
    }
    public static void main(String args[])    {
        Z obj = new Z();
        obj.methodX(); //calling grand parent class method
        obj.methodY(); //calling parent class method
        obj.methodZ(); //calling local method
    }
}
```

Hierarchical Inheritance

In such kind of inheritance one class is inherited by many **sub classes**. In below example class B,C and D **inherits** the same class A. A is **parent class (or base class)** of B,C & D.



Things to remember

1. One subclass can extend only one super class in Java but it can implement the multiple interfaces (*An alternate solution to multiple inheritance*).
2. A private member of the super class can not be inherited / accessed in subclass e.g. private field and private methods.
3. Default member can only be inherited in same package subclass, not in another package.
4. The constructor in Java is not inherited by the subclass.
5. If a class implements Interface or extends an abstract class, it needs to override all abstract methods until it is not abstract.
6. Multiple inheritances are not supported in java but we can achieve this by using interface. One class can implement multiple interfaces.
7. In Java class never extends the interface rather it implements interface
8. One interface can extend another interface in Java.