

UNIT III – INHERITANCE AND POLYMORPHISM

MULTIPLE INHERITANCE:

- Java does not support multiple inheritance with classes.
- That is, a class cannot extend more than one class:

```
class A { }
```

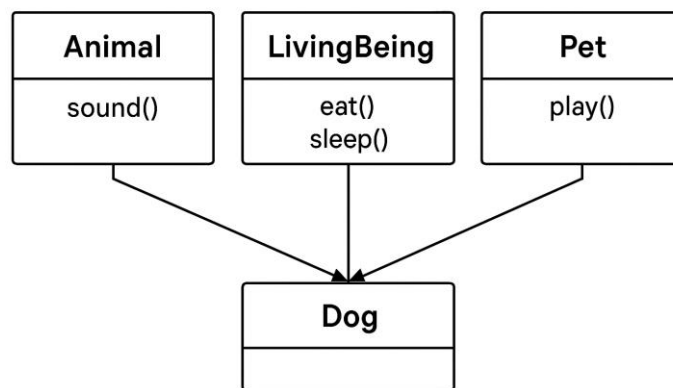
```
class B { }
```

```
class C extends A, B { } // ✗ This is not allowed
```

If 2 parent classes have methods with the same signature, the compiler wouldn't know which one to inherit.

- ✓ It allows a class to implement multiple interfaces.
- ✓ Because interfaces only contain method declarations — there's no ambiguity.

Multiple Inheritance



```
interface Animal // Interface 1
```

```
{
    void sound();
}
```

```
interface LivingBeing // Interface 2
```

```
{
    void eat();
    void sleep();
}
```

```
interface Pet // Interface 3
```

```
{
    void play();
}
```

```
// Dog implements all three interfaces
class Dog implements Animal, LivingBeing, Pet
{
    public void sound()
    {
        System.out.println("Dog barks: Woof Woof!");
    }
    public void eat()
    {
        System.out.println("Dog eats bones.");
    }
    public void sleep()
    {
        System.out.println("Dog sleeps in a kennel.");
    }
    public void play()          // Implementation of Pet method
    {
        System.out.println("Dog loves to play fetch!");
    }
}

public class MultipleInheritance
{
    public static void main(String[] args)
    {
        Dog d = new Dog();
        d.sound();
        d.eat();
        d.sleep();
        d.play();
    }
}
```

OUTPUT:

```
D:\Santhi\Java Programs>javac MultipleInheritance.java
D:\Santhi\Java Programs>java MultipleInheritance
Dog barks: Woof Woof!
Dog eats bones.
Dog sleeps in a kennel.
Dog loves to play fetch!
D:\Santhi\Java Programs>
```