

Chapter-2 Interface

Q) Why is multiple inheritance not supported in Java? Provide a simple code example to support your answer.

Ans Java does not support multiple inheritance in order to prevent ambiguity. Multiple inheritance is a feature of object oriented concept, where a class can inherit properties of more than one parent class. The problem occurs when there exists methods with same signature in both the parent classes and child class. On calling the method, the compiler cannot determine which class method to be called and even on calling which call methods gets the priority.

Example code

// First Parent class

```
class Parent1
```

```
{
```

```
    void fun()
```

```
    {
```

```
        System.out.println("Parent1");
```

```
    }
```

```
}
```

// Second Parent Class

```
class Parent2 {
    void fun()
    {
        System.out.println("Parent2");
    }
}
```

// Error: Test is Inheriting from multiple class.

```
class Test extends Parent1, Parent2
{
    public static void main (String[] args)
    {
        Test t = new Test();
        t.fun();
    }
}
```

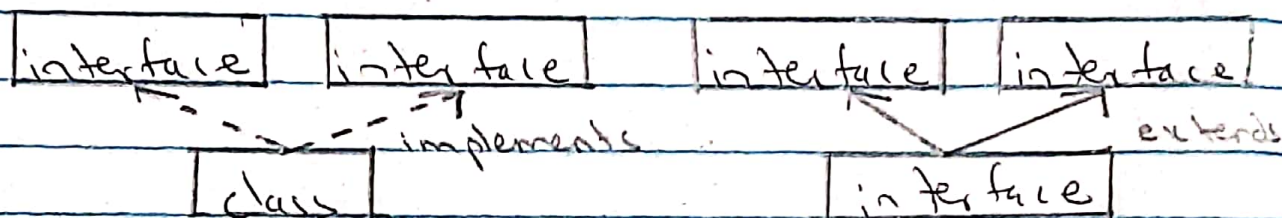
Output: Compiler Error

From the code we see that, on calling the method `fun()` using `Test` object will cause complications such as whether to call `Parent1`'s `fun()` or `Parent2`'s `fun()` method.

2) Explain the use of interface to achieve multiple inheritance.

Ans: An interface in java is a blueprint of a class. It has static constant and abstract methods. The interface in Java is a mechanism to achieve abstraction. There can be only abstract methods in the Java interface, not method body. It is used to achieve abstraction and multiple inheritance in Java.

If a class implements multiple interfaces, or an interface extends multiple interfaces, it is known as multiple inheritance.



Multiple Inheritance in Java

Java does not support multiple inheritance in order to prevent ambiguity. Consider a case where class B extends class A and class C. Both class A and C have the same method display(). Now, java compiler cannot decide, which display method it should inherit. To prevent such situation, multiple inheritance is not allowed in java.

11 Multiple Inheritance using Interface

```
interface Printable {  
    void print();  
}
```

```
interface Showable {  
    void show();  
}
```

```
class Example implements Printable, Showable {  
    public void print() {  
        System.out.println("Hello World");  
    }
```

```
    public void show() {  
        System.out.println("Hello Nepal");  
    }
```

```
    public static void main(String[] args) {  
        Example obj = new Example();  
        obj.print();  
        obj.show();  
    }
```

Output: Hello World
Hello Nepal