Experiment No.5

Aim: To study and demonstrate use of interface in Java.

Problem Statement:

1. Write a Program to demonstrate use of interface.
2. Write a Program to implement multiple Inheritance by using interface.

Theory:

Interface is syntactically similar to classes but it is not a class. An interface can have methods and variables just like the class. Methods declared in interface are by default **public** abstract (declared without any body). The variables declared in an interface are **public, static & final** by default.

Interfaces are declared by specifying a keyword "**interface**". When we create an interface it defines what a class can do without saying anything about how the class will do it. We cannot create the object of an interface. Class implements interfaces, but an interface extends other interface. Class uses keyword **implements** to implement interface**.** Interface can extend one or more other interface. One interface can be implemented by one or more classes. One class can implement one or more interfaces.

Writing an interface is similar to writing a class. But a class describes the attributes and behaviors of an object. And an interface contains behaviors that a class implements. Unless the class that implements the interface is abstract, all the methods of the interface need to be defined in the class. You cannot instantiate an interface.

Declaring the interface –

```
interface name
{
        // body
}
```

Implementing the interface –

```
class classname implements interface[,interface…]]
{
        // body
}
```

Uses of Interface in Java

There are mainly three reasons to use interface.

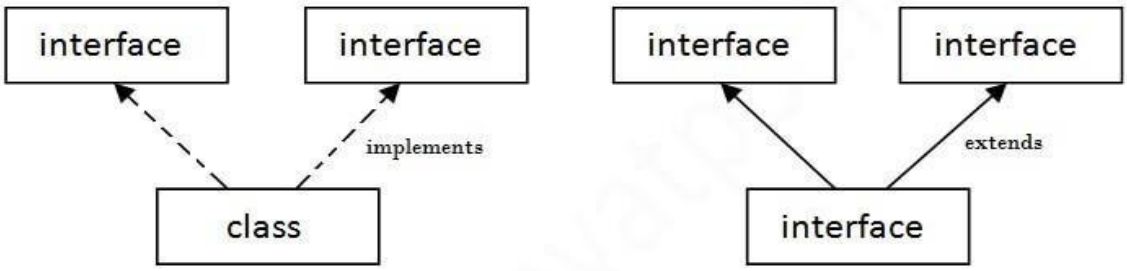
- It is used to achieve full abstraction.
- Interface supports the functionality of multiple inheritance.

For example –

```
interface result{
        /* All the variables are public static final by default*/
    int a;
    int b;
        /* All the methods are public abstract by default */
    void method1();
     void method2();
```

Multiple inheritance in Java by interface:

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



Multiple Inheritance in Java

Conclusion:

Student studied and implemented the multiple inheritance using interface.