# Interfaces and Inheritance in Java
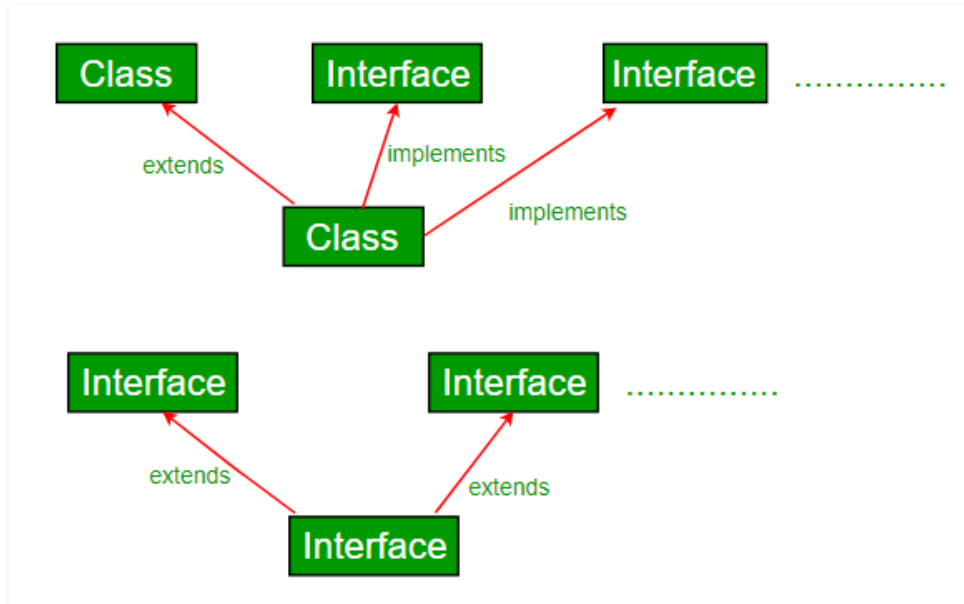
Difficulty Level : Easy   Last Updated : 28 Jun, 2021

**Prerequisites:** <u>Interfaces in Java</u>, <u>Java and Multiple Inheritance</u>

A class can extends another class and/ can implement one and more than one interface.



```java
// Java program to demonstrate that a class can
// implement multiple interfaces
import java.io.*;
interface intfA
{
    void m1();
}

interface intfB
{
    void m2();
}

// class implements both interfaces
// and provides implementation to the method.
class sample implements intfA, intfB
{
    @Override
    public void m1()
    {
        System.out.println("Welcome: inside the method m1");
    }

    @Override
    public void m2()
    {
```

```
            System.out.println("Welcome: inside the method m2");
        }
    }

    class GFG
    {
        public static void main (String[] args)
        {
            sample ob1 = new sample();

            // calling the method implemented
            // within the class.
            ob1.m1();
            ob1.m2();
        }
    }
```
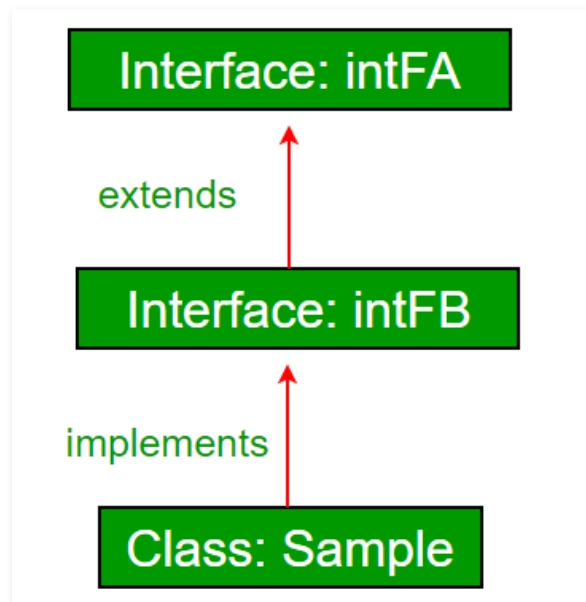
◄                                                                                                    ►

Output;

```
Welcome: inside the method m1
Welcome: inside the method m2
```

**Interface inheritance :** An Interface can extend other interface.



```
// Java program to demonstrate inheritance in
// interfaces.
import java.io.*;
interface intfA
{
    void geekName();
}
```

```java
interface intfB extends intfA
{
    void geekInstitute();
}

// class implements both interfaces and provides
// implementation to the method.
class sample implements intfB
{
    @Override
    public void geekName()
    {
        System.out.println("Rohit");
    }

    @Override
    public void geekInstitute()
    {
        System.out.println("JIIT");
    }

    public static void main (String[] args)
    {
        sample ob1 = new sample();

        // calling the method implemented
        // within the class.
        ob1.geekName();
        ob1.geekInstitute();
    }
}
```

Output:

```
Rohit
JIIT
```

**An interface can also extend multiple interfaces.**

```java
// Java program to demonstrate multiple inheritance
// in interfaces
import java.io.*;
interface intfA
{
    void geekName();
}
```

```java
interface intfB
{
    void geekInstitute();
}

interface intfC extends intfA, intfB
{
    void geekBranch();
}

// class implements both interfaces and provides
// implementation to the method.
class sample implements intfC
{
    public void geekName()
    {
        System.out.println("Rohit");
    }

    public void geekInstitute()
    {
        System.out.println("JIIT");
    }

    public void geekBranch()
    {
        System.out.println("CSE");
    }

    public static void main (String[] args)
    {
        sample ob1 = new sample();

        // calling the method implemented
        // within the class.
        ob1.geekName();
        ob1.geekInstitute();
        ob1.geekBranch();
    }
}
```

Output:

```
Rohit
JIIT
CSE
```

**Why Multiple Inheritance is not supported through a class in Java, but it can be possible through the interface?**

Multiple Inheritance is not supported by class because of ambiguity. In case of interface, there is no ambiguity because implementation to the method(s) is provided by the implementing class up to Java 7. From Java 8, interfaces also have implementations of methods. So if a class implementing two or more interfaces having the same method signature with implementation, it is mandated to implement the method in class also. Refer Java and Multiple Inheritance for details.

This article is contributed by **Nitsdheerendra**. If you like GeeksforGeeks and would like to contribute, you can also write an article using write.geeksforgeeks.org or mail your article to review-team@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

Please write comments if you find anything incorrect, or you want to share more information about the topic discussed above.