Method Overriding

The process of inheriting a method from a super class and changing its implementation in subclass is known as method overriding. In case of overriding, the overridden method signature must be same as superclass method.

Method signature includes return type of method, method name and parameters.

Method cannot be overridden in a same class. Within same method we cannot declare a method with same name and parameter.

Method can be overridden only in a subclass, we cannot override private, final and static method. In java we cannot override main method.

In method overriding always overridden method increases access level or access level must be same. Overridden method should not declare the access level.

1. Example for method overriding

```
public class OverRidingWhatsapp
{
	public void call()
	{
	System.out.println("Whatsapp super class");
	}
}
public class OverRidingWhatsapp2 extends OverRidingWhatsapp
{
	public void call()
	{
	System.out.println("Whatsapp sub class");
	System.out.println("Whatsapp video class");
	System.out.println("Whatsapp audio class");
	}
}
public class Main {

	public static void main(String[] args)
	{
		OverRidingWhatsapp2 w=new OverRidingWhatsapp2();
		w.call();
	}
}
```

2. Write a program to override using bank details also calculate interest

```
public class Bank
{
	public int interest()
	{
		return 1;
	}
}
public class Icici extends Bank
{
	public int interest()
	{
		return 2;
	}
}
public class Hdfc extends Bank
{
	public int interest()
	{
		return 4;
```

```
	}
}
package com.OverRiding2;

public class Main {

	public static void main(String[] args)
	{
		Hdfc h= new Hdfc();
		int x=h.interest();
		System.out.println("The rate of interest for Hdfc is" +x);
		Icici i=new Icici();
		int y=i.interest();
		System.out.println("The rate of interest for ICICI is" +y);
	}

}
```

Inheritance is mandatory to achieve method overriding. Private members cannot be inherited into subclass hence private method cannot be overridden.

```
Public class A
{
Private double m1()
{
Return 1.0;
}
}

Public class B Extends Class A
{
Private double m1()
{
Return 2.0; //error since method is private and cannot be overridden
}
}
```

The overridden method should increase the access level of superclass, overridden method should not declare the access level

```
Public class A
{
public double m1()
{
Return 1.0;
}
}

Public class B Extends Class A
{
protected double m1()
{
Return 2.0; //error method cannot declare the access level
}
}
```

Write the difference between Method overloading and Method Overriding

Method Overloading	**Method Overriding**
1. Process of declaring method with same name but different parameter.	1. Process of inheriting a method from super class and changing its implementation.
2. Method can be overloaded in same class and inherited class	2. Method can be overridden only in inherited class
3. Parameter should be different	3. Parameter and signature type should be same
4. Return type must be same or different.	4. return type should be same.
5. Main method can be overloaded	5. Main method cannot be overriden