NIELIT Gorakhpur

Course Name: A Level (2nd Sem) **Subject: JAVA**

Topic: Interface **Date: 20-03-20**

Interface :-

An interface is just like Java class, but it only has static constants and abstract method. Java uses Interface to implement multiple inheritance. A Java class can implement multiple Java Interfaces.

Features of Interface :-

- All methods in an interface are **implicitly** public and abstract.
- All variables declared inside interface are **implicitly** public static and final .
- An interface cannot be instantiated.
- A Java class can implement multiple Java Interfaces.
- It is necessary that the class must implement all the methods declared in the interfaces.
- Class should override all the abstract methods declared in the interface
- An interface can extend from one or many interfaces.
- Class can extend only one class but implement any number of interfaces.
- An interface cannot implement another Interface.
- It has to extend another interface if needed.

Note:-

- To use an interface in your class, append the keyword "**implements**" after your class name followed by the interface name.
- At the time of declaration, interface variable must be initialized. Otherwise, the compiler will throw an error.

Example of an Interface in Java:-

```
interface Shiva
{
 public void power();
 public void ideal();
}
class Kartik implements Shiva {
public void power()
{
 System.out.println("implementation of power");
 }
public void ideal()
 {
System.out.println("implementation of ideal");
  }
}
```

```
class Main{
public static void main(String arg[])    {
 Shiva obj = new Kartik();
 obj.power();
 obj.ideal();
   }
}
```

Inheritance with interface:-

```
interface Inf1{
 public void method1();
}
interface Inf2 extends Inf1
 {
public void method2();
 }
 class Demo implements Inf2{
 public void method1()
{
System.out.println("method1");
 }
public void method2()
{
System.out.println("method2");
 }
}
class Main1{
 public static void main(String args[])
{
 Inf2 obj = new Demo();
 obj.method2();
}
}
```

Multiple inheritance:-

Multiple inheritance in Java can be achieved by interface. A class can implement any number of classes separated by comma.

```
interface Shiv
{
```

```
void work();
 }
interface Parvati
{
 void work();
  }
 class Ganesh implements Shiv,Parvati {
 public void work()
 {
 System.out.println("MULTIPLE INHERITANCE ACHIEVED");
}
}
class Main2{
  public static void main(String args[]){
Shiv s = new Ganesh();
 s.work();
 }
}
```

Note:

- A class can extend a class.
- A class can implement an interface.
- An interface can extend another interface.

Exercise:

1) **Write down the key differences between abstract class and interface.**
2) **How to access a variable inside an interface.**