Vivekanand Education Society's
Institute of Technology
Approved by AICTE & Affiliated to University of Mumbai

Artificial Intelligence and Data Science Department.

OOPM / Odd Sem 2021-22 / Experiment.

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47 / D6AD.

EXPERIMENT - 7.

AIM: Program to demonstrate multiple Inheritance (using Interfaces).

THEORY:

Interface.

Theory: i) An interface is similar to a class. Like a class, it also has 2 types of members, that is, instance variables & members.

ii) Methods in a interface are abstract, hence they have no bodies.

iii) Variables declared inside the interface are implicitly final and static. Therefore, these values cannot be changed by an implementing class.

iv) Since JAVA does not ~~follow~~ allow multiple inheritance we can use interface to achieve multiple inheritances.

v) Interfaces are declared with the ~~help~~ help of the keyword 'interface' and can be implemented by classes.

vi) ~~Syt~~ Syntax for an interface program is:

```
interface  Interface name.
{
   data_type final var_name = value;

   return_type method_name (parameter);
}
```

vii) Once an interface has been defined, it is used ~~to~~ as a superclass whose methods are inherited by the subclass.

viii) To implement (or) inherit an interface, we need to use a keyword 'implements' in the class definition as shown

```
class class_name implements Interface_name.
{
        //members of class
}
```

ix) Class inherits all the member methods & variables of the interface. A class may also inherit one or more interfaces.

Conclusion: Interfaces are abstract & they cannot be instantiated. We can inherit them using the keyword 'implements'. It is possible to have multiple inheritance using interfaces. Methods inside interfaces are also abstract.

Program 1:

```
import java.util.*;
interface Printable
{
        void print();
```

```
}
interface Showable extends Printable
{
	void show();
}
class extendedinterface implements Printable,Showable
{
	public void print()
	{
		System.out.println("Hello");
	}
	public void show()
	{
		System.out.println("Welcome");
	}
	public static void main(String args[])
	{
		extendedinterface obj = new extendedinterface ();
		obj.print(); obj.show();
	}
}
```

The output of program 1:

```
PS D:\Programming\Java> javac extendedinterface.java
PS D:\Programming\Java> java extendedinterface
Hello
Welcome
PS D:\Programming\Java>
```
