Don Bosco Institute of Technology, Kurla(W)
Department of Electronics and Tele-Communication Engineering
ECL304 - Skill Lab: C++ and Java Programming
Sem III
2021-22

Lab Number:	**10**
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Title:

1. Write a java program to implement Multiple Inheritance using Interfaces. Create an interface called Management with selectCandidate() method. Another interface called Department with allotSubject() method. Class called HOD will implements these two interfaces and define the methods and access them with valid objects.

Learning Objective:

Students will be able to implement multiple inheritance using Interface concepts

Learning Outcome:

- Understanding the abstraction concept and hiding of the unnecessary code using interfaces.

Course Outcome:

ECL304.4	1. Implement different programming applications using packaging.

Theory:

Abstraction is a feature of OOPs. The feature allows us to hide the implementation detail from the user and shows only the functionality of the programming to the user.

In JAVA, the code implementation is hidden from the user and only necessary functionality is shown to the user. We can abstract it in two ways:

1. Using Abstract Class.

2. Using Interface.

- What is complete abstraction and how is it achieved in JAVA?

Using interface, we can get 100% abstraction. An interface is similar to java classes. The difference is that an interface contains collection of abstract methods. The method that does not have a method body. The important point about an interface is that each method is public and abstract and does not contain any constructor. Along with the abstraction, it also helps to achieve multiple inheritance. The implementation of these methods provided by the clients when they implement the interface.

- Explain multiple abstraction and how is it performed in Java?

Java does not support multiple inheritance for classes. This means that a class cannot extend more than one class. A class can implement one or more interfaces, which has helped Java get rid of the impossibility of multiple inheritance. The extends keyword is used once, and the parent interfaces are declared in a comma-separated list. It is basically a way to achieve complete abstraction.

Algorithm:

STEP 1: Start

STEP 2: Make an interface Management with method SelectCandidate()

STEP 3: Make another interface Department with method allotSubject()

STEP 4: Make a class HOD with Name and Subject selected by Students and implement Management, Department in it.

STEP 5: In main function create an object call the methods.

STEP 6: Display Output with selected name and subject

STEP 7: Stop

Program:

```
package Interface;
import java.util.Scanner;

interface Management {
	void SelectCandidate();
}

interface Department {
	void allotSubject();
}

class HOD implements Management, Department {
	String Candidate;
	String Subject;

	void getdata() {
		Scanner in=new Scanner(System.in);
		System.out.println("Enter Candidate's name: ");
		Candidate=in.next();

		System.out.println("Enter Subject: ");
		Subject=in.next();
	}
```

```
        public void SelectCandidate() {
                System.out.println("Candidate Name is " + Candidate );
        }

        public void allotSubject() {
                System.out.println("Subject alloted is " + Subject );
        }
}

class Interface {
        public static void main (String[] args) {
                HOD m = new HOD();
                m.getdata();
                m.SelectCandidate();
                m.allotSubject();
        }
}
```

Output Screenshot:

```
Enter Candidate's name:
Deep
Enter Subject:
NT
Candidate Name is Deep
Subject alloted is NT
```