St. Francis Institute of Technology, Mumbai-400 103

Department Of Information Technology

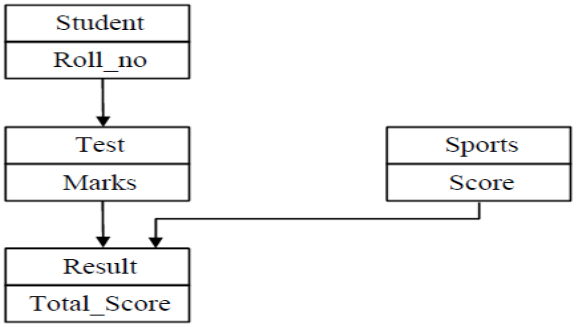
A.Y. 2020-2021

Class: SE-ITA/B, Semester: III

Subject: **Java Labs**

Experiment-4: Java Program to extend and implement Interfaces.

1. **Aim:**
   i. Write a program to implement the following multiple inheritances:



   ii. Create an interface vehicle and classes like bicycle, car, bike etc, having common functionalities and put all the common functionalities in the interface. Classes like Bicycle, Bike, car etc implement all these functionalities in their own class in their own way.

2. **Prerequisite:** Knowledge of Inheritance and Interfaces in Java.

3. **Requirements:** Personal Computer (PC), Windows Operating System, Net beans 8.0.

4. **Pre-Experiment Exercise:**
   Theory:

   a. Interfaces:
   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. All methods in an interface are implicitly public and abstract.
   Syntax for declaring Interface:

```
interface interface_name
{
//Methods
}
```

   Syntax for implementing interfaces:

```
class class_name implements interface_name{}
```

5. Laboratory Exercise

A. Procedure

i. Open Net beans for Java.
ii. Open File and Create New Java Project.
iii. Inside the Java Project rename give name to your Java Class.
iv. Click on Finish.
v. Type the Java Code in the opened class.
vi. Save the code by pressing Ctrl+S.
vii. Run the code by pressing Shift+F6.

B. Program code with comments:

Write and execute your program code to achieve the given aim and attach it **with your own comments with neat indentation**.

6. Post-Experiments Exercise

A. Extended Theory:

1. Explain how to implement Multiple Inheritance in Java with syntax and example.
2. Differentiate between Abstract Class and Interfaces.

B. Results/Observations/Program output:

Present the program input/output results and comment on the same.

C. Questions/Programs:

1. Write a class PoliceCar that implements the IsEmergency and IsLandVehicle interfaces. In addition to the methods you have written for the PoliceCar class, think of a new method or property that police cars have and add it to the class.

D. Conclusion:

1. Write what was performed in the experiment/program.
2. What is the significance of experiment/program?
3. Mention few applications of what was studied.

E. References

1. Balguruswamy, "Programming with java A primer", Fifth edition, Tata McGraw Hill Publication.
2. Let Us Java-Yashwant Kanetkar.
3. Learn to Master JAVA, from Star EDU solutions , by ScriptDemics.
4. Java 8 Programming-Black Book,by-Dreamtech Publications.
5. www.programmingsimplified.com.