Object Oriented Programming using Java Laboratory (DJS23FLES201)
Academic Year 2023-24

EXPERIMENT NO. 9

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BATCH -B1

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AIM / OBJECTIVE:

To implement multiple inheritance using interfaces and method overriding

DESCRIPTION OF EXPERIMENT:

To implement multiple inheritance using interfaces and method overriding

a. Design an interface with a method reversal. This method takes a string as input and returns the reversed string. Create a class that implements the above interface.

CODE –

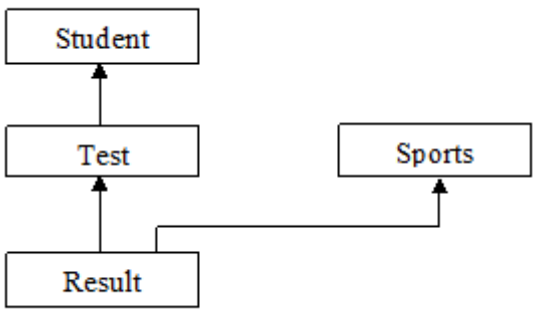
```
interface StringOperations{
String reversed(String str);
}
class StringManipulator implements StringOperations{
public String reversed(String str){
StringBuilder reversed=new StringBuilder(str);
reversed.reverse();
return reversed.toString();
}
}
```

```
public class Main{
public static void main(String args[]){
StringManipulator manipulator=new StringManipulator();
String inputString="Hello World";
System.out.println("Original String:"+inputString);
String reversedString=manipulator.reversed(inputString);
System.out.println("Reversed String:"+reversedString);
}
}
```

OUTPUT-

```
C:\Users\Arshad\Desktop\study\java>java Main
Original String:Hello World
Reversed String:dlroW olleH
```

b. WAP to implement three classes namely Student, Test and Result. Student class has member as rollno, and read(). Test class has members as sem1_marks and sem2_marks and read(). Result class has member as total. Create an interface named sports that has a member score (). Derive Test class from Student and Result class has multiple inheritances from Test and Sports. Total is formula based on sem1_marks, sem2_mark and score. Use super keyword.



CODE-

```
import java.util.Scanner;


interface Sports {
    void score();
}


class Student {
    int rollno;


    void read() {
        Scanner scanner = new Scanner(System.in);
        System.out.println("Enter Roll No:");
        rollno = scanner.nextInt();
    }
}


class Test extends Student {
    int sem1_marks, sem2_marks;


    void read() {
        super.read();
```

```
        Scanner scanner = new Scanner(System.in);

        System.out.println("Enter Semester 1 marks:");

        sem1_marks = scanner.nextInt();

        System.out.println("Enter Semester 2 marks:");

        sem2_marks = scanner.nextInt();

    }

}


class Result extends Test implements Sports {

    int total;


    public void score() {

        Scanner scanner = new Scanner(System.in);

        System.out.println("Enter Sports Score:");

        int sportsScore = scanner.nextInt();

        total = sem1_marks + sem2_marks + sportsScore;

            System.out.println("----------STUDENT RESULT----------");

            System.out.println("STUDENT ROLL NO. "+ rollno);

        System.out.println("TOTAL MARKS: " + total);

    }

}
```

```
public class Main {

    public static void main(String[] args) {

        Result result = new Result();

        result.read();

        result.score();

    }

}
```

OUTPUT-

```
C:\Users\Arshad\Desktop\study\java>java Main
Enter Roll No:
7
Enter Semester 1 marks:
99
Enter Semester 2 marks:
99
Enter Sports Score:
85
----------STUDENT RESULT----------
STUDENT ROLL NO. 7
TOTAL MARKS: 283
```

CONCLUSION:

Base all conclusions on your actual results; describe the meaning of the experiment and the implications of your results.

→We learned about interfaces, which define a contract for classes to implement. Interfaces contain method signatures, but no method bodies. We discussed polymorphism, which allows

objects of different classes to be treated as objects of a common superclass. This is achieved through method overriding and method overloading.

Website References: javapoint.com

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