**LAB Assignment 4**

**Date of Submission:** 02-10-2020

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**Experiment 8**

**Aim:** Create a package ‘studpack’ which incorporates Student class and Sports interface. Create a Result class that extends Student class and implements a sports interface to display the total marks. The details of the classes and interfaces described below. Use appropriate access specifier as per the requirement. (\*method, - variable)

Create a java program Hybrid.java that imports Result class from studpack and display the total for 5 students.

**Concepts Used:** Interface, Package

**Algorithm:**

1. Package studpack
2. Interface Sports
3. grade: int
4. displayGrad(): void
5. Class Student
6. name: String
7. rollNo: int
8. mark1: int
9. mark2: int
10. mark3: int
11. Class Result implements Sports and extends Students
12. total : int
13. displayGrade():
14. Step1: print grade
16. displayTotal():
17. Step 1: total = mark1+mark2+mark3+grade
18. Step 2: print total
19. Step 3: print rollNo
20. Step 4: stop
22. Class Hybrid
23. import studpack.Result
24. main()
25. r = new Result()
26. r.displayTotal()
27. r.displayGrade()

**Result:** The program is successfully compiled and the required output is obtained.

**Program Code:**

/\* File Name: Student.java

\*

\* Done by Rohit Karunakaran

\*

\* \*/

package studpack;

public class Student

{

String name;

int rollNo;

int mark1,mark2,mark3;

public Student(String name, int rollNo,int mark1,int mark2,int mark3)

{

this.name = name;

this.rollNo = rollNo;

this.mark1 = mark1;

this.mark2 = mark2;

this.mark3 = mark3;

}

public Student()

{

this("",0,0,0,0);

}

public void displayTotal()

{

int total = mark1+mark2+mark3;

System.out.println("Total marks earned by "+this.name+" is : "+total);

}

}

//Results

/\* File name : Result.java

\*

\* Done by : Rohit Karunakaran

\*

\*/

package studpack;

interface Sports

{

int grade = 34; //This is public static final

void displayGrade();

}

public final class Result extends Student implements Sports

{

private int total;

public void displayGrade()

{

System.out.println("Grade = "+this.grade);

}

public Result(String name, int rollNo, int mark1, int mark2, int mark3)

{

super(name,rollNo,mark1,mark2,mark3);

// total = marks + grade;

this.total = this.mark1+this.mark2+this.mark3+this.grade;

}

public Result()

{

this("",0,0,0,0); //Constructor chaining

}

public void displayTotal()

{

System.out.println("\n======================================");

System.out.println("Name of the student is "+this.name);

System.out.println("Roll No: "+this.rollNo);

System.out.println("Total = "+this.total);

System.out.println("======================================\n");

}

}

//Hybrid.java

/\* File Name : Hybrid.java

\*

\* Done By: Rohit Karunakaran

\*

\* The package studpack contains the classes Result and Students and a Sports interface

\*

\* The Result class implements Sports and inherits Student.

\* \*/

import studpack.Result;

import studpack.Student;

public class Hybrid

{

public static void main(String args[])

{

String name[] = {"Bhaskaran Pilla","Chandra Mohan","Sivadasan","Mani Vessel","Narayani"};

int rollNo[] = {4,11,56,34,41};

int marks[] = {45,69,23};

//Create an arry of 5 students

Student A[]=new Result[5]; //Dynamic Method Dispatch

//Set the values for the Students

for(int i = 0;i<5;i++){

A[i] = new Result(name[i],rollNo[i],marks[i%3]+2\*i,marks[i%3]+3\*i,marks[i%3]+4\*i);

}

//Print out the values for the students

for(int i = 0;i<5;i++){

A[i].displayTotal();

}

}

}

**Sample output:**

======================================

Name of the student is Bhaskaran Pilla

Roll No: 4

Total = 169

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Name of the student is Chandra Mohan

Roll No: 11

Total = 250

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Name of the student is Sivadasan

Roll No: 56

Total = 121

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Name of the student is Mani Vessel

Roll No: 34

Total = 196

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Name of the student is Narayani

Roll No: 41

Total = 277

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