Lab -3
May 5, 2021

1) Consider an example of declaring the examination result. Design three classes: Student, Exam and Result. The student class has data members such as those representing roll number, name etc. Create the Exam by inheriting Student class. The Exam class adds fields representing the marks scored in six subjects. Derive Result from the Exam class and it has its own fields such as total_marks. Develop a Java program for this.

Code :

```
import java.util.Scanner;

public class studInherit {
    String name;
    int id;
    Scanner sc = new Scanner(System.in);
    void input()
    {
      System.out.println("Enter name :");
      name  = sc.next();
      System.out.println("Enter id :");
      id = sc.nextInt();


    }

    void disp(){
        System.out.println("Name : "+name);
        System.out.println("Id : "+id);
    }
}

class exam extends studInherit{
    int m[] = new int[6];
    Scanner sc = new Scanner(System.in);
    void setmarks(){
        System.out.println("Enter marks in 6 Subjects : ");

        for(int i=0;i<6;i++){
        m[i] = sc.nextInt();

        }
    }
    void dispmarks(){
        System.out.println("marks scored in 6 Subjects : ");

        for(int i=0;i<6;i++){
       System.out.println("subject "+(i+1)+" : "+m[i]);
        }
    }

}
class result extends exam{
    int total = 0;

    void dispres(){
        for (int i =0;i<6;i++){
        total += m[i];
        }
```

```
        int avg = total/6;
        System.out.println("Total marks scored in 6 subjects : "+total);
        System.out.println("Average marks scored in 6 subjects : "+avg);
```

```
        if(avg>=90 && avg<=100)
        {
            System.out.println("Grade : S");
        }
        if(avg>=80&&avg<90)
        {
            System.out.println("Grade : A");
        }
        if(avg>=60&&avg<80)
        {
            System.out.println("Grade : B");
        }
        if(avg>=50&&avg<60)
        {
            System.out.println("Grade : C");
        }
    }
}
```

```
class testSt{
    public static void main(String[] args){
        result r = new result();
        r.input();
        r.setmarks();
```

```
        r.disp();
        r.dispmarks();
        r.dispres();
    }
}
```

Output:

```
Enter name :
sun
Enter id :
1
Enter marks in 6 Subjects :
94
95
96
97
98
99
Name : sun
Id : 1
marks scored in 6 Subjects :
subject 1 : 94
subject 2 : 95
subject 3 : 96
subject 4 : 97
subject 5 : 98
subject 6 : 99
Total marks scored in 6 subjects : 579
Average marks scored in 6 subjects : 96
Grade : S
PS C:\Users\Asus\Desktop\GIT>
```

2) Develop a Java program which demonstrates derivation of a specialized class Mango from a base class Fruit using features of inheritance.

Fruit class details:

Member variables: Unitprice, quantity

Method: totalcost: compute cost

readData: for reading member variables

display: display method

Mango class derived from Fruit class:

Member variables: name, taste

Method: makeJuice: additional method

Create a driver class and show the functionalities.

Code:

```
import java.util.Scanner;

public class fruits {
  int price;
  float q,t;
  Scanner sc = new Scanner(System.in);
```

```
  void read(){
      System.out.println("Enter unit price : ");
      price = sc.nextInt();
      System.out.println("Enter quantity in kg : ");
      q = sc.nextFloat();
```

```
  }
  void total(){
    t = price*q;
```

```
    System.out.println("Total amount to be paid : "+t);
  }
  void disp(){
    System.out.println("unit price : "+price);

    System.out.println("quantity required in kg : "+q);
```

```

  }
```

```
}
```

```
class mango extends fruits{
    String name,taste;
    void readm(){
        System.out.println("Enter type of mango : ");
        name = sc.next();
        System.out.println("What is the taste of it?? : ");
        taste = sc.next();

    }
```

```
    void makeJuice(){
        if(taste.equals("sweet")){
            System.out.println("Woah..! it's best suited for making juices");
```

```
            System.out.println("do you want to try it??y/n");
            String ch = sc.next();

            if(ch.equals("y")){
                System.out.println("Enter number glasses you want");
                int qu = sc.nextInt();

                System.out.println("Total bill amount :"+(qu*45));
            }
            if(ch.equals("n")){
                System.out.println("Thank you !!!");

            }

        }
        if(taste.equals("sour")){
            System.out.println("It's not best suited for making juices");
        }
        // else{
        //     System.out.println("cannot make juice with this taste");
        // }
    }

}

class testfruit{
    public static void main(String[] args){

        mango m = new mango();

        m.read();
        m.disp();
        m.total();

        m.readm();
        m.makeJuice();
    }
}
```

Output:

```
ca8ec5d0b9\redhat.java\jdt_ws\GIT_d4ab13ff\bin' 'testfru
Enter unit price :
50
Enter quantity in kg :
2.5
unit price : 50
quantity required in kg : 2.5
Total amount to be paid : 125.0
Enter type of mango :
badam
What is the taste of it?? :
sweet
Woah..! it's best suited for making juices
do you want to try it??y/n
y
Enter number glasses you want
2
Total bill amount :90
```