ASSIGNMENT-6

20BCSE50_Kumar Jijnasu_CSE-C1_08

1..

```
import java.util.Scanner;
class Account{
    int accNo,balance,timePeriod;
    static float rate=7.5f;

    Account(int ano,int p,int t){
        accNo = ano;
        balance = p;
        timePeriod = t;
    }

    float calculateIntrest()
    {
        return rate*balance/100;
    }

    void showAccDetails()
    {
        System.out.println("\nTHE ACC NO.: "+accNo+"\nBALANCE: "+balance+"\nAMOUNT OF
INTREST: "+calculateIntrest());
    }

    static void changeIntRate(float newRate)
    {
        rate=newRate;
    }
}
class Driver{
    public static void main(String args[]){
        int n=3,ano,p,t;
        Scanner sc = new Scanner(System.in);
        Account ac[]=new Account[n];
        for(int i=0;i<n;i++)
        {
            System.out.println("\nEnter the ACCOUNT NO., BALANCE & TIME PERIOD : ");
            ano = sc.nextInt();
            p = sc.nextInt();
            t = sc.nextInt();
            ac[i]=new Account(ano,p,t);
        }

        System.out.println("\nAll account details with rate : "+Account.rate);
        for(int i=0;i<n;i++)
```

```
            ac[i].showAccDetails();

        Account.changeIntRate(9);

        System.out.println("\nAll account details with rate : "+Account.rate);
        for(int i=0;i<n;i++)
            ac[i].showAccDetails();

        sc.close();
    }
}
```

2..

```
class Point2D {
    private int x,y;

    Point2D()
    {
        x = 0;
        y = 0;
    }

    Point2D(int x1,int y1)
    {
        x = x1;
        y = y1;
    }

    int getX()
    {
        return x;
    }

    int getY()
    {
        return y;
    }

    void setX(int x1)
    {
        x = x1;
    }

    void setY(int y1)
    {
        y = y1;
    }
```

```
    String ttoString()
    {
        return "("+String.valueOf(x)+","+String.valueOf(y)+")";
    }

}


class Point3D extends Point2D
{
    private int z;

    Point3D()
    {
        // x = 0;
        // y = 0;
        z = 0;
    }

    Point3D(int x1,int y1,int z1)
    {
        // x = x1;
        // y = y1;
        setX(x1);
        setY(y1);
        z = z1;
    }

    int getZ()
    {
        return z;
    }

    void setZ(int z1)
    {
        z = z1;
    }

    String ttoString()
    {
      return "("+String.valueOf(getX())+","+String.valueOf(getY())+","+String.valueOf(z)+")";
    }

}
```

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

        Point2D p21 = new Point2D(5,6);
        Point3D p31 = new Point3D(50,60,70);

        System.out.println(p21.ttoString());
        System.out.println(p21.getX());
        System.out.println(p21.getY());
        p21.setX(55);
        p21.setY(66);
        System.out.println(p21.getX());
        System.out.println(p21.getY());
        System.out.println(p21.ttoString());

        System.out.println("\n\n"+p31.ttoString());
        System.out.println(p31.getX());
        System.out.println(p31.getY());
        System.out.println(p31.getZ());
        p31.setX(555);
        p31.setY(666);
        p31.setZ(777);
        System.out.println(p31.getX());
        System.out.println(p31.getY());
        System.out.println(p31.getZ());
        System.out.println(p31.ttoString());

    }
}
```

3..

```
class Circle extends Point2D
{
    private double radius;
    private String color;

    Circle()
    {
        radius = 1.0;
        color = "red";
    }

    Circle(int x,int y,double r,String c)
    {
        setX(x);
        setY(y);
```

```
        radius = r;
        color = c;
    }

    double getRadius()
    {
        return radius;
    }

    void setRadius(double r)
    {
        radius = r;
    }

    String getColor()
    {
        return color;
    }

    void setColor(String c)
    {
        color = c;
    }

    double getArea()
    {
        return 3.14*radius*radius;
    }

    String ttoString()
    {
        return "Circle[Center=("+getX()+","+getY()+"), radius="+radius+", color="+color+"]";
    }
}


class Cylinder extends Circle
{
    private double height;

    Cylinder()
    {
        height = 1.0;
    }

    Cylinder(int x,int y, double r, String c, double h)
    {
        setX(x);
        setY(y);
        setRadius(r);
```

```
        setColor(c);
        height = h;
    }

    double getHeight()
    {
        return height;
    }

    void setHeight(double h)
    {
        height = h;
    }

    double getVolume()
    {
        return getArea()*height;
    }

    String ttoString()
    {
        return "Cylinder Base is a "+super.ttoString()+", Cylinder Height="+height;
    }
}

class circleDriver
{
    public static void main(String[] args) {
        Circle c = new Circle(4,5,1.0,"green");
        Cylinder cyl = new Cylinder(4,5,1.0,"green",10);
        System.out.println(c.ttoString());
        System.out.println(c.getArea());
        System.out.println(cyl.ttoString());
        System.out.println(cyl.getVolume());
    }
}
```

4..

```
class Person6 {
    private String name;
    private String address;

    Person6()
    {

    }
```

```
    Person6(String n, String a)
    {
        name = n;
        address = a;
    }

    String getName()
    {
        return address;
    }

    String getAddress()
    {
        return address;
    }

    void setName(String n)
    {
        name = n;
    }

    void setAddress(String a)
    {
        address = a;
    }

    String ttoString()
    {
        return name+"("+address+")";
    }
}


class Student6 extends Person6
{
    private int numCourses;
    private String courses[];
    private int grades[];

    Student6()
    {

    }

    Student6(String n, String a)
    {
        setName(n);
        setAddress(a);
    }
```

```
    void addCourseGrade(String c[], int g[])
    {
        numCourses = c.length;
        courses = c;
        grades = g;
    }

    void printGrades()
    {
        System.out.println("Number of courses = "+numCourses);
        for(int i=0;i<grades.length;i++)
            System.out.println((i+1)+":\t"+courses[i]+" :- "+grades[i]);
    }

    double getAverageGrade()
    {
        int sum = 0;
        for(int i=0;i<numCourses;i++)
            sum += grades[i];
        return 1.0*sum/numCourses;
    }

    String ttoString()
    {
        return "Student: "+super.ttoString();
    }
}


class Teacher6 extends Person6
{
    private int numCourses;
    private String courses[];

    Teacher6(String n,String a)
    {
        setName(n);
        setAddress(a);
    }

    boolean addCourse(String c)
    {
        for(int i=0;i<numCourses;i++)
            if(courses[i]==c)
                return false;

        numCourses += 1;
        String tcrs[] = new String[numCourses];
        for(int i=0;i<numCourses-1;i++)
            tcrs[i] = courses[i];
```

```
        tcrs[numCourses-1] = c;
        courses = tcrs;
        return true;
    }

    boolean removeCourse(String c)
    {
        for(int i=0;i<numCourses;i++)
            if(courses[i]==c)
            {
                int k=0;
                String tcrs[] = new String[numCourses-1];
                for(i=0;i<numCourses;i++)
                    if(courses[i]!=c)
                        tcrs[k++] = courses[i];

                return true;
            }

        return false;
    }

    String ttoString()
    {
        return "Teacher: "+super.ttoString();
    }
}

class personDriver
{
    public static void main(String[] args) {
        Student6 stu = new Student6("hemlo gmys","bbsr1");
        String c[] = {"crs A","crs B","crs C"};
        int g[] = {30,50,70};
        stu.addCourseGrade(c,g);
        stu.printGrades();
        System.out.println("Average : "+stu.getAverageGrade()+"\n"+stu.ttoString());


        Teacher6 th = new Teacher6("theacher one", "bbsr2");
        System.out.println(th.addCourse("course-1"));
        System.out.println(th.addCourse("course-2"));
        System.out.println(th.addCourse("course-1"));
        System.out.println(th.addCourse("course-3"));
        System.out.println(th.removeCourse("course-3"));
        System.out.println(th.removeCourse("course-5"));
        System.out.println(th.ttoString());
    }
}
```