**ASSIGNMENT-8**

20BCSE50\_Kumar Jijnasu\_08\_C1\_CSE

**PACKAGE**

1..

*\btech\Student.java*

package btech;

public class Student{

        int roll;

        String name;

        int m1,m2,m3;

        public Student(int roll,String name,int m1,int m2,int m3){

            this.roll=roll;

            this.name=name;

            this.m1=m1;

            this.m2=m2;

            this.m3=m3;

        }

        public void display(){

            System.out.println("Roll\_no : "+roll);

            System.out.println("Name : "+name);

            System.out.println("-----MARKS-----");

            int sum=m1+m2+m3;

            System.out.println("Sub 1    : "+m1);

            System.out.println("Sub 2    : "+m2);

            System.out.println("Sub 3    : "+m3);

*// int per=sum/3;*

            System.out.println("percentage : "+sum/3);

        }

    }

\StudentDriver.java

import java.util.Scanner;

import btech.Student;

class StudentDriver {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        int roll;

        int m1,m2,m3;

        String name;

        System.out.print("Enter roll no : ");

        roll = sc.nextInt();

        System.out.print("Enter name: ");

        sc.nextLine();

        name = sc.nextLine();

        System.out.print("Enter the marks of 3 subjects: ");

        m1 = sc.nextInt();

        m2 = sc.nextInt();

        m3 = sc.nextInt();

        Student s1 = new Student(roll,name,m1,m2,m3);

        s1.display();

    }

}

2..

*\btech\arithmetic\MyMath.java*

package btech.arithmetic;

public class MyMath{

    int a,b;

    public MyMath(int a,int b){

        this.a=a;

        this.b=b;

    }

    public int doSum(){

        return a+b;

    }

    public int dosub(){

        return a-b;

    }

    public int domul(){

        return a\*b;

    }

    public int dodiv(){

        return a/b;

    }

    public int dorem(){

        return a%b;

    }

}

*\MyMathDriver.java*

import java.util.Scanner;

import btech.arithmetic.MyMath;

class MyMathDriver {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        int a,b,ans;

        System.out.print("Enter the two no.s : ");

        a = sc.nextInt();

        b = sc.nextInt();

        MyMath m1 = new MyMath(a,b);

        System.out.println("the sum of both the no.s is : "+m1.doSum());

    }

}

3..

*\org\shape\Circle.java*

package shape;

import java.util.Scanner;

public class Circle {

    int radius;

    public Circle() {

    }

    public Circle(int radius) {

        this.radius = radius;

    }

    public void input()

    {

        Scanner sc = new Scanner(System.in);

        System.out.print("Enter the radius: ");

        radius = sc.nextInt();

    }

    public void area()

    {

        System.out.println("Area of the circle = "+3.14\*radius\*radius);

    }

    public void perimeter()

    {

        System.out.println("Perimeter of the circle = "+3.14\*radius\*2);

    }

}

*\org\shape\Triangle.java*

package shape;

import java.util.Scanner;

public class Triangle {

    int base, height, left, right;

    public Triangle() {

    }

    public Triangle(int base, int height, int left, int right) {

        this.base = base;

        this.height = height;

        this.left = left;

        this.right = right;

    }

    public void input()

    {

        Scanner sc = new Scanner(System.in);

        System.out.print("Enter the base, height, side1 and side2 : ");

        base = sc.nextInt();

        height = sc.nextInt();

        left = sc.nextInt();

        right = sc.nextInt();

    }

    public void area()

    {

        System.out.println("Area of the triangle = "+0.5\*base\*height);

    }

    public void perimeter()

    {

        System.out.println("Perimeter of the triangle = "+base+left+right);

    }

}

*\org\shape\Square.java*

package shape;

import java.util.Scanner;

public class Square

{

    int side;

    public Square() {

    }

    public Square(int side) {

        this.side = side;

    }

    public void input()

    {

        Scanner sc = new Scanner(System.in);

        System.out.print("Enter the side : ");

        side = sc.nextInt();

    }

    public void area()

    {

        System.out.println("Area of the square = "+side\*side);

    }

    public void perimeter()

    {

        System.out.println("Perimeter of the square = "+4\*side);

    }

}

*\org\CircleDriver.java*

import java.util.Scanner;

import shape.Circle;

import shape.Triangle;

import shape.Square;

public class CircleDriver {

    public static void main(String[] args) {

*// Scanner sc = new Scanner(System.in);*

        Circle c = new Circle();

        c.input();

        c.area();

        c.perimeter();

        Square s = new Square();

        s.input();

        s.area();

        s.perimeter();

    }

}

**INTERFACE**

1..

*Movable.java*

public interface Movable{

    public void moveUp();

    public void moveDown();

    public void moveLeft();

    public void moveRight();

}

*MovablePoint.java*

public class MovablePoint implements Movable {

*// instance variables*

    int x, y, xSpeed, ySpeed; *// package access*

*// Constructor*

    public MovablePoint(int x, int y, int xSpeed, int ySpeed) {

        this.x = x;

        this.y = y;

        this.xSpeed = xSpeed;

        this.ySpeed = ySpeed;

    }

*// Implement abstract methods declared in the interface Movable*

    @Override

    public void moveUp() {

        y -= ySpeed;

    }

    @Override

    public void moveDown() {

        y += ySpeed;

    }

    @Override

    public void moveLeft() {

        x -= xSpeed;

    }

    @Override

    public void moveRight() {

        x += xSpeed;

    }

    public String toString(){

        return "x coordinate = "+x+", y co-ordinate = "+y;

    }

}

*MovableCircle.java*

public class MovableCircle implements Movable { *// saved as "MovableCircle.java"*

*// instance variables*

    private int radius;

    private MovablePoint center;

*// Constructor*

    public MovableCircle(int x, int y, int xSpeed, int ySpeed, int radius)

    {

        this.radius = radius;

        center = new MovablePoint(x, y, xSpeed, ySpeed);

    }

*// Implement abstract methods declared in the interface Movable*

    @Override

    public void moveUp() {

        center.y -= center.ySpeed;

    }

    @Override

    public void moveDown(){

        center.y += center.ySpeed;

    }

    @Override

    public void moveRight(){

        center.x -= center.xSpeed;

    }

    @Override

    public void moveLeft(){

        center.x += center.xSpeed;

    }

    public String toString(){

        return "A movable circle: radius = "+radius+" center is a point = "+center;

    }

}

public class TestPointCircle {

    public static void main(String[] args) {

        Movable m1 = new MovablePoint(5, 6, 10, 15); *// upcast*

        System.out.println(m1);

        m1.moveLeft();

        System.out.println(m1);

        Movable m2 = new MovableCircle(1, 2, 3, 4, 20); *// upcast*

        System.out.println(m2);

        m2.moveRight();

        System.out.println(m2);

    }

}

2..

*MovableRectange.java*

public class MovableRectange implements Movable{

    private MovablePoint topLeft;

    private MovablePoint bottomRight;

    public MovableRectange(int x1,int y1, int x2, int y2, int xsp, int ysp)

    {

        topLeft = new MovablePoint(x1,y1,xsp,ysp);

        bottomRight = new MovablePoint(x2,y2,xsp,ysp);

    }

    public String toString(){

        return "A movable rectangle with top left point= "+topLeft+" bottom right point="+bottomRight;

    }

    @Override

    public void MoveUp(){

        topLeft.MoveUp();

        bottomRight.MoveUp();

    }

    @Override

    public void MoveDown(){

        topLeft.MoveDown();

        bottomRight.MoveDown();

    }

    @Override

    public void MoveLeft(){

        topLeft.MoveLeft();

        bottomRight.MoveLeft();

    }

    @Override

    public void MoveRight(){

        topLeft.MoveRight();

        bottomRight.MoveRight();

    }

}