Selected files

2 printable files

Lab 2\Question 1 Points in 2 Dimension\Point2D.java
Lab 2\Question 1 Points in 2 Dimension\TestingPoint2D.java

Lab 2\Question 1 Points in 2 Dimension\Point2D.java

```java
import java.util.Scanner;

public class Point2D {
    private int x;
    private int y;

    public Point2D() {
        this(0, 0);
    }

    public Point2D(int x, int y) {
        this.x = x;
        this.y = y;
    }

    public Point2D(Point2D p) {
        this(p.x, p.y);
    }

    public void input() {
        Scanner scanner = new Scanner(System.in);
        System.out.println("Enter X: ");
        this.x = scanner.nextInt();
        System.out.println("Enter Y: ");
        this.y = scanner.nextInt();
    }

    public String toString() {
        return "(" + x + ", " + y + ")";
    }

    public void move(int x, int y) {
        this.x = x;
        this.y = y;
    }

    public boolean isOrigin() {
        return x == 0 && y == 0;
    }

    public double distance(Point2D p) {
        int dx = this.x - p.x;
        int dy = this.y - p.y;
        return Math.sqrt(dx * dx + dy * dy);
    }

    public static double distance(Point2D p1, Point2D p2) {
        int dx = p1.x - p2.x;
        int dy = p1.y - p2.y;
        return Math.sqrt(dx * dx + dy * dy);
    }
```

```
}

```

Lab 2\Question 1 Points in 2 Dimension\TestingPoint2D.java

```java
public class TestingPoint2D {
    public static void main(String[] args) {
        // Test the Point2D class
        Point2D p1 = new Point2D();
        System.out.println("Initial value of p1: " + p1);
        System.out.println("Is p1 at the origin? : " + p1.isOrigin());
        System.out.println("Asking user to change values for p1!");
        p1.input();
        System.out.println("New value of p1: " + p1);

        Point2D p2 = new Point2D(4, 7);
        System.out.printf("The value of p2: %s\n", p2);

        Point2D p3 = new Point2D(p2);
        System.out.printf("The value of p3: %s\n", p3);

        System.out.printf("First way to calculate distance between p1 and p2: %.2f\n", p1.distance(p2));
        System.out.printf("Second way to calculate distance between p1 and p2: %.2f\n", Point2D.distance(p1, p2));
        System.out.printf("First way to calculate distance between p2 and p3: %.2f\n", p2.distance(p3));
        System.out.printf("Second way to calculate distance between p2 and p3: %.2f\n", Point2D.distance(p2, p3));
    }
}

```