

Quiz 1

Subject: Classes, Constructors, Encapsulation

Due Date: 12.03.2021 / Duration Time: 40 minutes

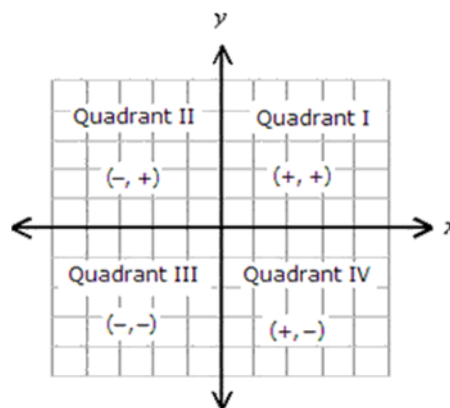
Problem: Creating Point Class

Define a **Point** class with:

- Two attributes: x and y which are double. It cannot be accessed from outside of the class.
- One constructor which is Point() to construct a point at given coordinate(x, y) values
- One constructor which is Point() to construct a point at (0,0)
- Get/set methods
- toString() method which returns character data that can be printed such as (x,y)
- distance() method takes two Point objects as parameter and returns double value of distance of these two objects.

Distance between two coordinates: $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

- equals() method takes one Point object and checks if two point objects hold equivalent data
- quadrant() method that should return quadrant number where a point is on the coordinate plane.



1 Important Notes

- We will give you Point.java file. In this file each task you need to complete is given.
- Point.java file is as shown below.

- You can write your main function to test your code if you want.
- While evaluating, we will create an object from your class and test each function separately. If you do your constructor function incorrectly, it creates the object incorrectly, and therefore your other functions will also produce incorrect output. Your constructor functions must be correct in order for your other functions to produce correct output as well.
- Some function parameters didn't specify. Please specify if your function needs to take parameters according to the function definitions above.
- **Please submit only Point.java file to codePost.**

```
public class Point {
    //define your attributes
    public Point() // creates a point at (0,0)
    {
        //write your code
    }

    public Point(double x, double y) // creates a point at (x,y)
    {
        //write your code
    }

    public double getX(/*parameters if necessary*/) {
        //write your code
    }

    public void setX(/*parameters if necessary*/) {
        //write your code
    }

    public double getY(/*parameters if necessary*/) {
        //write your code
    }

    public void setY(/*parameters if necessary*/) {
        //write your code
    }

    // returns quadrant number (1,2,3,4) where a point is on the coordinate plane
    public int quadrant(/*parameters if necessary*/)
    {
        //write your code
    }

    //returns double value which is distance of between two point objects
    public static double distance(/*parameters if necessary*/)
    {
        //write your code
    }

    // checks if two point objects hold equivalent data and if equals returns true, else returns false
    boolean equals(/*parameters if necessary*/)
    {
        //write your code
    }

    public String toString(/*parameters if necessary*/) { //prints points such as (x,y)
        //write your code
    }
}
```