Homework 1 (All sections)

Submit your homework to Moodle. Submission link and deadline will be notified through Moodle message.

You are given with a partial implementation of three classes: Point2D, Circle, and Rectangle. Complete the implementation according to the following instructions. Note that the numbers inside brackets specify the marks allotted to each task.

Point2D: [4 Marks]

-[2]Complete setX funciton

-[2]Complete getX function

Circle: [16 Marks]

-[2]write a default constructor that initializes all values to 0

-[2]Complete the all-argument constructor: Circle(Point2D c, double r)

-[2]write getter and setter methods for this class

-[2]Complete the intersect(Circle rhs) function that determines if this circle intersects with another circle rhs

-[2]Complete the contains(Circle rhs) function that determines if this circle contains another circle rhs

-[2]Complete contains(Point2D p) function that determines if this circle contains a point p

-[2]Complete perimeter() function that returns perimeter of the circle

-[2]write a destructor that sets all values to 0

Rectangle: [25 Marks]

-[3]define two variables that specifies the rectangle in a 2d space the variables should represent: top-right point, bottom-left point

-[2]write a default constructor that initializes all values to 0

-[3]write an all-argument constructor that accepts values of all member variables and set the members variables accordingly

-[2]write getter and setter methods for this class

-[2]Complete the area() function that returns area of the rectangle

-[3]Complete the intersect(Rectangle rhs) function that determines if this rectangle intersects with another rectangle rhs

-[3]Complete the contains(Rectangle rhs) function that determines if this rectangle contains another rectangle rhs

-[3]Complete inside(Circle c) function that determines if this rectangle is completely inside a circle c

-[2]Complete the perimeter() function that returns perimeter of the rectangle

-[2]write a destructor that sets all values to 0

Main: [5 Marks]

-Create suitable examples to demonstrate all functionalities as specified in the cpp file.

More practice: [For online]

-Extend your program to include facilities for other geometric objects such as square, triangle, ellipse, etc.