Assignment #1 (Due 2/24/2017)

Create an application program that will compute the area and circumference of a circle. Write a Main class with Helper methods to prompt for and input the radius of a circle (getRadius), calculate the circumference (calcCirc), and calculate the area (calcArea) of a circle. Define the radius, area, and circumference in main which will call each calc method, passing radius to each one. Assume PI = 3.14159 or use the Math.PI builtin constant. Format the output to show two decimal places in the calculated values. Then write a second version that uses the Circle class (see code template) and only one helper method (getRadius). Submit both versions. See examples in class notes.

Suggested Reading in Textbook: Chapter 1.4 – 1.5, 2.1 – 2.6, 3.6

Sample Run

Enter the radius of the circle: 10.0

The circumference of the circle is: 62.83

The area of the circle is: 314.16

Code Template

The following code template will help with this assignment:

===== Code to use with Version 1, main and helper functions, no Circle object =====

public class Main
{
    public static void main (String[] args)
    {
        // defines variables
        // call helper methods to input the radius
        // call helper method to calculate the circumference
        // call helper method to calculate the area
        // output the calculated values
    }
    public static __________ getRadius()
    {
        // define a local radius variable
        // read in a value for radius
        // return the value
    }
public static _________ calcCirc(___________)  
{
    // calculate and return value for the circumference
    // using the radius passed as an argument
}
public static _________ calcArea(___________) 
{ 
    // calculate and return value for the area
    // using the radius passed as an argument
}

===== Code to use with Version 2 (two .java files) =====

----- Main.java ----- 
public class Main 
{
    public static void main (String[] args) 
    {
        // define Circle object
        // call helper (class) method to input the radius
        // instantiate the Circle object
        // output the circumference using instance method
        // output the area using instance method
    }
    public static _________ getRadius() 
    {
        // define a local radius variable
        // read in a value for radius
        // return the value
    }
}

----- Circle.java ----- 
public class Circle 
{
    double radius;
    public Circle(double rad) 
    {
        radius = rad;
    }
    public double getRadius()
public double getDiameter()
{
    return 2.0*radius;
}

public double getCircumference()
{
    return 2.0*Math.PI*radius;
}

public double getArea()
{
    return Math.PI*radius*radius;
}