CSC 201 Computer Science I

Programming Project 2 - Selection

Point Value – 50 points

Note: When you turn in an assignment to be graded in this class you are making the claim that you neither gave nor received assistance on the work you turned in (except, of course, assistance from the instructor).

Program Name: CircleOperations.java

Write a Java application that calculates and prints the diameter, the circumference, **or** the area of a circle, given the radius, depending on the user's input.

The user should be prompted to enter the radius in floating-point form; once the radius has been read by the program, provide the user with the options to select which calculation to perform on the circle with the given radius, and prompt them to enter one of the options.

(For example: **`To calculate Diameter, Circumference, or Area, enter D, C, or A.)`**

The application should accept a character corresponding to one of three actions: D for Diameter, C for Circumference, or A for Area. The output statements should accurately describe the results being displayed. For example, if the input is:

```
6.75 (for radius)
A  (for calculation type)
```

Your program should print something like this:

```
The area of a circle with radius 6.75 is 143.14.
```

Here are the formulas you'll need:

Diameter = $2r$

Circumference = $2\pi r$

Area of a circle = πr^2

where r is the radius. Use **`Math.PI`** as the value of π.

Your program should be preceded by a comment block with your name, the course and section numbers, the project name, the program purpose, along with a description of the input and a description of the output. Be sure to include appropriate comments throughout your code, choose meaningful identifiers, and use indentation as shown in your textbook and in class. Your filename should be **`CircleOperations.java`**. This means that your class name should be the same characters and case as your file name.

As in the previous projects, you are to include the helper method **`printHeading()`** and your main method must call it before executing any other statements. Follow other commenting conventions as given in class and in your text.

Submit your program by uploading it in the Assignment link in Blackboard.