

MIS6030 - Application Programming.

Assignment 1-Spring 2020 Semester.

Java Application to calculate Area of a donut

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Java Application to calculate the area of a donut

```
package com.company;

import java.util.Scanner;

public class Main {

    public static void main(String[] args) {

        try {
            assignment1();
        } catch (Exception e) {
            System.out.println(e.getMessage());
        }

    }

    private static void assignment1() {
        System.out.println("!! Donut Area Calculator !!!");

        Scanner scanner = new Scanner(System.in);
        Area areaCalc = new Area();
        boolean run = true;

        while(run){
            System.out.print("Enter Radius of outer circle in cm.. : ");
            areaCalc.radius1 = scanner.nextDouble();
            System.out.print("Enter Radius of inner circle in cm.. : ");
            areaCalc.radius2 = scanner.nextDouble();

            System.out.printf("%s%.2f%s", "The Area of your Donut is = ",
            areaCalc.donutAreaCalculator(), " cm squared\n");

            System.out.print("Do you wish to rerun the application? (y/n) : ");
            String cont = scanner.next();

            switch (cont){
                case "y":
                    break;
                case "n":
                    run = false;
                    System.out.println("Good Bye!");
                    break;
                default:
                    System.out.println("!! Invalid entry !!");
                    break;
            }

        }

    }

}
```

```

package com.company;

/**
 * Class to handle donut area calculation
 */
public class Area {

    Double radius1, radius2;

    public void setRadius1(Double radius1) {
        this.radius1 = radius1;
    }

    public void setRadius2(Double radius2) {
        this.radius2 = radius2;
    }

    /**
     * Method to calculate area of a donut
     * @return area of donut
     */
    public Double donutAreaCalculator() {

        if (this.radius1 < this.radius2) {
            throw new IllegalArgumentException("Inner radius cannot be larger than
outer radius");
        }

        return calculateArea(this.radius1) - calculateArea(this.radius2);
    }

    /**
     * Method to calculate area of a circle
     * @param radius
     * @return area of circle
     */
    private Double calculateArea(Double radius){
        return Math.PI * radius * radius;
    }
}

```

1. Screenshot of the running application correctly.

```
!! Donut Area Calculator !!!  
Enter Radius of outer circle in cm.. : 5  
Enter Radius of inner circle in cm.. : 2  
The Area of your Donut is = 65.97 cm squared  
Do you wish to rerun the application? (y/n) : n  
Good Bye!  
  
Process finished with exit code 0
```

2. Screenshot of application if value of inner circle is bigger than outer circle.

```
!! Donut Area Calculator !!!  
Enter Radius of outer circle in cm.. : 2  
Enter Radius of inner circle in cm.. : 5  
Inner radius cannot be larger than outer radius  
  
Process finished with exit code 0
```