COSC 117 Lab 3

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Example 1: Calculate the volume of a sphere

1. Source Code

SphereArea.java | SphereVolume.java

```
1  import java.util.Scanner;
2
3  public class SphereVolume {
4
5      public static void main(String[] args) {
6          // TODO Auto-generated method stub
7          Scanner keyboard = new Scanner (System.in);
8          System.out.println("What is the radius of the sphere?");
9          double radius = keyboard.nextDouble();
10         keyboard.close();
11         double volume = Math.PI * 4/3 * Math.pow(radius, 3);
12         System.out.printf("A sphere with a radius of %.4f has a volume of %.4f", radius, volume);
13
```

2. Output

Problems | Javadoc | Declaration | Console

```
<terminated> SphereArea [Java Application] C:\Users\jpmd1\Desktop\Programming\eclipse-ja
Input the radius of the sphere: r = 3
A sphere with a radius of 3.0000 has a surface area of 113.0973
```

Example 2: Distance Calculation in 2D Plane

1. Source Code

DistanceCalc2D.java

```java
import java.util.Scanner;

public class DistanceCalc2D {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        Scanner keyboard = new Scanner (System.in);
        System.out.println("please input the x and y values of point 1");
        double x1 = keyboard.nextDouble();
        double y1 = keyboard.nextDouble();
        System.out.println("please input the x and y values of point 2");
        double x2 = keyboard.nextDouble();
        double y2 = keyboard.nextDouble();
        keyboard.close();
        double distance = Math.sqrt(Math.pow(x2 - x1, 2) + (Math.pow(y2 - y1, 2)));
        System.out.printf("The distance between these points on the 2D plane is %.4f", distance);

    }

}
```

2. Output

Problems @ Javadoc Declaration Console

```
<terminated> DistanceCalc2D [Java Application] C:\Users\jpmd1\Desktop\Prograr
please input the x and y values of point 1
1
3
please input the x and y values of point 2
5
6
The distance between these points on the 2D plane is 5.0000
```

Example 3: Test Average

1. Source Code

TestAverage.java

```java
import java.util.Scanner;

public class TestAverage {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        Scanner keyboard = new Scanner (System.in);
        System.out.println("Please enter the three test scores you want to average");
        double s1 = keyboard.nextDouble();
        double s2 = keyboard.nextDouble();
        double s3 = keyboard.nextDouble();
        keyboard.close();
        double average = (s1 + s2 + s3) / 3;
        System.out.printf("Your average test score is %.4f", average);

    }

}
```

2. Output

Problems @ Javadoc Declaration Console

```
<terminated> TestAverage [Java Application] C:\Users\jpmd1\Desktop\Prog
Please enter the three test scores you want to average
98
99.5
98.3
Your average test score is 98.6000
```

Example 4: Stock Commission

1. Source Code

StockCommission.java

```java
import java.util.Scanner;

public class StockCommission {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        Scanner keyboard = new Scanner (System.in);
        double shares = 600;
        System.out.println("How much is each of Kathryn's stocks?");
        double price = keyboard.nextDouble();
        System.out.println("What percentage is the commission? (enter in decimal form)");
        double percent = keyboard.nextDouble();
        keyboard.close();
        double beforeCom = shares * price;
        double com = beforeCom * percent;
        double afterCom = beforeCom + com;
        System.out.printf("Before commission, Kathryn pays %.2f, the commission adds %.2f, "
                + "after commission, Kathryn pays %.2f", beforeCom, com, afterCom);

    }

}
```

2. Output

```
Problems  Javadoc  Declaration  Console
<terminated> StockCommission [Java Application] C:\Users\jpmd1\Desktop\Programming\eclipse-java-2021-06-R-win32-x86_64\eclipse\plugins\org.eclipse.justj.
How much is each of Kathryn's stocks?
21.77
What percentage is the commission? (enter in decimal form)
0.02
Before commission, Kathryn pays 13062.00, the commission adds 261.24, after commission, Kathryn pays 13323.24
```

Example 5: Ingredient Adjuster

1. Source Code

IngredientAdjuster.java

```
1  import java.util.Scanner;
2
3  public class IngredientAdjuster {
4
5      public static void main(String[] args) {
6          // TODO Auto-generated method stub
7          Scanner keyboard = new Scanner (System.in);
8          System.out.println("The recipe for cookies makes 48. However, we can calculate how many you want.");
9          double sPerCookie = 1.5 / 48;
10         double bPerCookie = 1.0 / 48;
11         double fPerCookie = 2.75 / 48;
12         System.out.println("How many cookies would you like?");
13         double qty = keyboard.nextDouble();
14         keyboard.close();
15         double sugar = sPerCookie * qty;
16         double butter = bPerCookie * qty;
17         double flour = fPerCookie * qty;
18         System.out.printf("For %.0f cookies, you need %.2f cups of sugar, %.2f cups of butter, "
19                 + "and %.2f cups of flour", qty, sugar, butter, flour);
20
21     }
22
23 }
```

2. Output

Problems @ Javadoc Declaration Console

```
<terminated> IngredientAdjuster [Java Application] C:\Users\jpmd1\Desktop\Programming\eclipse-java-2021-06-R-win3
The recipe for cookies makes 48. However, we can calculate how many you want.
How many cookies would you like?
24
For 24 cookies, you need 0.75 cups of sugar, 0.50 cups of butter, and 1.38 cups of flour
```