CSC 1109 Lab 2

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Question 1

Develop a program to accept the radius of one circle from the console and output the area of the circle. Note that to compute the area, the following formula can be used: Area = radius * radius * PI Define PI as a constant variable with a fixed value 3.14159

Listing 1: Question 1 Source Code.

```java
import java.util.*;

public class q1 {
    static final double PI = 3.14159;
    public static void main(String[] args) {
            Scanner sc = new Scanner(System.in);
            System.out.print("Enter a number for radius: ");
            double radius = sc.nextDouble();
            double area = PI * radius * radius;
            System.out.println("The area for the circle of radius " + ↩
                radius + " is " + area);
        }
}
```

Listing 2: Question 1 Output.

```
Enter a number for radius: 2.5
The area for the circle of radius 2.5 is 19.6349375

Enter a number for radius: 23
The area for the circle of radius 23.0 is 1661.90111

Enter a number for radius: 7.3
The area for the circle of radius 7.3 is 167.41533109999997
```

Question 2

Average calculation for multiple input from keyboard: In this question, you will design a program to accept three number inputs by the user, and display the average of it.

Listing 3: Question 2 Source code.

```java
import java.util.*;

public class q1 {
    static final double PI = 3.14159;
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a number for radius: ");
        double radius = sc.nextDouble();
        double area = PI * radius * radius;
        System.out.println("The area for the circle of radius " + radius +↩
            " is " + area);

    }
}
```

Listing 4: Question 2 Output.

```
Enter three numbers:10.5
11
11.5
The average of 10.5 11.0 11.5 is 11.0

Enter three numbers:1 2 3
The average of 1.0 2.0 3.0 is 2.0

Enter three numbers:10
11.5 19
The average of 10.0 11.5 19.0 is 13.5
```

Question 3

Listing 5: Question 3 Source Code.

```java
1  public class q3 {
2      public static void main(String[] args) {
3          long totalMilliseconds = System.currentTimeMillis();
4          long totalSeconds = totalMilliseconds/1000;
5          long currSecond = totalSeconds % 60;
6          long totalMinutes = totalSeconds / 60;
7          long currMinute = totalMinutes % 60;
8          long totalHours = totalMinutes / 60;
9          long currrHour = totalHours % 24;
10
11          System.out.println("Current time is " + currrHour + ":" + ↩
                  currMinute + ":" + currSecond + " GMT");
12      }
13  }
```

Listing 6: Question 3 Output.

```
1  Current time is 6:49:27 GMT
```

Question 4

Chinese Zodiac Calculation: Now let us write a program to find out the Chinese Zodiac sign for a given year. The Chinese Zodiac is based on a twelve-year cycle, with each year represented by an animal- monkey, rooster, dog, pig, rat, ox, tiger, rabbit, dragon, snake, horse, or sheep— in this cycle, as shown in Figure 2.

Note that year % 12 determines the Zodiac sign. 1900 is the year of the rat because 1900 % 12 is 4. Listing 3.9 gives a program that prompts the user to enter a year and displays the

Listing 7: Question 4 Source Code.

```java
import java.util.*;

public class q4 {
    public static void main(String[] args){
        Scanner sc = new Scanner(System.in);

        System.out.print("Enter a year: ");
        int year = sc.nextInt();

        switch(year % 12){
        case 0:
        System.out.println("monkey");
        break;
        case 1:
        System.out.println("rooster");
        break;
        case 2:
        System.out.println("dog");
        break;
        case 3:
        System.out.println("pig");
        break;
        case 4:
        System.out.println("rat");
        break;
        case 5:
        System.out.println("ox");
        break;
        case 6:
        System.out.println("tiger");
        break;
        case 7:
        System.out.println("rabbit");
        break;
        case 8:
        System.out.println("dragon");
```

```
37            break;
38            case 9:
39            System.out.println("snake");
40            break;
41            case 10:
42            System.out.println("horse");
43            break;
44            case 11:
45            System.out.println("sheep");
46            break;
47            default:
48            System.out.println("Invalid input");
49            break;
50            }
51        }
52 }
```

Listing 8: Question 4 Output.

```
1 Enter a year: 1963
2 rabbit
3
4 Enter a year: 1877
5 ox
6
7 Enter a year: 2000
8 dragon
```