ASSIGNMENT-LAB 02

Course Code: CSE-2340 **Course Title:** Software Development 1
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Problem 01: Write a program to read a length in inch scale and convert it in the centimeter scale.

Answer:

```
import java.util.Scanner;
public class Convert1
{
    public static void main(String[] args)
    {
        Scanner s = new Scanner(System.in);
        System.out.print("Enter length in inches: ");
        double inc = s.nextDouble();
        double cm = inc * 2.54;
        System.out.println(inc + " inches is equal to " + cm + "
centimeters.");
        s.close();
    }
}
```

Problem 02: Write a program to convert a temperature reading in degree Fahrenheit to degree Celsius scale using the formula: C = (5/9)* (F-32).

Answer:

```
import java.util.Scanner;
public class Temp2
 {
    public static void main(String[] args)
     {
        Scanner s = new Scanner(System.in);
        System.out.print("Enter temperature in Fahrenheit: ");
        double F = s.nextDouble();
        double C = (5.0 / 9.0) * (F - 32);
        System.out.println(F + " degree Fahrenheit is equal to "
+ C + " degree Celsius.");
        s.close();
    }
}
```

Problem 03: **Write a program to read the radius of a circle and calculate its area and circumference.**

Answer:

```
import java.util.Scanner;

public class Circle3
{
    public static void main(String[] args)
    {
        Scanner s = new Scanner(System.in);
        System.out.print("Enter the radius of the circle: ");
        double r = s.nextDouble();
        double area = Math.PI * r * r;
        double cir = 2 * Math.PI * r;
        System.out.println("Area of the circle: " + area);
        System.out.println("Circumference of the circle: " +
cir);
        s.close();
    }
}
```

Problem 04: **X, Y, Z are the marks of a student. Write a program to find the total and average marks of the student.**

Answer:

```
import java.util.Scanner;

public class Avg4
{
    public static void main(String[] args)
    {
        Scanner s = new Scanner(System.in);
        System.out.print("Enter marks of X: ");
        double x = s.nextDouble();
        System.out.print("Enter marks of Y: ");
        double y = s.nextDouble();
        System.out.print("Enter marks of Z: ");
        double z = s.nextDouble();
        double total = x+y+z;
        double average = total/3.0;
        System.out.println("Total marks: " + total);
        System.out.println("Average marks: " + average);
        s.close();
```

```
    }
}
```

Problem 05: **Write a program to compute the area of the triangle given the values of A, B and C. Area of a triangle is given by the formula**
Area = √(S (S – A)(S – B) (S – C)) where A, B and C are the sides of triangle and 2S = A + B + C.

Answer:

```
import java.util.Scanner;

public class Area5
{
    public static void main(String[] args)
     {
        Scanner s = new Scanner(System.in);
        System.out.print("Enter the value of side A: ");
        double A = s.nextDouble();
        System.out.print("Enter the value of side B: ");
        double B = s.nextDouble();
        System.out.print("Enter the value of side C: ");
        double C = s.nextDouble();
        double S = (A+B+C)/2.0;
        double Area = Math.sqrt(S * (S-A)*(S-B)*(S-C));
        System.out.println("Area of the triangle: " + Area);
        s.close();
    }
}
```

Problem 06:

Evaluate the polynomial:

$$Y = \left(\frac{x-1}{x}\right) + \left(\frac{x-1}{x}\right)^2 /_2 + \left(\frac{x-1}{x}\right)^3 /_3 + \left(\frac{x-1}{x}\right)^4 /_4$$

Answer:

```
import java.util.Scanner;
public class Polynomial6
 {
    public static void main(String[] args)
    {
        Scanner s = new Scanner(System.in);
        System.out.print("Enter the value of x: ");
        double x = s.nextDouble();
        double A = (x - 1) / x;
```

```
        double B = Math.pow(A, 2) / 2;
        double C = Math.pow(A, 3) / 3;
        double D = Math.pow(A, 4) / 4;
        double R = A + B + C + D;
        System.out.println("Y = " + R);
        s.close();
    }
}
```

Problem 07: Write a program to calculate the roots of the quadratic equation ax 2 + bx+ c = 0 where a, b and c are known.

Answer:

```
import java.util.Scanner;

public class Roots7
{
    public static void main(String[] args)
    {
        Scanner s = new Scanner(System.in);
        double a = 4.0;
        double b = -6.0;
        double c = -3.0;
        double D = b * b - 4 * a * c;
        if (D > 0)
        {
            double root1 = (-b + Math.sqrt(D)) / (2 * a);
            double root2 = (-b - Math.sqrt(D)) / (2 * a);
            System.out.println("Root 1: " + root1);
            System.out.println("Root 2: " + root2);
        }
        else if (D == 0)
        {
            double root = -b / (2 * a);
            System.out.println("Root: " + root);
        }
        else
        {
            double rP = -b / (2 * a);
            double iP = Math.sqrt(-D) / (2 * a);
            System.out.println("Root 1: " + rP + " + " + iP +
"i");
            System.out.println("Root 2: " + rP + " - " + iP +
"i");
        }
        s.close();
    }
```

```
}
```