بسم الله الرحمن الرحيم

International Islamic University Chittagong

Department of Computer Science and Engineering

COURSE CODE	:	CSE-2340
COURSE TITLE	:	Software Development I
LAB NO	:	01

SUBMITTED TO:

Mohammad Mahadi Hassan

Associate Professor, Dept. of CSE, IIUC

SUBMITTED BY:

NAME	:	Md. Tasin Absar
ID NO	:	C241024
SEMESTER	:	3RD
SECTION	:	3AM
DEPARTMENT	:	CSE

DATE OF SUBMISSION: 25/02/2025

Remark:

1. Write a program to read a length in inch scale and convert it in the centimeter scale.

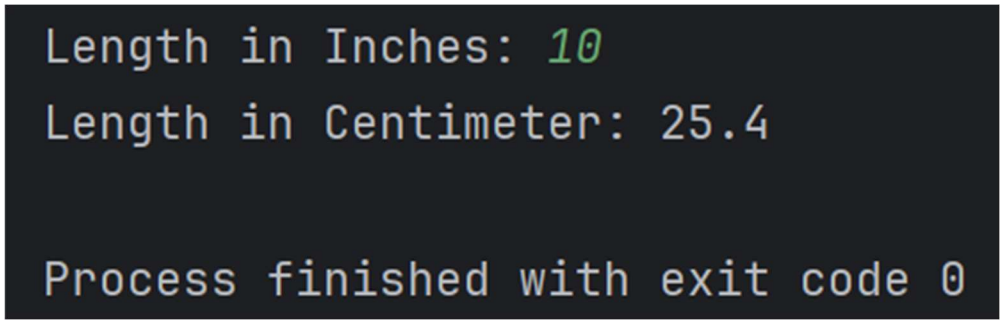
Code:

```
import java.util.*;

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

		System.out.print("Length in Inches: ");
		double lengthInInch = input.nextDouble();
		double lengthInCenti = lengthInInch * 2.54;
		System.out.println("Length in Centimeter: " +
lengthInCenti);
	}
}
```

Input - Output:



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

Code:

```
import java.util.*;

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

		System.out.print("Temperature in Fahrenheit: ");
		double tempInFar = input.nextDouble();
		double tempInCel = (5 / 9.0) * (tempInFar - 32);
		System.out.println("Temperature in Celsius: " +
tempInCel);
	}
}
```

Input - Output:

```
Temperature in Fahrenheit: 100
Temperature in Celsius: 37.77777777777778
```

3. Write a program to read the radius of a circle and calculate its area and circumference.

Code:

```
import java.util.*;
import java.lang.Math;

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

		System.out.print("Radius of a Circle: ");

		int radius = input.nextInt();
		double area = Math.PI * Math.pow(radius, 2);
		double circumference = 2 * Math.PI * radius;

		System.out.println("Area of The Circle: " +
area);
		System.out.println("Circumference of The Circle:
" + circumference);
	}
}
```

Input - Output:

```
Radius of a Circle: 4
Area of The Circle: 50.26548245743669
Circumference of The Circle: 25.132741228718345
```

4. X, Y, Z are the marks of a student. Write a program to find the total and average marks of the student.

Code:

```
import java.util.*;
public class Main
{
	public static void main(String[] args)
	{
		Scanner input = new Scanner(System.in);
		int n, sum = 0;
		System.out.print("Number of Subjects: ");
		n = input.nextInt();
		for (int i = 0; i < n; i++)
		{
			System.out.print("Subject "+(i+1)+":");
			int temp = input.nextInt();
			sum += temp;
		}
		System.out.println("Average: " + (double) sum /
n + "/100.00");
	}
}
```

Input - Output:

```
Number of Subjects: 3
Subject 1: 77
Subject 2: 78
Subject 3: 79
Average: 78.0/100.00
```

5. 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 a triangle and 2S = A + B + C.

Code:

```
import java.util.*;
import java.lang.Math;

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

          int a = input.nextInt();
          int b = input.nextInt();
          int c = input.nextInt();

          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);
     }
}
```

Input - Output:

```
4 7 6
Area of The Triangle: 11.976539567003485
```

6. Evaluate the polynomial:

$$y = \left(\frac{x-1}{x}\right) + \frac{(\frac{x-1}{x})^2}{2} + \frac{(\frac{x-1}{x})^3}{3} + \frac{(\frac{x-1}{x})^4}{4}$$

Code:

```
import java.util.*;
import java.lang.Math;

public class Main
{
	public static void main(String[] args)
	{
		Scanner input = new Scanner(System.in);
		System.out.print("Value of x is: ");
		int x = input.nextInt();
		double y = 0;
		for (int i = 1; i <= 4; i++)
			y += Math.pow(((double) (x - 1) / x), i) /
i;
		System.out.println("Value of y is: " + y);
	}
}
```

Input - Output:

```
Value of x is: 7
Value of y is: 1.5693461057892544
```

7. Write a program to calculate the roots of the quadratic equation ax2 + bx + c = 0 where a, b and c are known.

Code:

```
import java.util.*;
import java.lang.Math;

public class Main
{
	public static void main(String[] args)
	{
		Scanner input = new Scanner(System.in);
		int a = input.nextInt();
		int b = input.nextInt();
		int c = input.nextInt();
		double x1 = (-b + Math.sqrt((b * b) - (4.0 * a *
c))) / (2.0 * a);
		double x2 = (-b - Math.sqrt((b * b) - (4.0 * a *
c))) / (2.0 * a);
		System.out.println("x1 = " + x1);
		System.out.println("x2 = " + x2);
	}
}
```

Input - Output: