**Activity: Methods in C#**

**Objective:**

Use methods in C#: definition, syntax, and use cases.

**Problem 1: Creating a Function for Circle Area Calculation**

**Problem Statement**

Write a method to calculate the area of a circle. The method should accept one input parameter: the radius of the circle. The program should prompt the user for this value, use the method to compute the area, and then display the result.

**Problem 2: Creating a Function for Trapezoid Area Calculation**

**Problem Statement**

Write a method to calculate the area of a trapezoid. The method should accept three input parameters: the length of the two parallel sides (**a** and **b**) and the height. The program should prompt the user for these values, use the method to compute the area, and then display the result.

**Formula**: The area of a trapezoid is given by **(a + b) / 2 \* height**.

**Code:**

**class** **Program**

{

**static** **void** **Main**()

{

Console.Write("Enter the radius of the circle: ");

**string?** input = Console.ReadLine();

// Convert string to double

**if** (**double**.TryParse(input, **out** **double** radius))

{

**double** area = CalculateCircleArea(radius);

Console.WriteLine($"The area of the circle is: {area:F2}");

}

**else**

{

Console.WriteLine("Invalid input. Please enter a numeric value.");

}

Console.Write("Enter the length of side a: ");

**string?** inputA = Console.ReadLine();

Console.Write("Enter the length of side b: ");

**string?** inputB = Console.ReadLine();

Console.Write("Enter the height: ");

**string?** inputHeight = Console.ReadLine();

// Parse inputs to double

**if** (**double**.TryParse(inputA, **out** **double** a) &&

**double**.TryParse(inputB, **out** **double** b) &&

**double**.TryParse(inputHeight, **out** **double** height))

{

**double** area = CalculateTrapezoidArea(a, b, height);

Console.WriteLine($"The area of the trapezoid is: {area:F2}");

}

**else**

{

Console.WriteLine("Invalid input. Please enter numeric values.");

}

}

// Method to calculate area

**static** **double** **CalculateCircleArea**(**double** radius)

{

**return** Math.PI \* radius \* radius;

}

// Method to calculate trapezoid area

**static** **double** **CalculateTrapezoidArea**(**double** a, **double** b, **double** height)

{

**return** (a + b) / **2** \* height;

}

}