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;
    }
}
```