QUESTION 1

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using System;
using System.Text.RegularExpressions;
using System.Data;

0 references
class Program
{
    0 references
    static void Main(string[] args)
    {
        int studentIdSuffix = 36;

        string input = "x:userinput; y:userinput; z:4; result: x * y + z;";

        ProcessCustomString(input, studentIdSuffix);
    }

    1 reference
    static void ProcessCustomString(string input, int studentIdSuffix)
    {
        var assignments = Regex.Matches(input, @"(\w+):([^;]+);");
        var variables = new System.Collections.Generic.Dictionary<string, double>();

        foreach (Match assignment in assignments)
        {
            string varName = assignment.Groups[1].Value;
            string valueStr = assignment.Groups[2].Value.Trim();

            if (varName == "result") continue;

            if (valueStr == "userinput")
            {
                Console.Write($"Enter value for {varName}: ");
                string userInput = Console.ReadLine();
                if (double.TryParse(userInput, out double value))
                {
                    variables[varName] = value;
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                }
                else
                {
                    Console.WriteLine($"Invalid input for {varName}. Using 0 as default.");
                    variables[varName] = 0;
                }
            }
            else
            {
                if (double.TryParse(valueStr, out double value))
                {
                    variables[varName] = value;
                }
                else
                {
                    Console.WriteLine($"Invalid value for {varName}. Using 0 as default.");
                    variables[varName] = 0;
                }
            }
        }

        string studentVarName = "var" + studentIdSuffix;
        variables[studentVarName] = studentIdSuffix;

        var resultMatch = Regex.Match(input, @"result:\s*(.+);");
        if (resultMatch.Success)
        {
            string expression = resultMatch.Groups[1].Value;

            foreach (var variable in variables)
            {
                expression = expression.Replace(variable.Key, variable.Value.ToString());
            }

            try
            {
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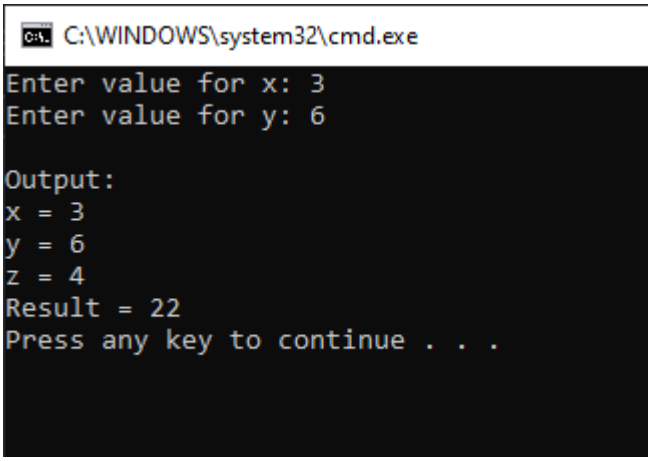
                double result = EvaluateExpression(expression);

                Console.WriteLine("\nOutput:");
                foreach (var variable in variables)
                {
                    if (variable.Key != studentVarName)
                    {
                        Console.WriteLine($"{variable.Key} = {variable.Value}");
                    }
                }
                Console.WriteLine($"Result = {result}");
            }
            catch (Exception ex)
            {
                Console.WriteLine($"Error evaluating expression: {ex.Message}");
            }
        }
    }

    1 reference
    static double EvaluateExpression(string expression)
    {
        var result = new DataTable().Compute(expression, null);
        return Convert.ToDouble(result);
    }
}
```

OUTPUT


C:\WINDOWS\system32\cmd.exe
Enter value for x: 3
Enter value for y: 6
Output:
x = 3
y = 6
z = 4
Result = 22
Press any key to continue . . .