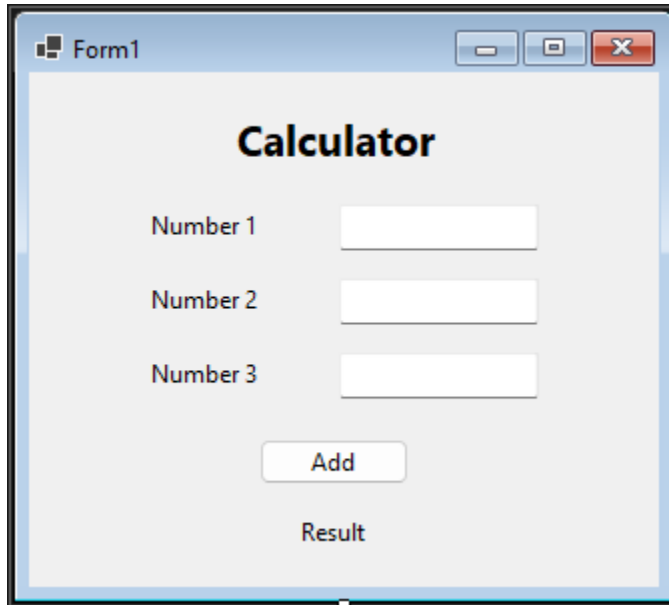


Practical Guide 06 – Part I

Question 01

I.



The screenshot shows a Windows application window titled 'Form1'. Inside the window, the title 'Calculator' is centered at the top. Below the title, there are three text input fields arranged vertically, each preceded by a label: 'Number 1', 'Number 2', and 'Number 3'. Below these input fields is a button labeled 'Add'. At the bottom of the form, there is a label 'Result'.

II.

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Lab_06_01_01
{
    public class Calculator
    {
        public int Add(int a,int b)
        {
            return a + b;
        }

        public int Add(int a,int b, int c)
        {
            return a + b + c;
        }

        public double Add(double a,double b)
        {
            return a + b;
        }
    }
}
```

III.

```

namespace Lab_06_01_01
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void label1_Click(object sender, EventArgs e)
        {
        }

        private void label4_Click(object sender, EventArgs e)
        {
        }

        private void btnAdd_Click(object sender, EventArgs e)
        {
            Calculator calc = new Calculator();

            int num1, num2, num3;
            bool isNum3Empty = string.IsNullOrEmpty(txtNum3.Text);

            if(int.TryParse(txtNum1.Text, out num1) && int.TryParse(txtNum2.Text, out num2)) {
                if (isNum3Empty)
                {
                    int result = calc.Add(num1, num2);
                    lblResult.Text = $"Sum of two numbers: {result}";
                }

                else if (int.TryParse(txtNum3.Text, out num3))
                {
                    int result = calc.Add(num1, num2, num3);
                    lblResult.Text = $"Sum of three numbers: {result}";
                }
                else
                {
                    lblResult.Text = "invalid input in third number";
                }
            }
            else
            {
                lblResult.Text = "Invalid input in first two numbers";
            }
        }
    }
}

```

IV.

Form1

Calculator

Number 1

Number 2

Number 3

Add

Result

Form1

Calculator

Number 1

Number 2

Number 3

Add

Sum of two numbers: 5

Form1

Calculator

Number 1

Number 2

Number 3

Add

Sum of three numbers: 9

Form1

Calculator

Number 1

Number 2

Number 3

Add

Invalid input in first two numbers

Form1

Calculator

Number 1

Number 2

Number 3

Add

invalid input in third number

Form1

Calculator

Number 1

Number 2

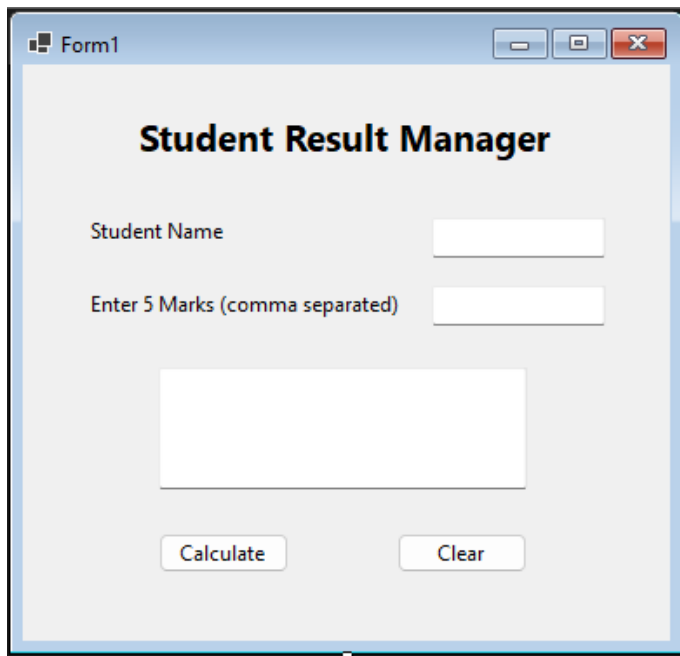
Number 3

Add

Invalid input in first two numbers

Question 02

I.



The screenshot shows a Windows application window titled 'Form1'. Inside the window, the title 'Student Result Manager' is centered at the top. Below the title, there are two input fields. The first is labeled 'Student Name' and the second is labeled 'Enter 5 Marks (comma separated)'. Below these two fields is a larger, empty rectangular box. At the bottom of the form, there are two buttons: 'Calculate' on the left and 'Clear' on the right.

II.

```
using System;
using System.Collections.Generic;
using System.Diagnostics.Eventing.Reader;
using System.Linq;
using System.Security.Policy;
using System.Text;
using System.Threading.Tasks;

namespace Lab_06_01_02
{
    internal class Student
    {
        private string name;
        private int[] marks;

        public Student(string name, int[] marks)
        {
            this.name = name;
            this.marks = marks;
        }

        public double CalculateAverage()
        {
            int total = 0;
            foreach (int mark in marks)
            {
                total += mark;
            }
            return (double)total / marks.Length;
        }

        public string GetGrade()
        {
            double avg = CalculateAverage();
            if (avg >= 75) return "Distinction";
            else if (avg >= 60) return "credit";
            else if (avg >= 50) return "Pass";
            else return "Fail";
        }
    }
}
```

```

public string GetGrade(double avg)
{
    if (avg >= 75) return "Distinction (External)";
    else if (avg >= 60) return "credit (External)";
    else if (avg >= 50) return "Pass (External)";
    else return "Fail (External)";
}

public int FindMaxRecursive(int[] arr, int n)
{
    if (n == 1) return arr[0];
    return Math.Max(arr[n - 1], FindMaxRecursive(arr, n - 1));
}

public string GetSummery()
{
    double avg = CalculateAverage();
    int maxMark = FindMaxRecursive(marks, marks.Length);
    string grade = GetGrade(avg);
    return $"Name: {name}\r\nAverage: {avg:F2}\r\nMax Mark: {maxMark}\r\nGrade: {grade}";
}
}
}

```

III.

```

namespace Lab_06_01_02
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void btnClear_Click(object sender, EventArgs e)
        {
            txtName.Clear();
            txtMarks.Clear();
            txtResult.Clear();
        }

        private void btnCalculate_Click(object sender, EventArgs e)
        {
            try
            {
                string studentName = txtName.Text;
                string[] parts = txtMarks.Text.Split(',');
                int[] marks = Array.ConvertAll(parts, int.Parse);

                if (marks.Length != 5)
                {
                    MessageBox.Show("Please enter exactly 5 marks separated by commas.");
                    return;
                }

                Student s = new Student(studentName, marks);
                txtResult.Text = s.GetSummery();
            }
            catch
            {
                MessageBox.Show("Error: + ex.Message");
            }
        }
    }
}

```

V.

The screenshot shows a window titled "Form1" with the title bar containing standard Windows window controls. The main content area is titled "Student Result Manager". It features two input fields: "Student Name" with the value "Gamika" and "Enter 5 Marks (comma separated)" with the value "80,50,60,20,75". Below these fields is a text box displaying the calculated results: "Name: Gamika", "Average: 57.00", "Max Mark: 80", and "Grade: Pass (External)". At the bottom of the window are two buttons: "Calculate" (highlighted with a blue border) and "Clear".

The screenshot shows the same "Form1" window with the title bar. The main content area is titled "Student Result Manager". It features two input fields: "Student Name" with the value "Nimal" and "Enter 5 Marks (comma separated)" with the value "20". Below these fields is an empty text box. At the bottom of the window are two buttons: "Calculate" (highlighted with a blue border) and "Clear".

The screenshot shows a small error dialog box with a title bar containing a close button (X). The main text area contains the message "Please enter exactly 5 marks." and at the bottom is an "OK" button.