C# Graphical User Interface using Visual Studio 2022 Community Edition Handbook

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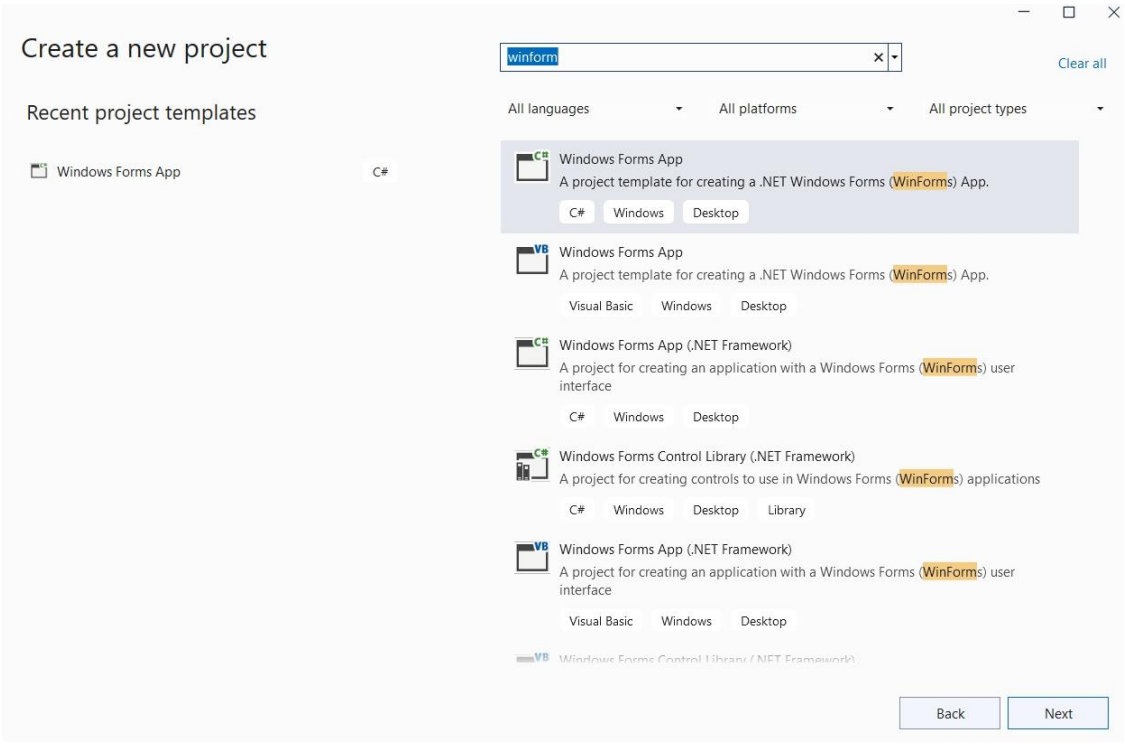
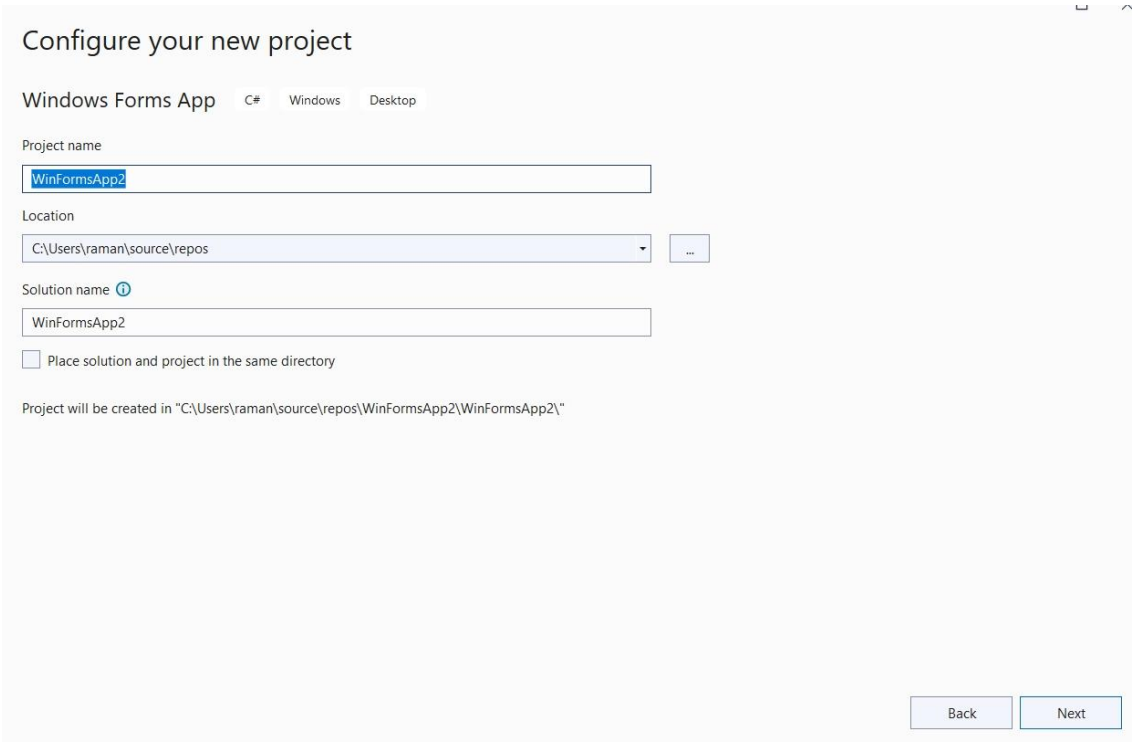
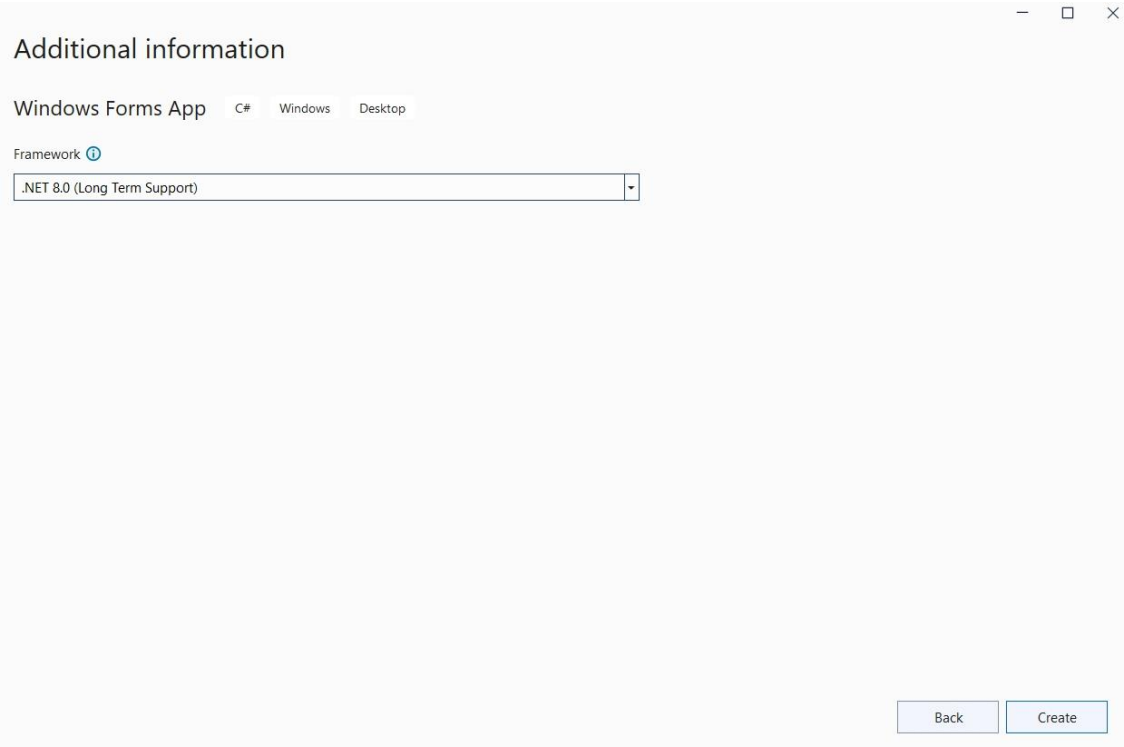
Create a new Project in Visual Studio 2022



Select Windows Form App C# and Click Next



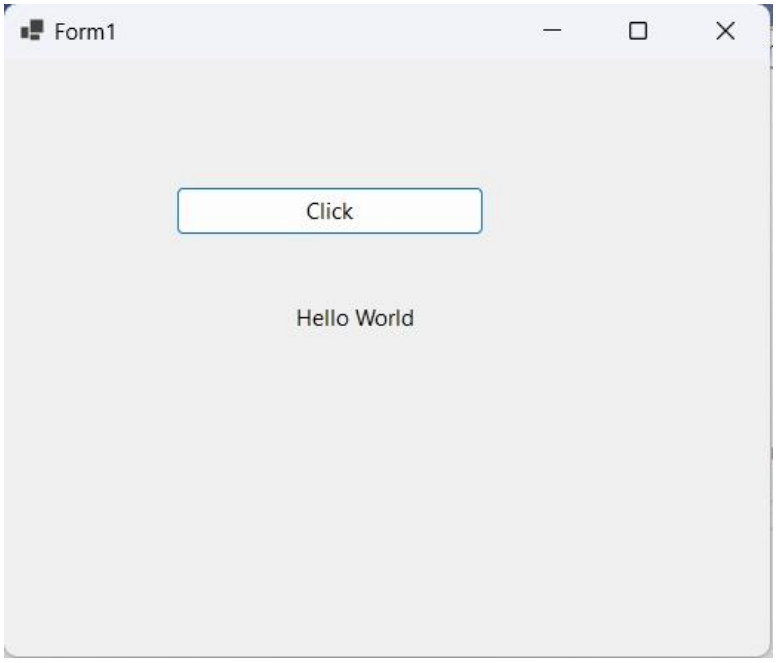
Click Next



Click Create and New Project will be created

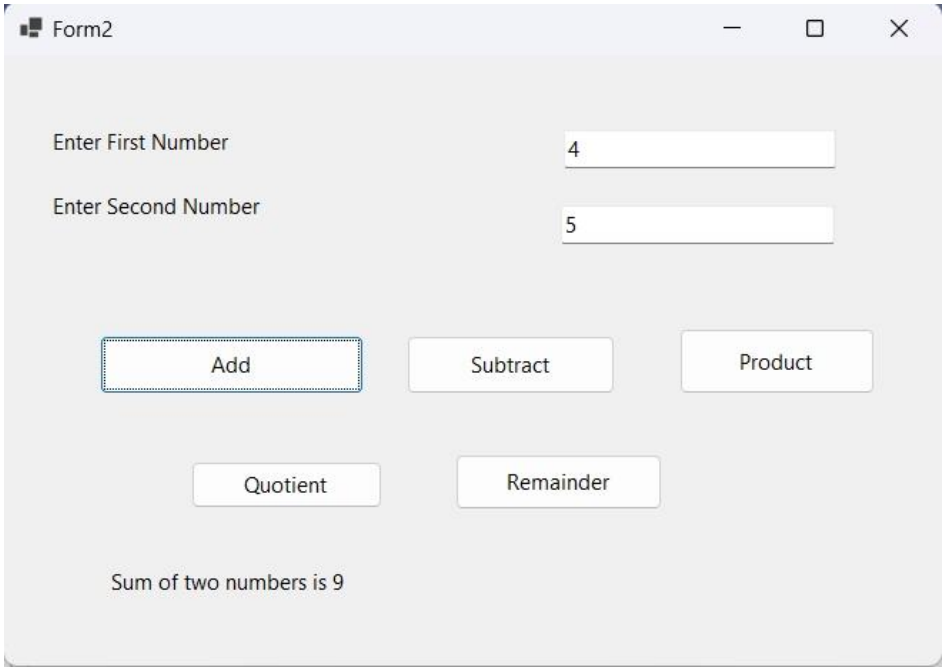
Place a new Button and Label on the form

Go to properties of Button and set Text property as “Click”




```
private void button1_Click(object sender, EventArgs e)
 {
     label1.Text = "Hello World";
 }
```

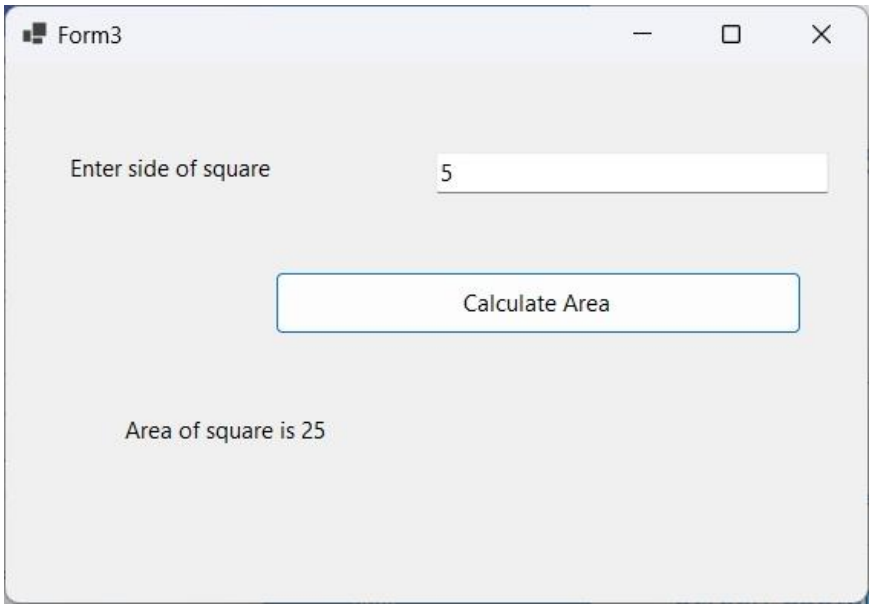
Program to find sum, difference, product, quotient and remainder of two numbers




```
private void button1_Click(object sender, EventArgs e)
{
    int a, b, sum;
    a = Convert.ToInt32(textBox1.Text);
    b = Convert.ToInt32(textBox2.Text);
    sum = a + b;
    label3.Text = "Sum of two numbers is " + sum;
}

private void button2_Click(object sender, EventArgs e)
{
    int a, b, diff;
    a = Convert.ToInt32(textBox1.Text);
    b = Convert.ToInt32(textBox2.Text);
    diff = a - b;
    label3.Text = "Difference of two numbers is " + diff;
}

private void button3_Click(object sender, EventArgs e)
{
    int a, b, product;
    a = Convert.ToInt32(textBox1.Text);
    b = Convert.ToInt32(textBox2.Text);
    product = a * b;
    label3.Text = "Product of two numbers is " + product;
}

private void button4_Click(object sender, EventArgs e)
{
    int a, b, quotient;
    a = Convert.ToInt32(textBox1.Text);
    b = Convert.ToInt32(textBox2.Text);
    quotient = a / b;
    label3.Text = "Quotient of two numbers is " + quotient;
}

private void button5_Click(object sender, EventArgs e)
{
    int a, b, remainder;
```

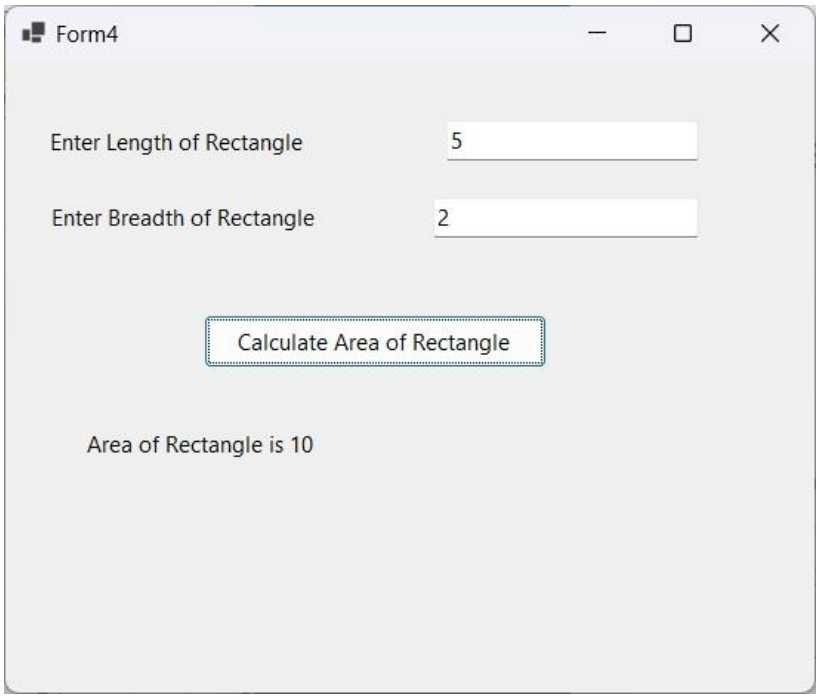
```
        a = Convert.ToInt32(textBox1.Text);
        b = Convert.ToInt32(textBox2.Text);
        remainder = a % b;
        label3.Text = "Remainder of two numbers is " + remainder;
    }
```

Program to find area of square



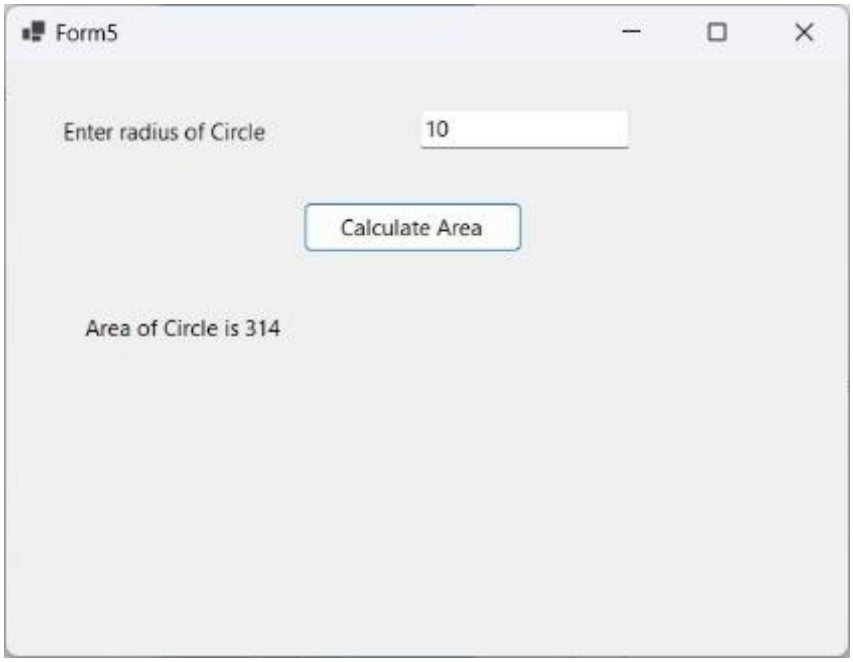

```
private void button1_Click(object sender, EventArgs e)
 {
     int side, area;
     side = Convert.ToInt32(textBox1.Text);
     area = side * side;
     label2.Text = "Area of square is " + area;
 }
```

Program to find area of rectangle



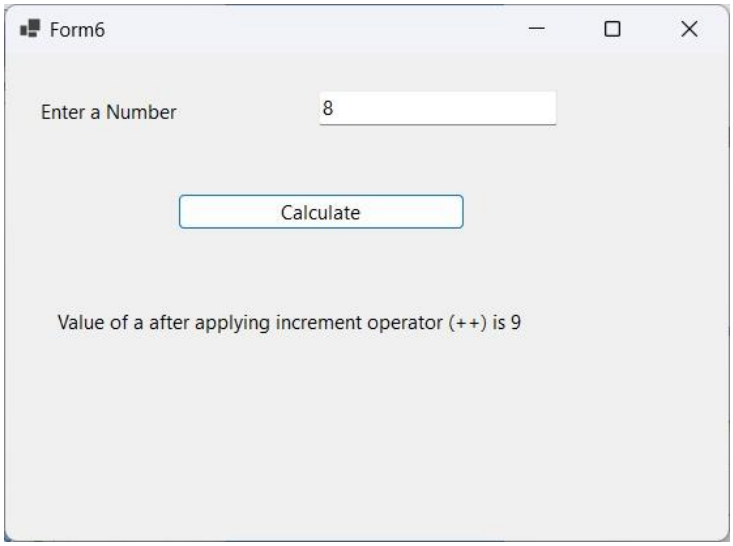
```
private void button1_Click(object sender, EventArgs e)
 {
     int l, b, area;
     l=Convert.ToInt32(textBox1.Text);
     b=Convert.ToInt32(textBox2.Text);
     area = l * b;
     label3.Text = "Area of Rectangle is " + area;
 }
```

Program to find area of circle




```
private void button1_Click(object sender, EventArgs e)
 {
     double radius, area;
     radius=Convert.ToDouble(textBox1.Text);
     area = 3.14 * radius * radius;
     label2.Text = "Area of Circle is " + area;
 }
```

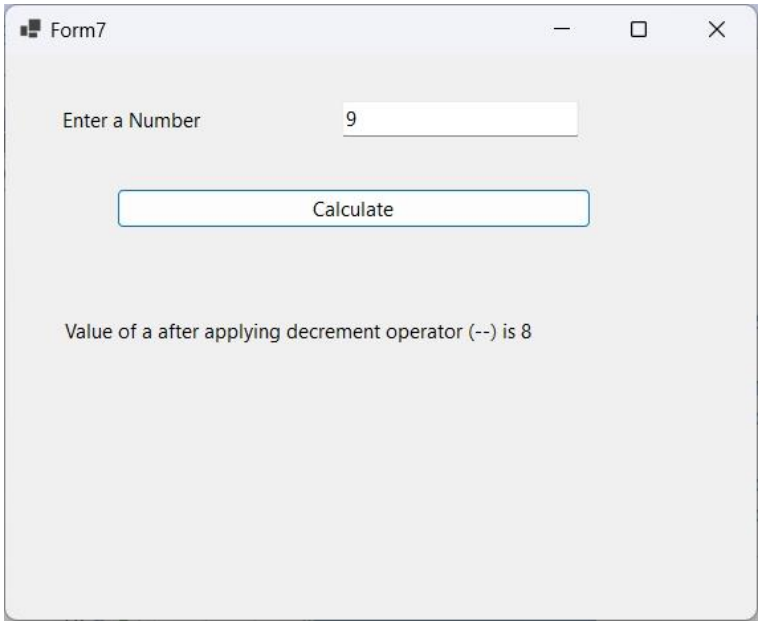
Program to demonstrate increment operator (++)




```
private void button1_Click(object sender, EventArgs e)
```

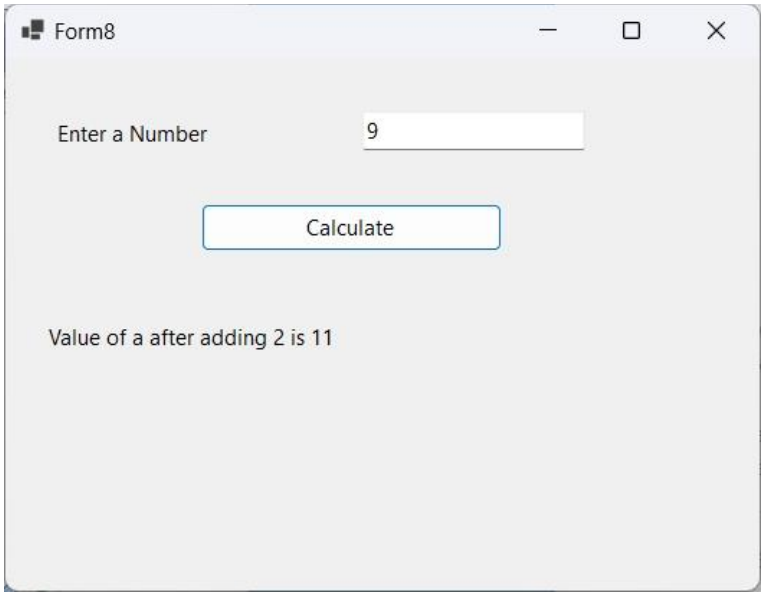
```
{
    int a;
    a=Convert.ToInt32(textBox1.Text);
    a++;
    label2.Text="Value of a after applying increment operator (++) is " + a;
}
```

Program to demonstrate decrement operator (--)



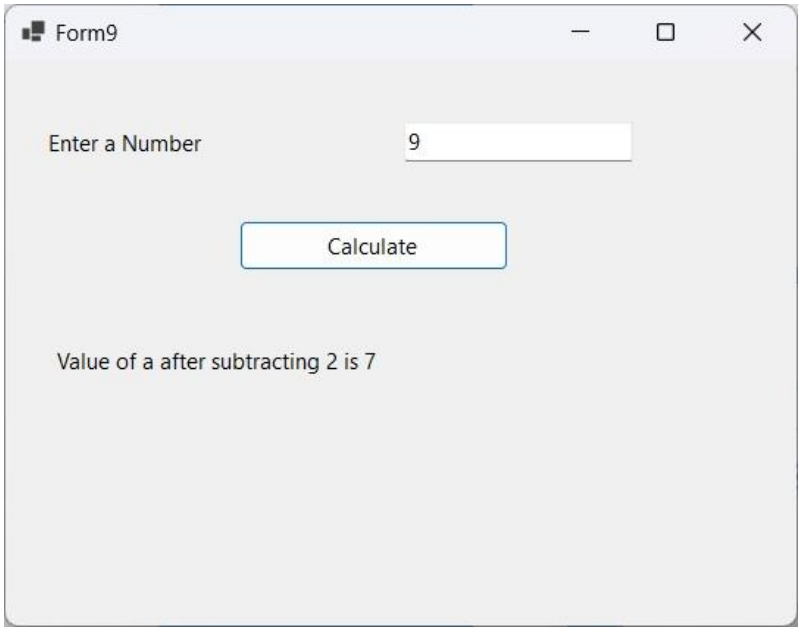

```
private void button1_Click(object sender, EventArgs e)
{
    int a;
    a = Convert.ToInt32(textBox1.Text);
    a--;
    label2.Text = "Value of a after applying decrement operator (--) is " + a;
}
```

Program to demonstrate short hand assignment operator (+=)



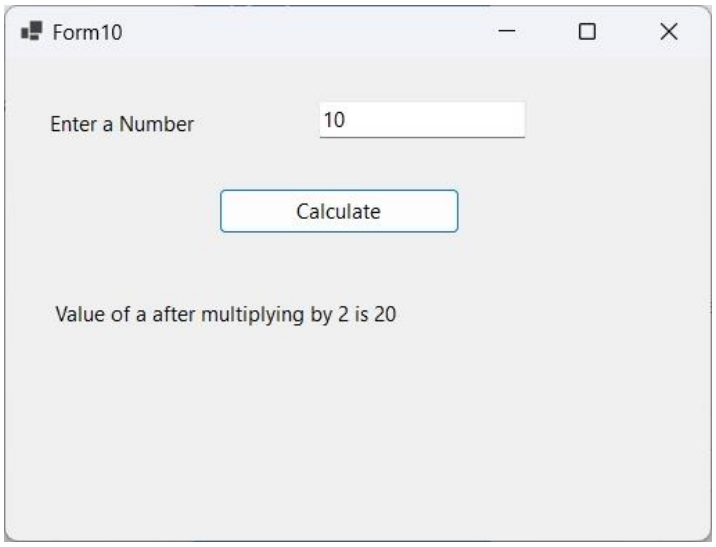
```
private void button1_Click(object sender, EventArgs e)
{
    int a;
    a = Convert.ToInt32(textBox1.Text);
    a += 2;
    label2.Text = "Value of a after adding 2 is " + a;
}
```

Program to demonstrate short hand assignment operator (-=)



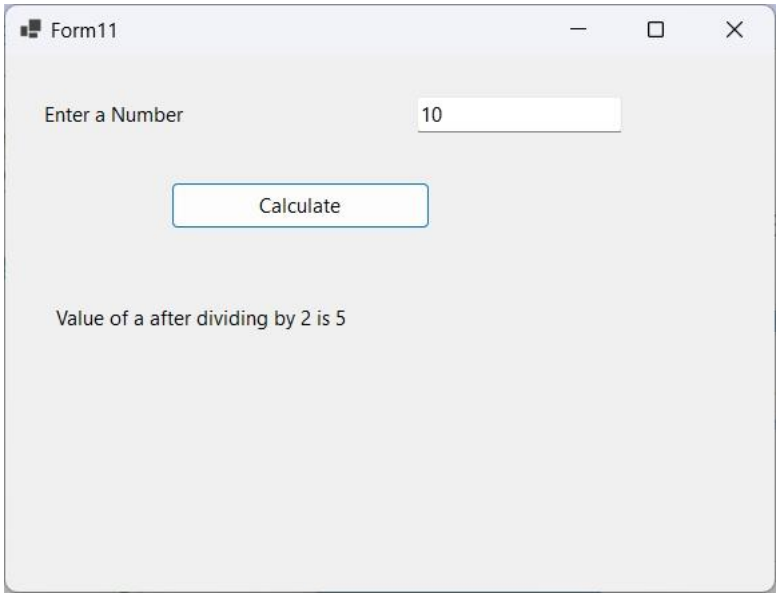

```
private void button1_Click(object sender, EventArgs e)
{
    int a;
    a=Convert.ToInt32(textBox1.Text);
    a -= 2;
    label2.Text = "Value of a after subtracting 2 is " + a;
}
```

Program to demonstrate short hand assignment operator (*=)



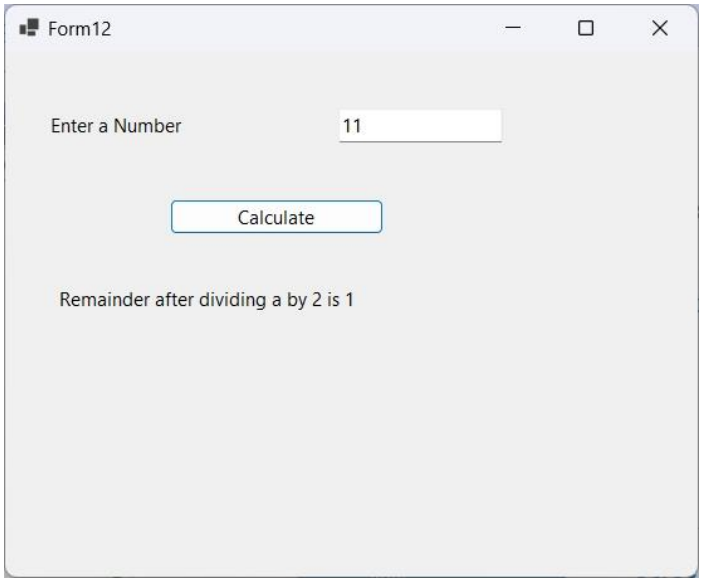
```
private void button1_Click(object sender, EventArgs e)
{
    int a;
    a = Convert.ToInt32(textBox1.Text);
    a *= 2;
    label2.Text = "Value of a after multiplying by 2 is " + a;
}
```

Program to demonstrate short hand assignment operator (/*)



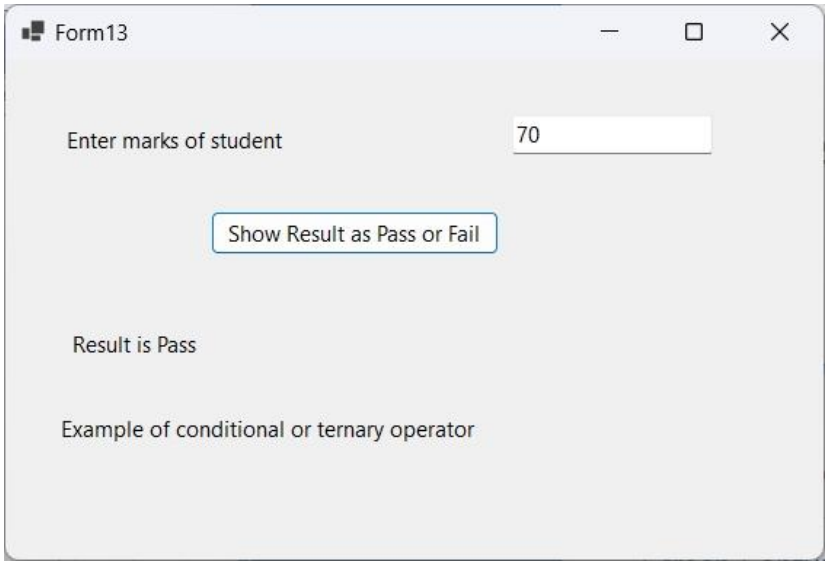

```
private void button1_Click(object sender, EventArgs e)
{
    int a;
    a = Convert.ToInt32(textBox1.Text);
    a/= 2;
    label2.Text = "Value of a after dividing by 2 is " + a;
}
```

Program to demonstrate short hand assignment operator (%=)



```
private void button1_Click(object sender, EventArgs e)
 {
     int a;
     a = Convert.ToInt32(textBox1.Text);
     a %= 2;
     label2.Text = "Remainder after dividing a by 2 is " + a;
 }
```

Program to demonstrate conditional or ternary operator



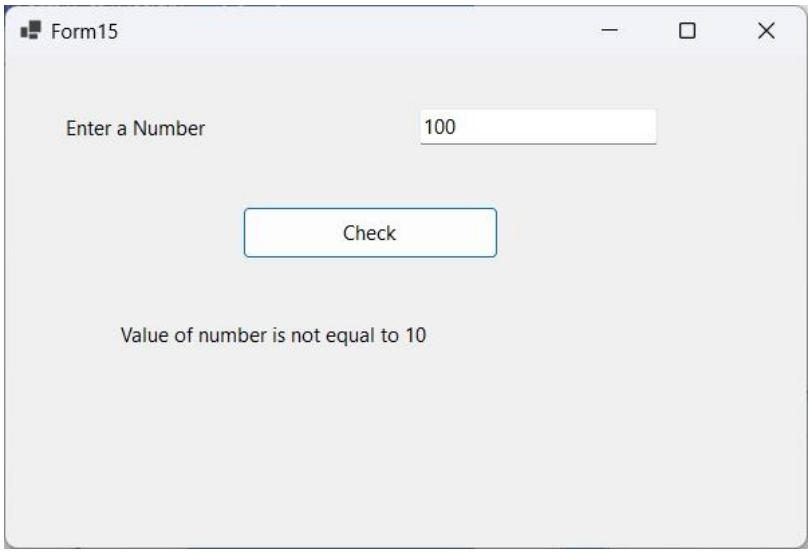

```
private void button1_Click(object sender, EventArgs e)
{
    int marks;
    string result;
    marks = Convert.ToInt32(textBox1.Text);
    result = (marks >= 40 ? "Pass" : "Fail");
    label2.Text = "Result is " + result;
}
```

Program to demonstrate const modifier to declare a constant


```
private void button1_Click(object sender, EventArgs e)
{
```

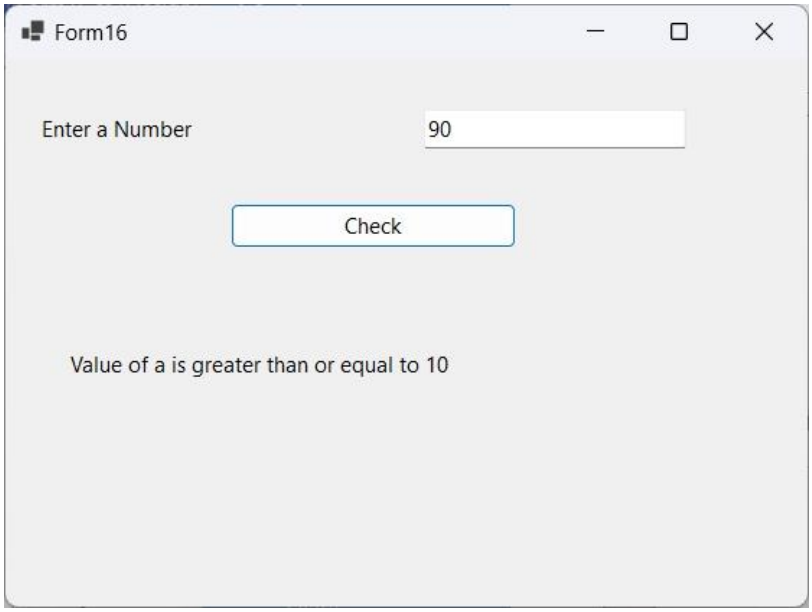
```
    const double pi = 3.14;
    double area;
    area = pi * 10 * 10;
    label1.Text = "Area of circle is " + area;
}
```

Program to demonstrate if else statement



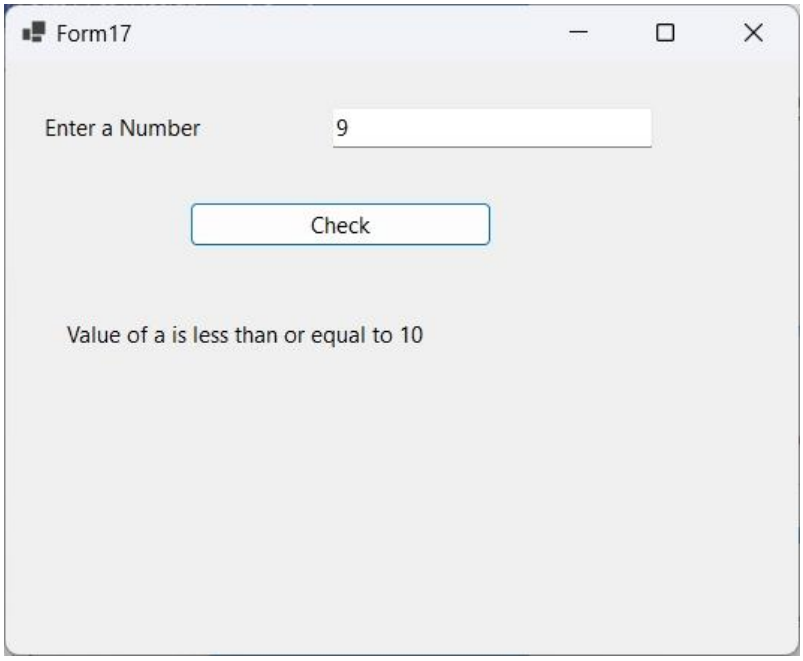

```
private void button1_Click(object sender, EventArgs e)
 {
     int a;
     a = Convert.ToInt32(textBox1.Text);
     if (a ==10)
     {
         label2.Text = "Value of number is equal to 10";
     }
     else
     {
         label2.Text = "Value of number is not equal to 10";
     }


 }
```

Program to demonstrate if else statement (>= relational operator)




```
private void button1_Click(object sender, EventArgs e)
{
    int a;
    a=Convert.ToInt32(textBox1.Text);
    if(a>=10)
    {
        label2.Text = "Value of a is greater than or equal to 10";
    }
    else
    {
        label2.Text = "Value of a is less than 10";
    }
}
```

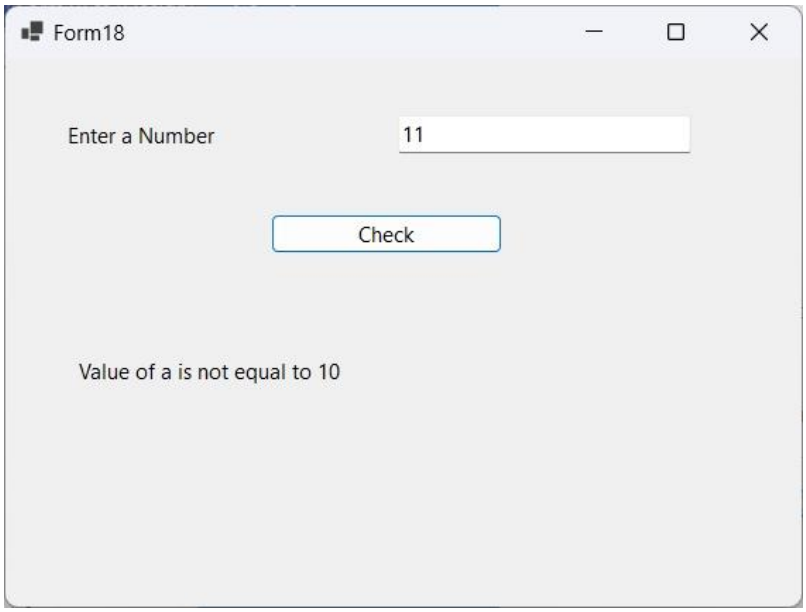
Program to demonstrate if else statement (<= relational operator)




```
private void button1_Click(object sender, EventArgs e)
{
    int a;
```

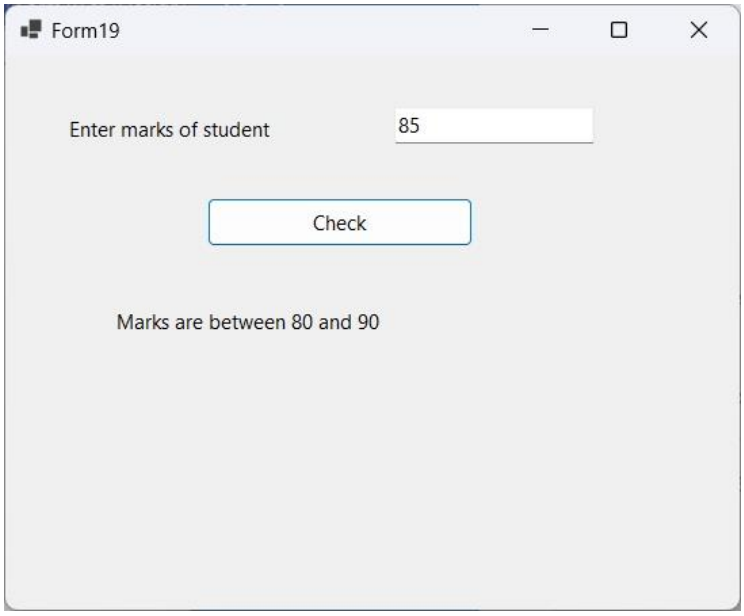
```
    a = Convert.ToInt32(textBox1.Text);
    if (a <= 10)
    {
        label2.Text = "Value of a is less than or equal to 10";
    }
    else
    {
        label2.Text = "Value of a is greater than 10";
    }
}
```

Program to demonstrate if else statement (not equal to operator !=)



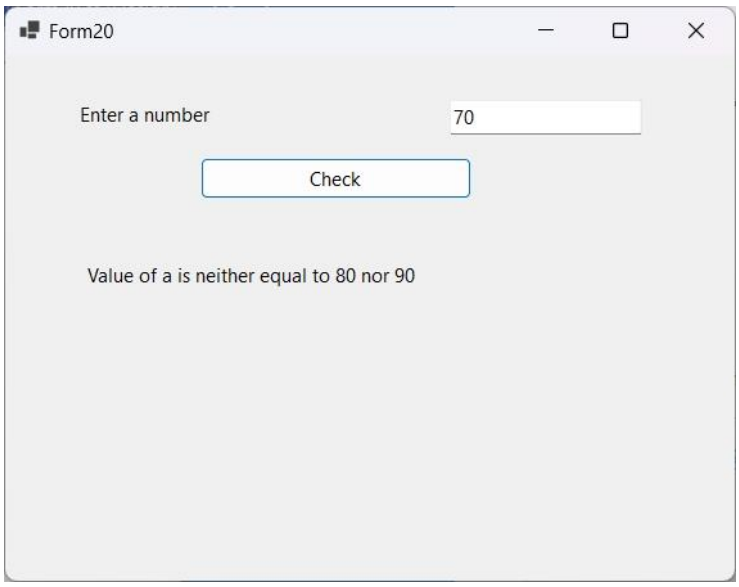

```
private void button1_Click(object sender, EventArgs e)
{
    int a;
    a = Convert.ToInt32(textBox1.Text);
    if (a != 10)
    {
        label2.Text = "Value of a is not equal to 10";
    }
    else
    {
        label2.Text = "Value of a is equal to 10";
    }
}
```

Program to demonstrate and operator (&&)




```
private void button1_Click(object sender, EventArgs e)
{
    int marks;
    marks=Convert.ToInt32(textBox1.Text);
    if((marks>=80) && (marks<=90))
    {
        label2.Text = "Marks are between 80 and 90";
    }
    else
    {
        label2.Text = "Marks are not between 80 and 90";
    }
}
```

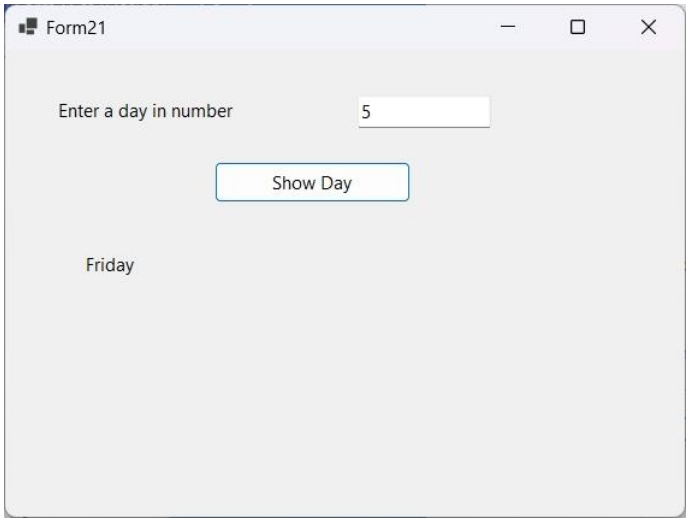
Program to demonstrate or (||) operator




```
private void button1_Click(object sender, EventArgs e)
{
    int a;
    a = Convert.ToInt32(textBox1.Text);
    if((a==80) || (a==90))
```

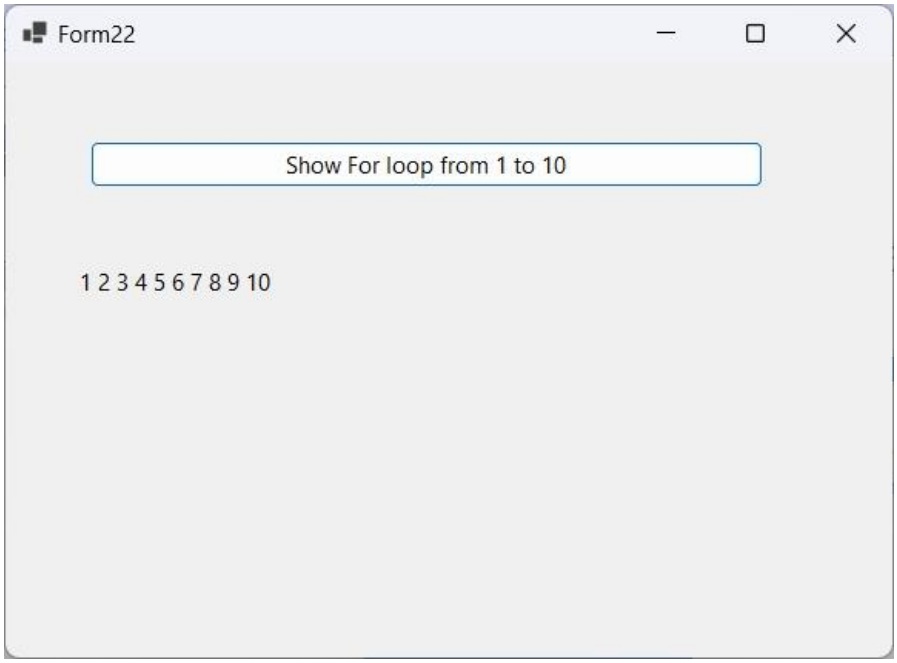
```
    {
        label2.Text = "Value of a is either equal to 80 or 90";
    }
    else
    {
        label2.Text = "Value of a is neither equal to 80 nor 90";
    }
}
```

Program to demonstrate switch case statement



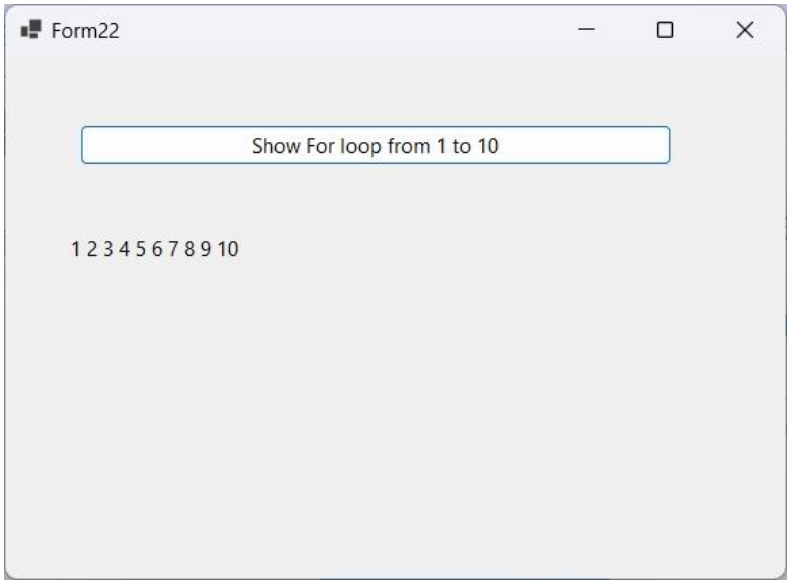

```
private void button1_Click(object sender, EventArgs e)
{
    int day;
    day = Convert.ToInt32(textBox1.Text);
    switch (day)
    {
        case 1:
            label2.Text = "Monday";
            break;
        case 2:
            label2.Text = "Tuesday";
            break;
        case 3:
            label2.Text = "Wednesday";
            break;
        case 4:
            label2.Text = "Thursday";
            break;
        case 5:
            label2.Text = "Friday";
            break;
        case 6:
            label2.Text = "Saturday";
            break;
        case 7:
            label2.Text = "Sunday";
            break;
        default:
            label2.Text = "Enter a day between 1 and 7";
            break;
    }
}
```

Program to demonstrate for loop that prints numbers from 1 to 10 in a label




```
private void button1_Click(object sender, EventArgs e)
{
    int i;
    for(i=1;i<=10;i++)
    {
        label1.Text = label1.Text + " " + i;
    }
}
```

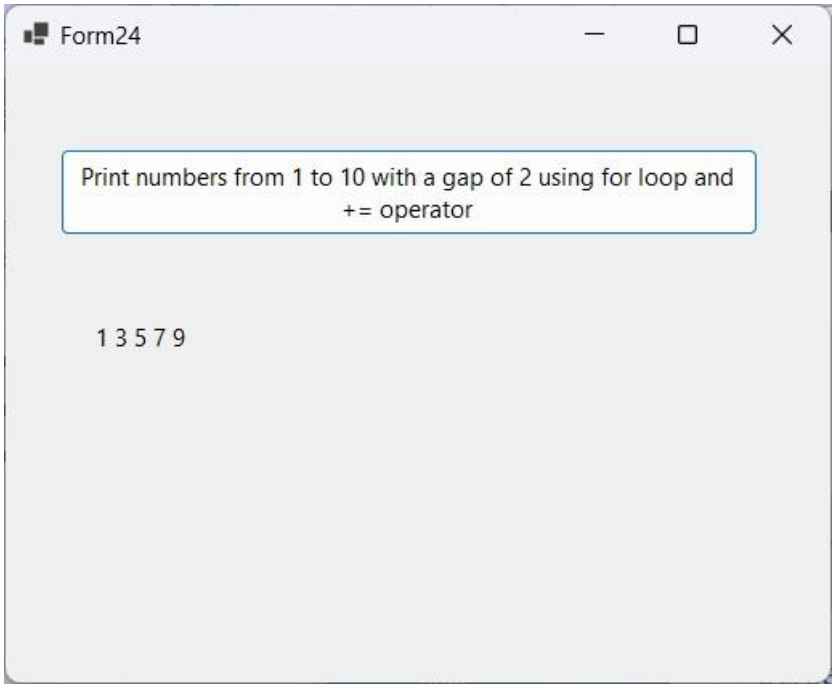
Program to demonstrate for loop to print numbers from 10 to 1 using decrement operator




```
private void button1_Click(object sender, EventArgs e)
{
    int i;
    for(i=10;i>=1;i--)
    {
        label1.Text = label1.Text + " " + i;
    }
```

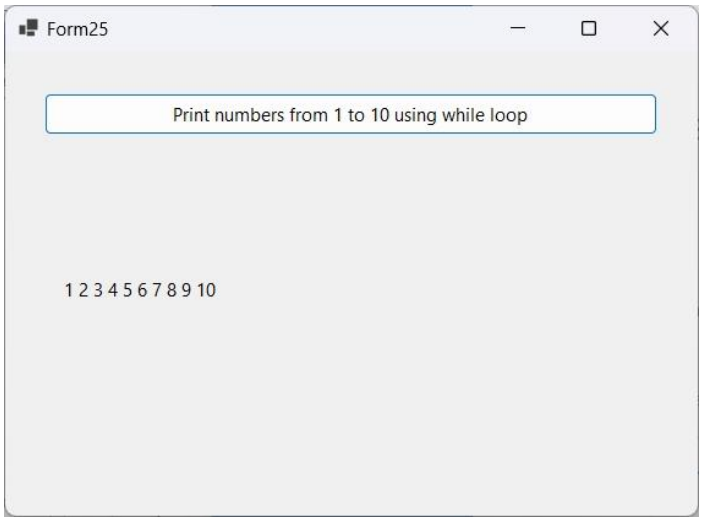
```
}
```

Program to print numbers from 1 to 10 with a gap of 2 through for loop using shorthand assignment operator (+=)




```
private void button1_Click(object sender, EventArgs e)
{
    int i;
    for(i=1;i<=10;i+=2)
    {
        label1.Text = label1.Text + " " + i;
    }
}
```

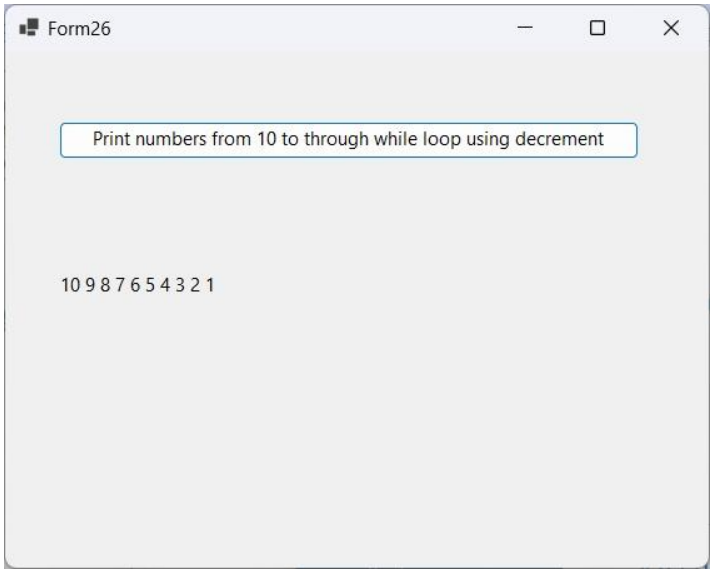
Program to demonstrate while loop to print numbers from 1 to 10




```
private void button1_Click(object sender, EventArgs e)
```

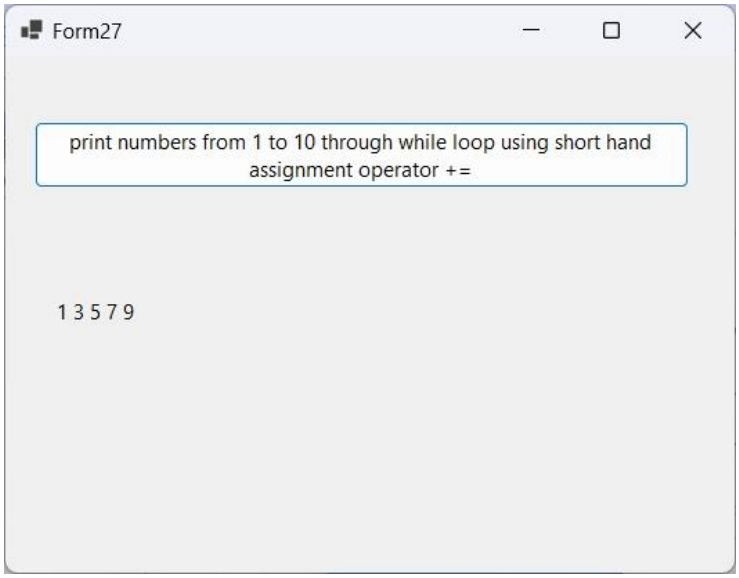
```
{
    int i = 1;
    while(i<=10)
    {
        label1.Text = label1.Text + " " + i;
        i++;
    }
}
```

Program to print numbers from 10 to 1 through while loop using decrement operator



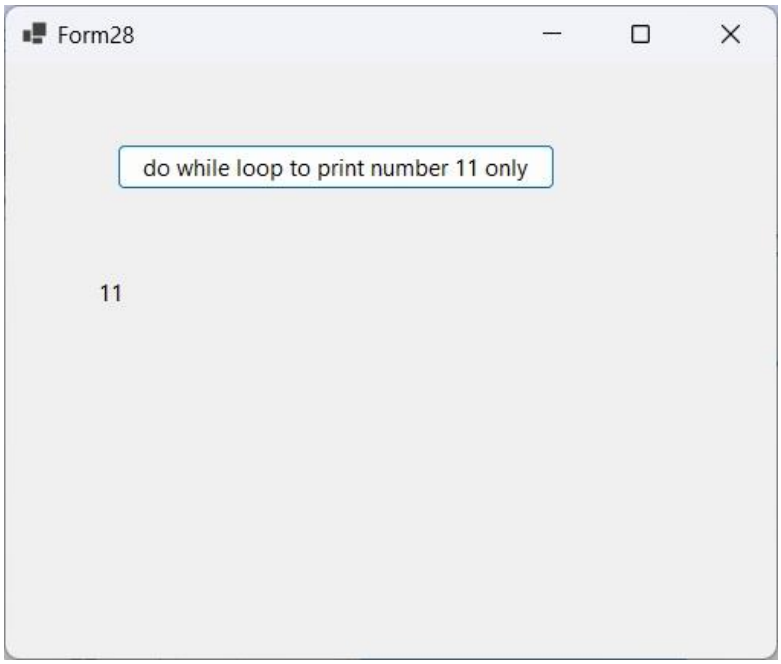

```
private void button1_Click(object sender, EventArgs e)
{
    int i = 10;
    while(i>=1)
    {
        label1.Text = label1.Text + " " + i;
        i--;
    }
}
```

Program to print numbers from 1 to 10 through while loop using short hand assignment operator (+=)




```
private void button1_Click(object sender, EventArgs e)
{
    int i = 1;
    while(i<=10)
    {
        label1.Text = label1.Text + " " + i;
        i += 2;
    }
}
```

Program to demonstrate do while loop to print number 11 only

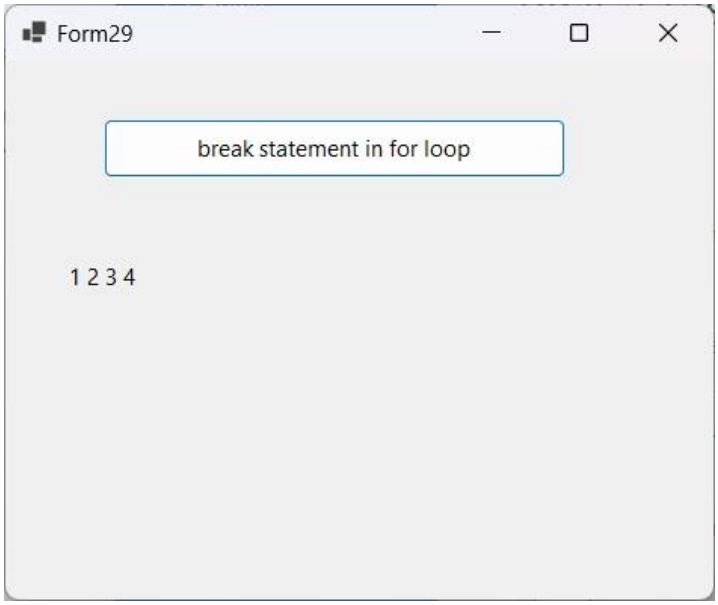



```
private void button1_Click(object sender, EventArgs e)
 {
     int i = 11;
     do
     {
         label1.Text = label1.Text + " " + i;
         i++;
     } while (i <= 10);
```

```
}
```

Program to demonstrate break statement in for loop

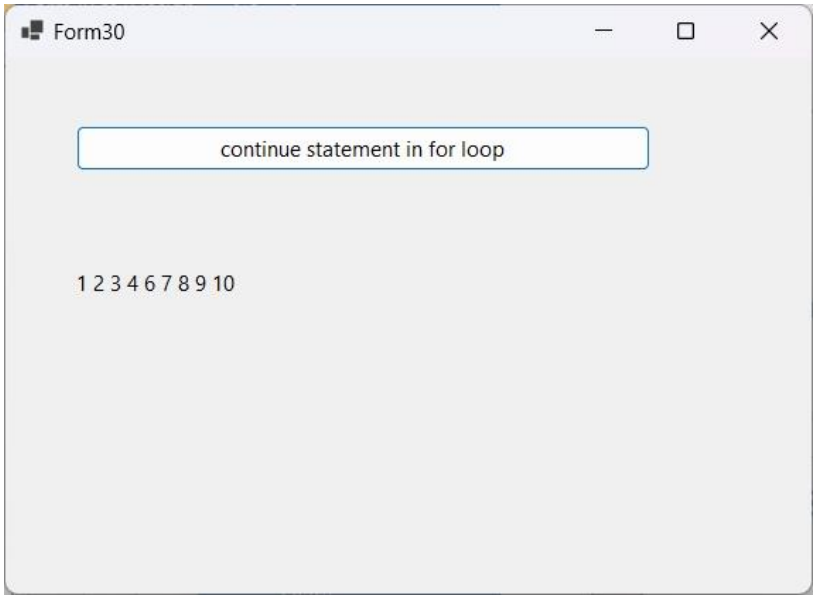
Break statement terminates the loop at the point where break statement is given




```
private void button1_Click(object sender, EventArgs e)
{
    int i;
    for (i = 1; i <= 10; i++)
    {
        if (i == 5)
        {
            break;
        }
        label1.Text = label1.Text + " " + i;
    }
}
```

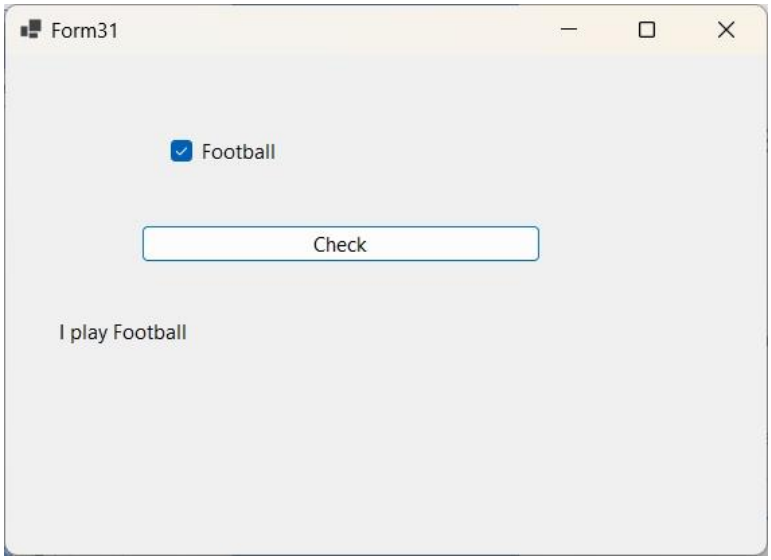
Program to demonstrate continue statement in for loop

Continue statement skips the code below it for the iteration in which continue statement is given




```
private void button1_Click(object sender, EventArgs e)
{
    int i;
    for (i = 1; i <= 10; i++)
    {
        if (i == 5)
        {
            continue;
        }
        label1.Text = label1.Text + " " + i;
    }
}
```

Program to demonstrate checkbox control



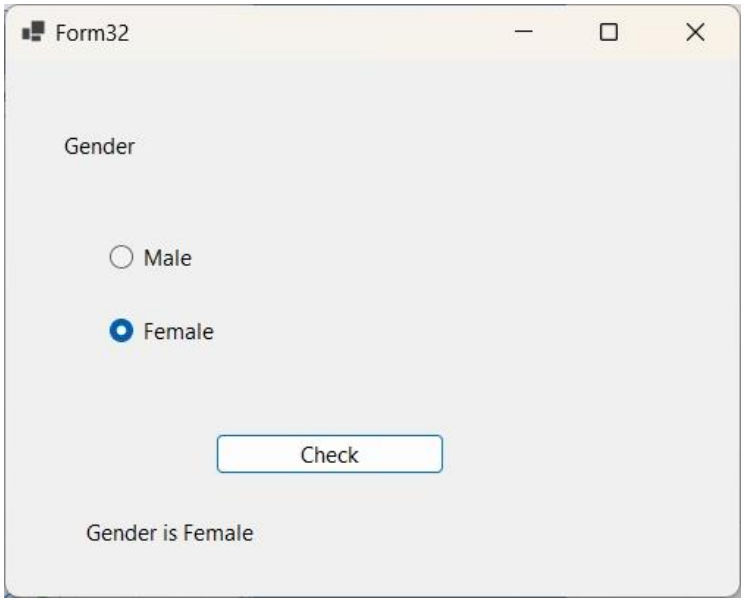

```
private void button1_Click(object sender, EventArgs e)
 {
     if (checkBox1.Checked == true) {
         label1.Text = "I play Football";
     }
     else
     {
```

```
            label1.Text = "I do not play Football";
        }
    }
```

Program to demonstrate radiobutton control

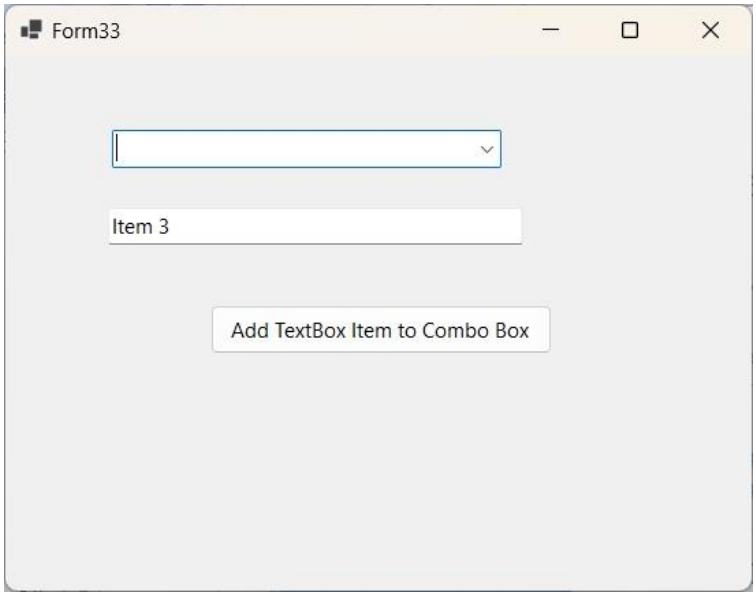
To make only one radio button selected at a time you need to place all radio buttons in a group box or in a panel.

In the following examples radio buttons are placed in a panel control which is a container control



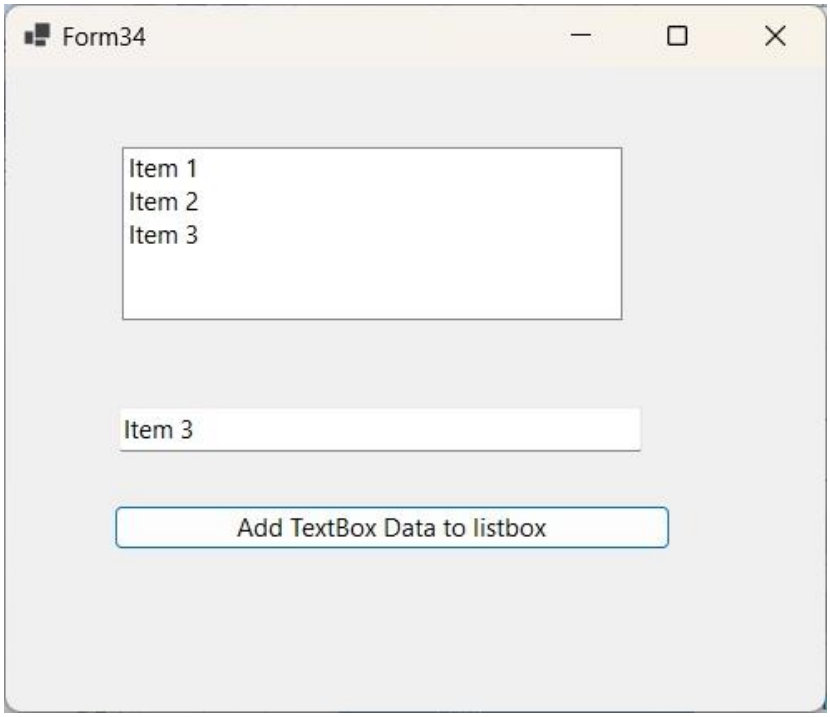

```
private void button1_Click(object sender, EventArgs e)
{
    if(radioButton1.Checked==true)
    {
        label2.Text = "Gender is Male";
    }
    if (radioButton2.Checked == true)
    {
        label2.Text = "Gender is Female";
    }
}
```

Program to demonstrate combobox control




```
private void button1_Click(object sender, EventArgs e)
 {
     comboBox1.Items.Add(textBox1.Text);
 }
```

Program to demonstrate listbox control




```
private void button1_Click(object sender, EventArgs e)
 {
     listBox1.Items.Add(textBox1.Text);
 }
```
