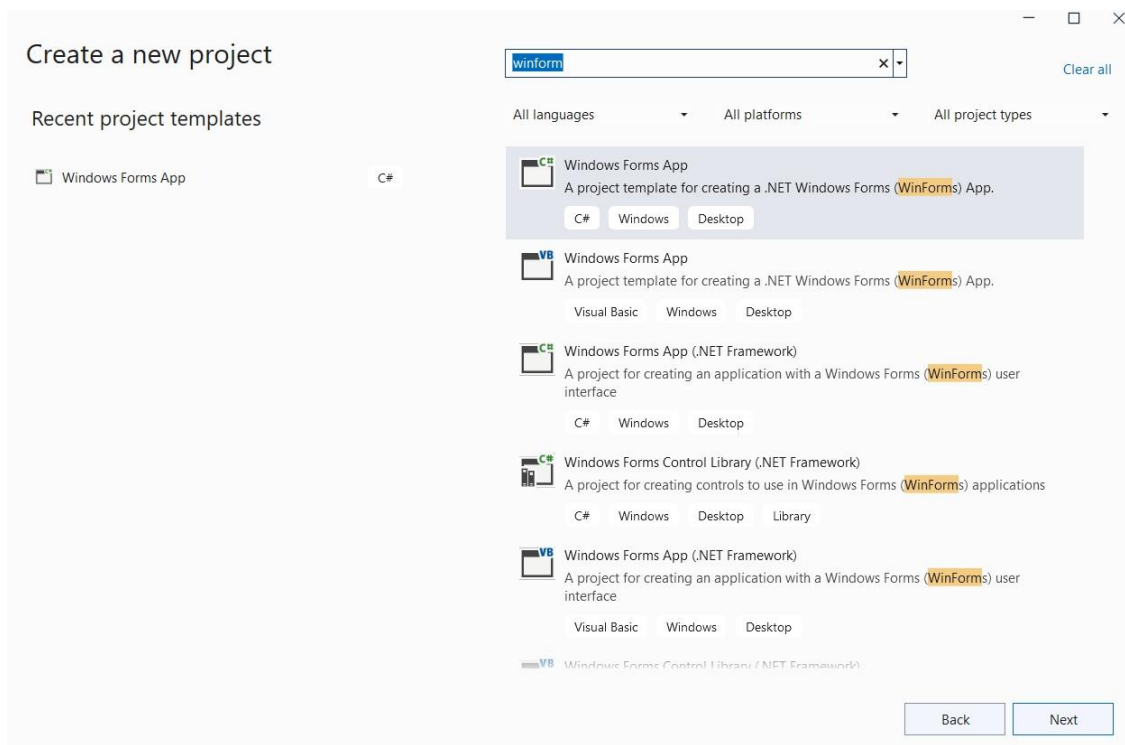


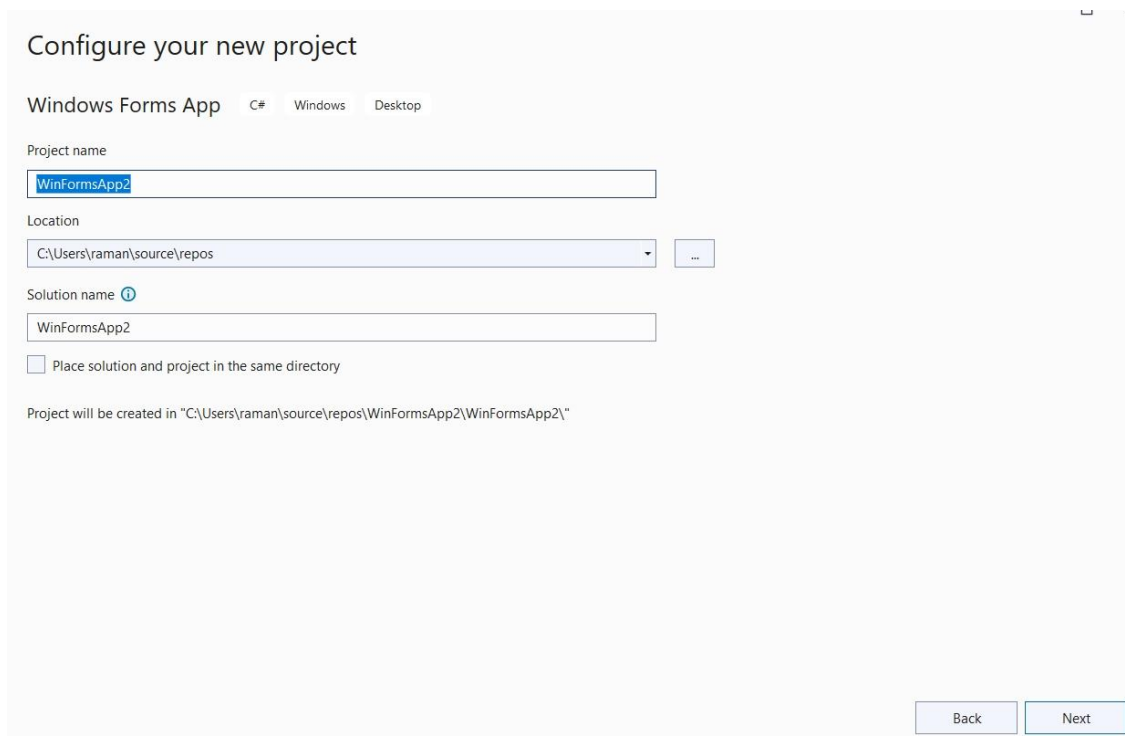
C# Graphical User Interface using Visual Studio 2022 Community Edition Handbook

Raman Deep Singh

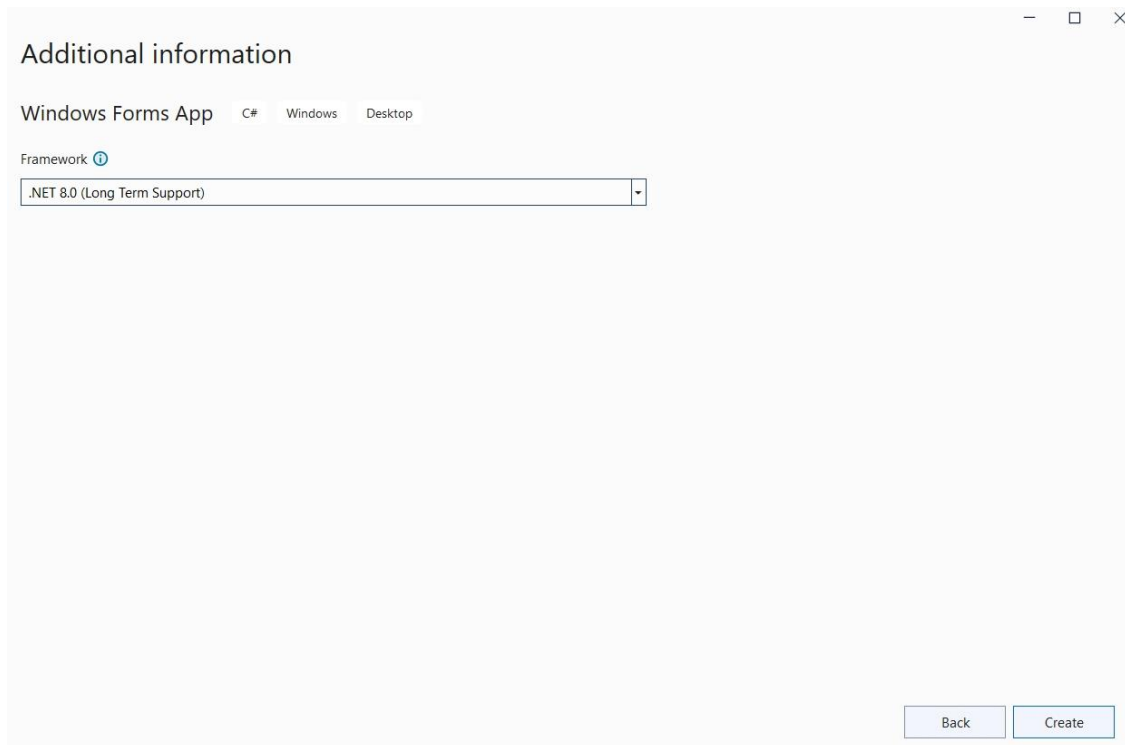
Create a new Project in Visual Studio 2022



Select Windows Form App C# and Click Next



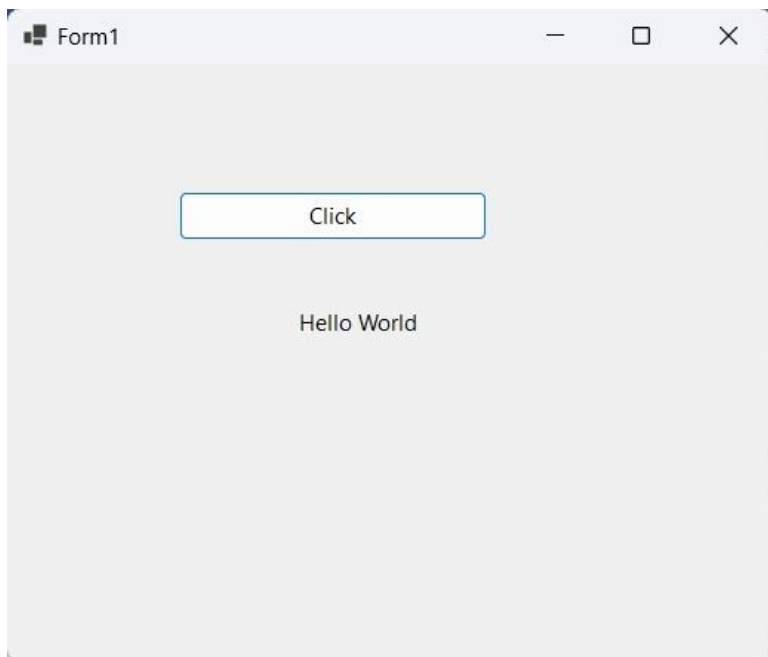
Click Next



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

Form2

Enter First Number 4

Enter Second Number 5

Add Subtract Product

Quotient Remainder

Sum of two numbers is 9

```
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

The screenshot shows a Windows Form titled "Form3". It has a light gray background. At the top, there is a label "Enter side of square" followed by a text box containing the number "5". Below this, there is a button labeled "Calculate Area". At the bottom, there is a label that says "Area of square is 25".

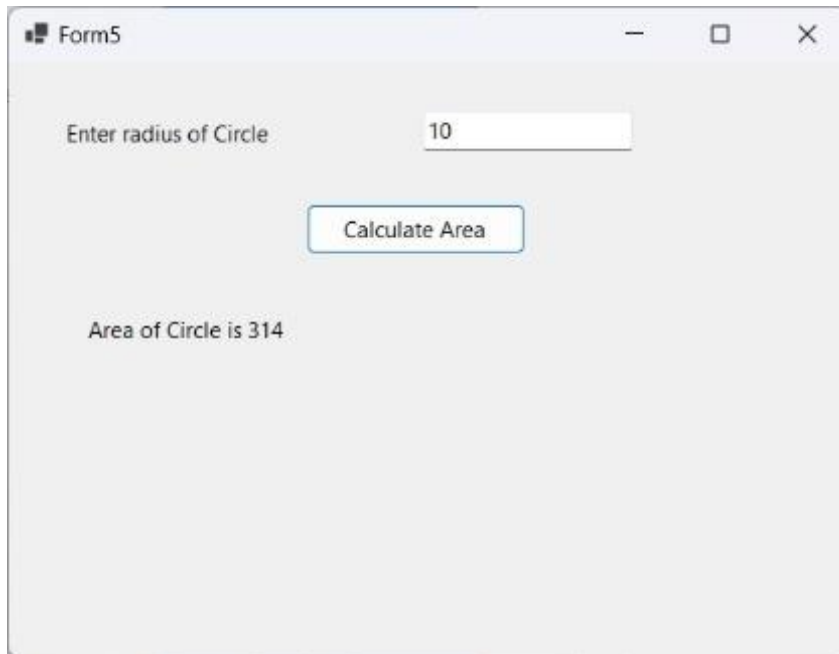
```
private void button1_Click(object sender, EventArgs e)  
{  
    int side, area;  
    side = Convert.ToInt32(textBox1.Text);  
    area = side * side;  
    label2.Text = "Area of square is " + area;  
}
```

Program to find area of rectangle

The screenshot shows a Windows Form titled "Form4". It has a light gray background. There are two labels: "Enter Length of Rectangle" followed by a text box containing "5", and "Enter Breadth of Rectangle" followed by a text box containing "2". Below these, there is a button labeled "Calculate Area of Rectangle". At the bottom, there is a label that says "Area of Rectangle is 10".

```
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



Form5

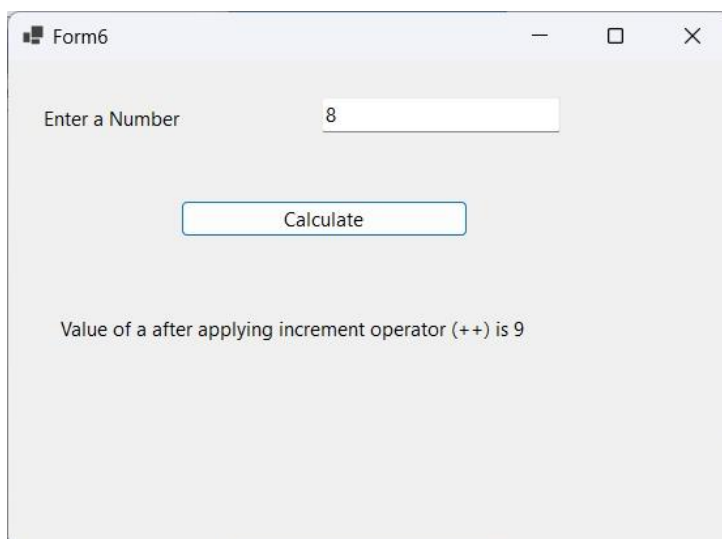
Enter radius of Circle 10

Calculate Area

Area of Circle is 314

```
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 (++)



Form6

Enter a Number 8

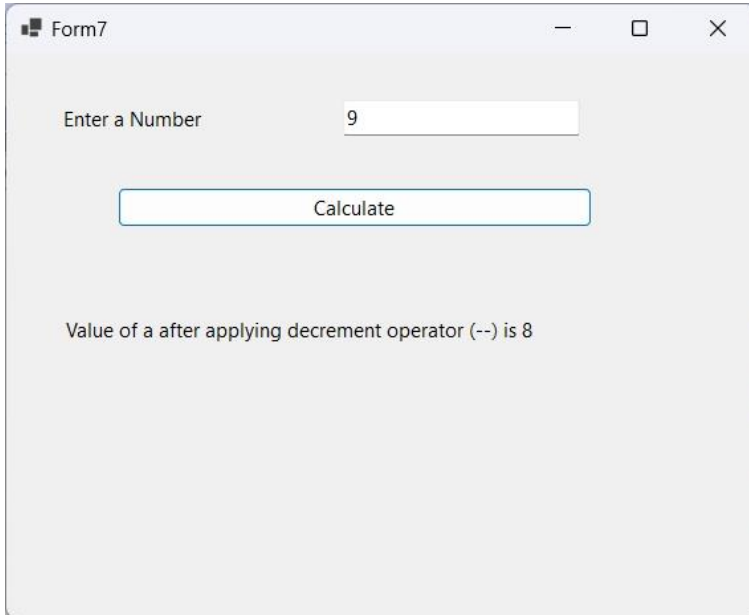
Calculate

Value of a after applying increment operator (++) is 9

```
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 (--)



Form7

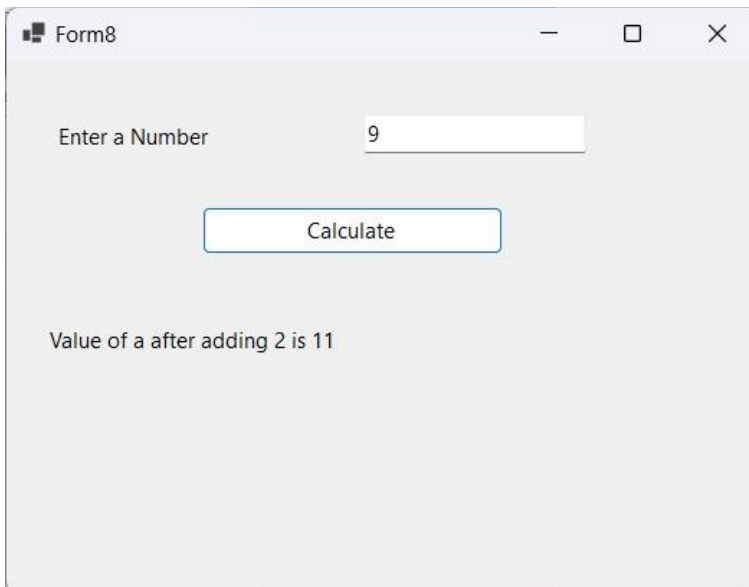
Enter a Number 9

Calculate

Value of a after applying decrement operator (--) is 8

```
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 (+=)



Form8

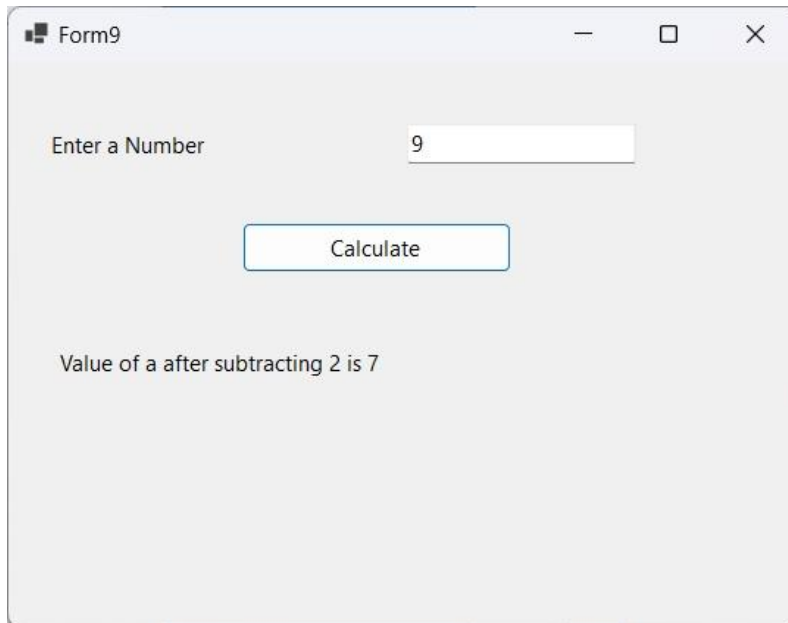
Enter a Number 9

Calculate

Value of a after adding 2 is 11

```
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 (--=)



Form9

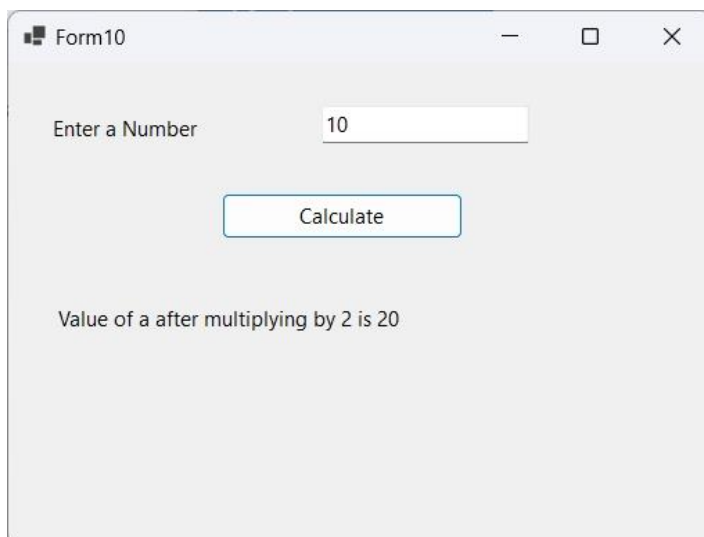
Enter a Number 9

Calculate

Value of a after subtracting 2 is 7

```
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 (*=)



Form10

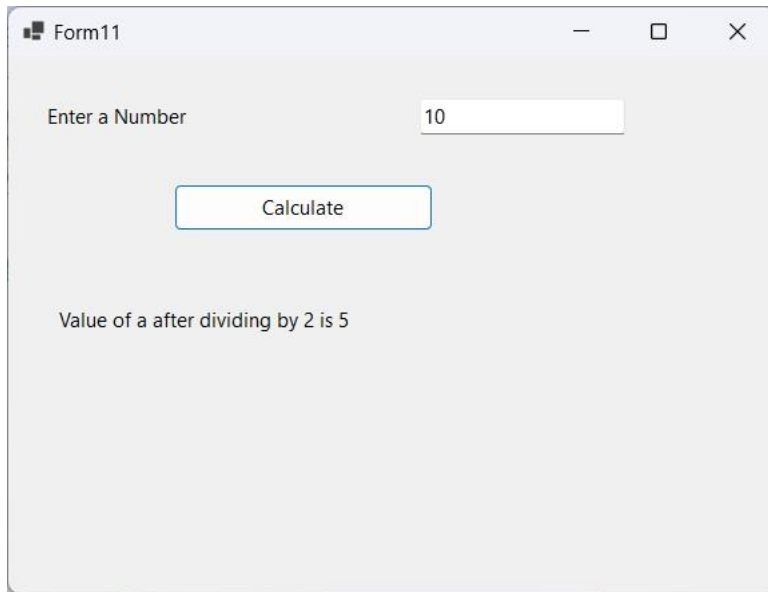
Enter a Number 10

Calculate

Value of a after multiplying by 2 is 20

```
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 (/*)



Form11

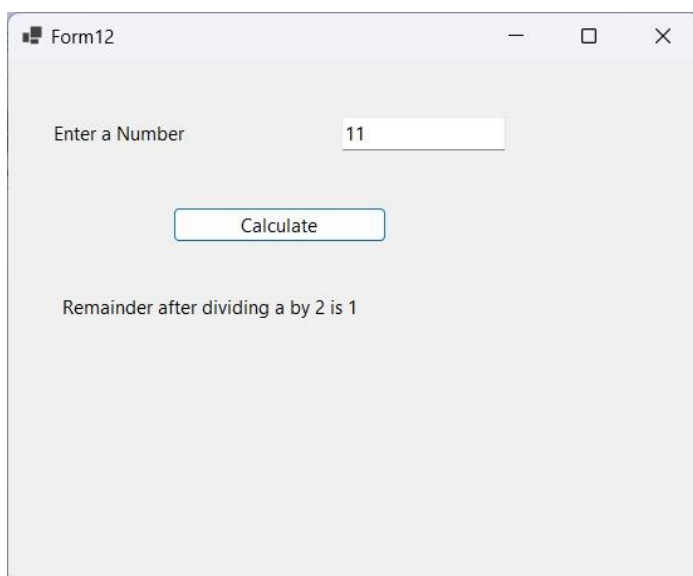
Enter a Number 10

Calculate

Value of a after dividing by 2 is 5

```
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 (%=)



Form12

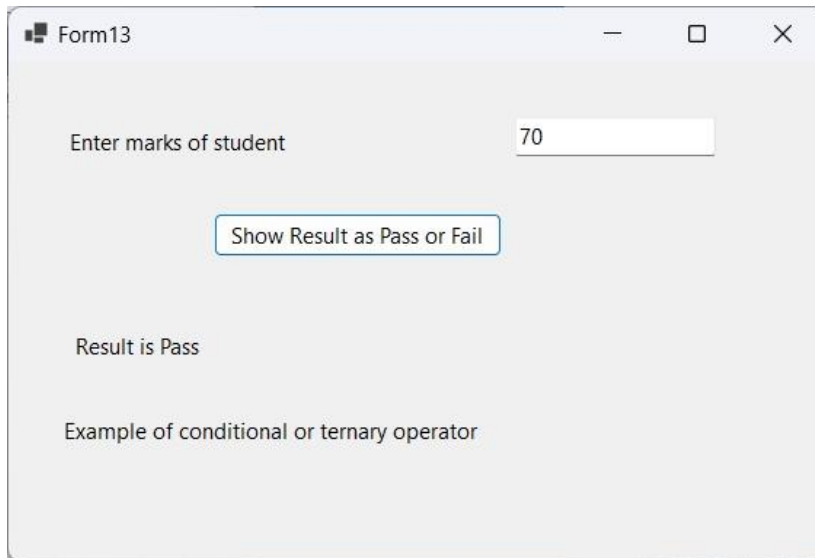
Enter a Number 11

Calculate

Remainder after dividing a by 2 is 1


```
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;
}
```

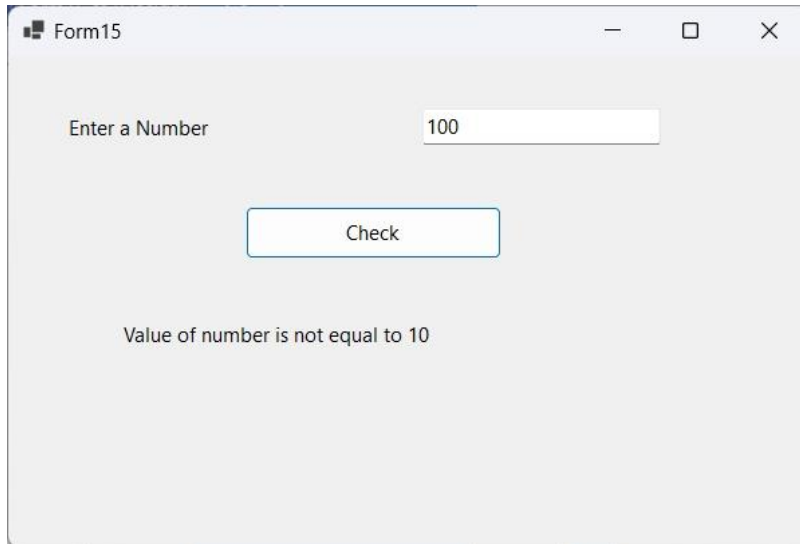
Program to demonstrate const modifier to declare a constant



```
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

A screenshot of a Windows application window titled "Form15". The window has a light gray background. At the top, there is a label "Enter a Number" followed by a text input box containing the value "100". Below the input box is a rectangular button labeled "Check". At the bottom of the window, there is a label that reads "Value of number is not equal to 10". The window has standard Windows window controls (minimize, maximize, close) in the top right corner.

```
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)

Form16

Enter a Number

90

Check

Value of a is greater than or equal to 10

```
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)

Form17

Enter a Number

9

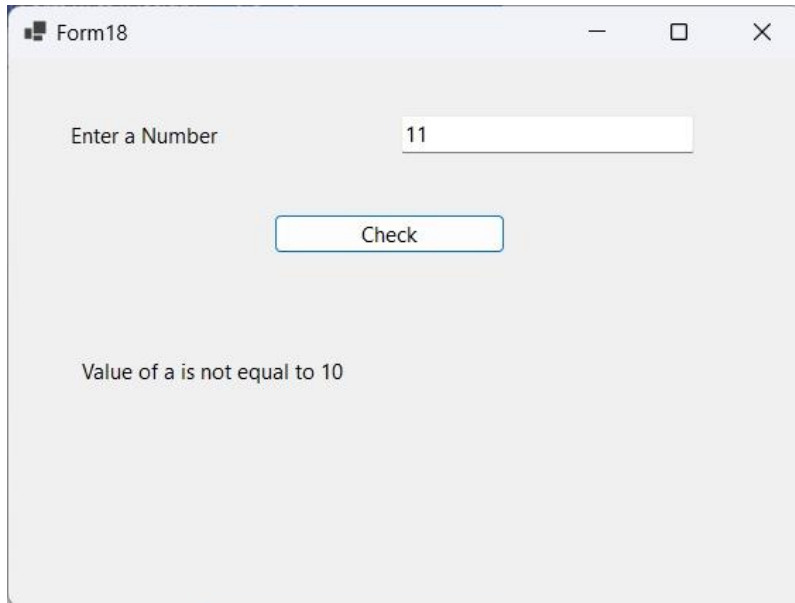
Check

Value of a is less than or equal to 10

```
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 !=)



The screenshot shows a Windows application window titled "Form18". Inside the window, there is a label "Enter a Number" followed by a text box containing the number "11". Below the text box is a button labeled "Check". At the bottom of the window, there is a label that reads "Value of a is not equal to 10".

```
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 (&&)

Form19

Enter marks of student

85

Check

Marks are between 80 and 90

```
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

Form20

Enter a number

70

Check

Value of a is neither equal to 80 nor 90

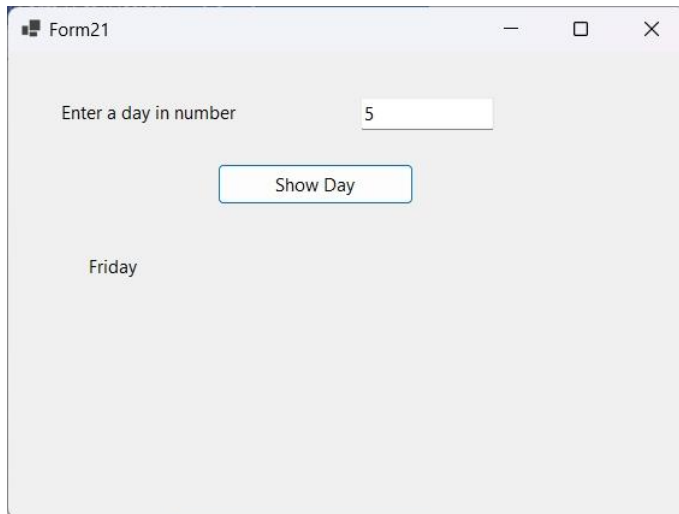
```
private void button1_Click(object sender, EventArgs e)
{
    int a;
    a = Convert.ToInt32(textBox1.Text);
    if((a==80) || (a==90))
```

```

    {
        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

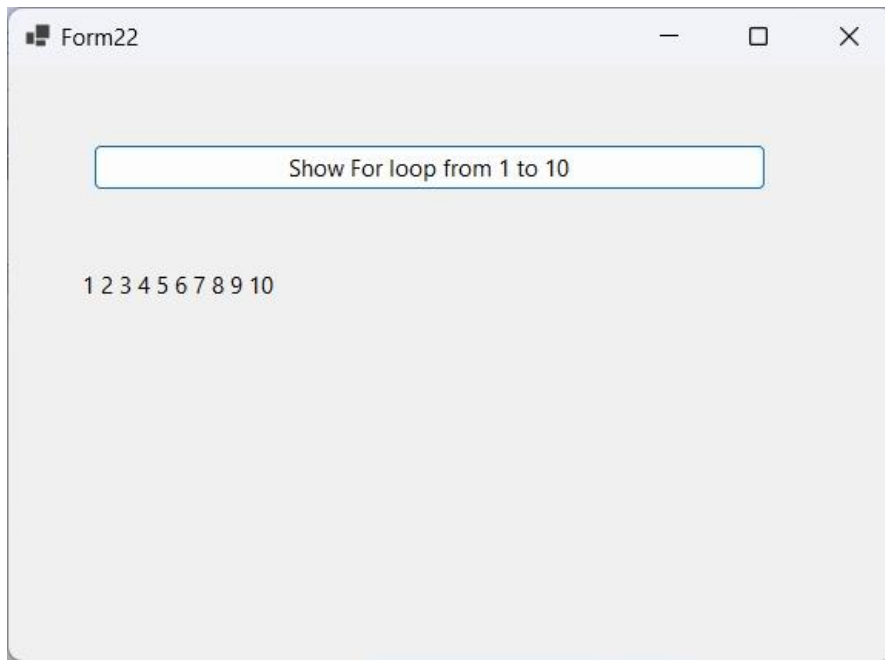


```

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;
    }
}

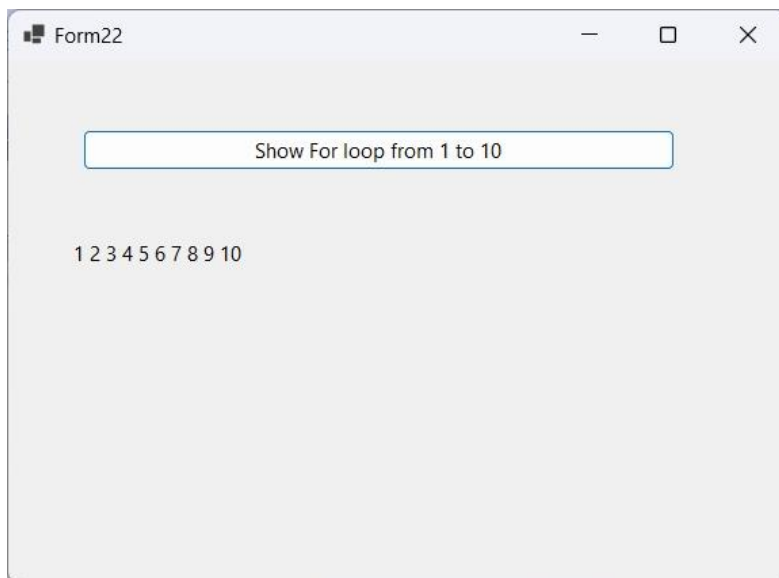
```

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;
    }
}
```

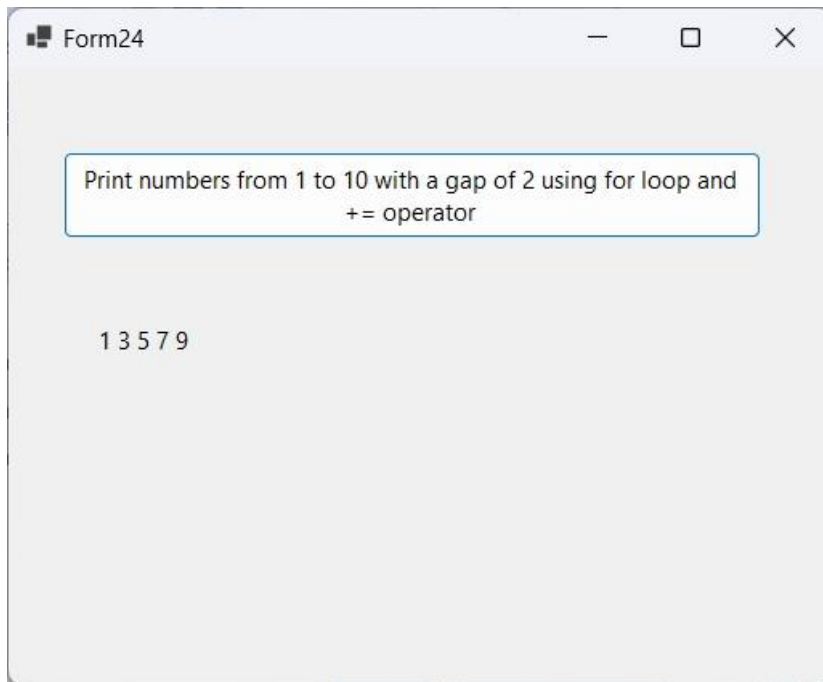
Program to demonstrate for loop to print numbers from 10 to 1 using decrement operator



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

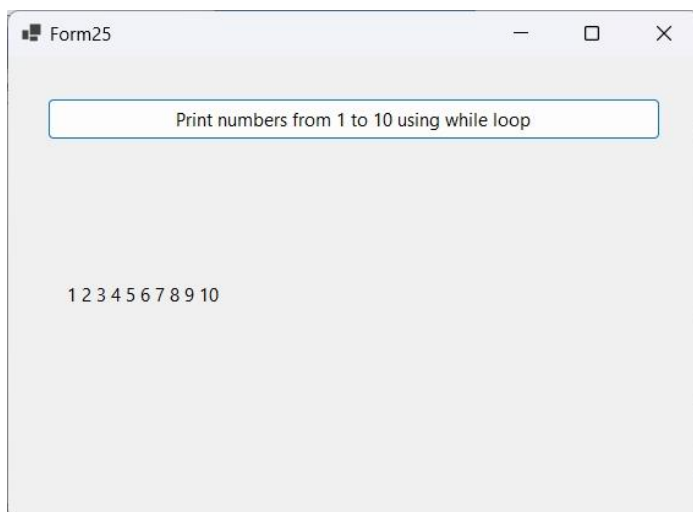
```
}
```

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)
```

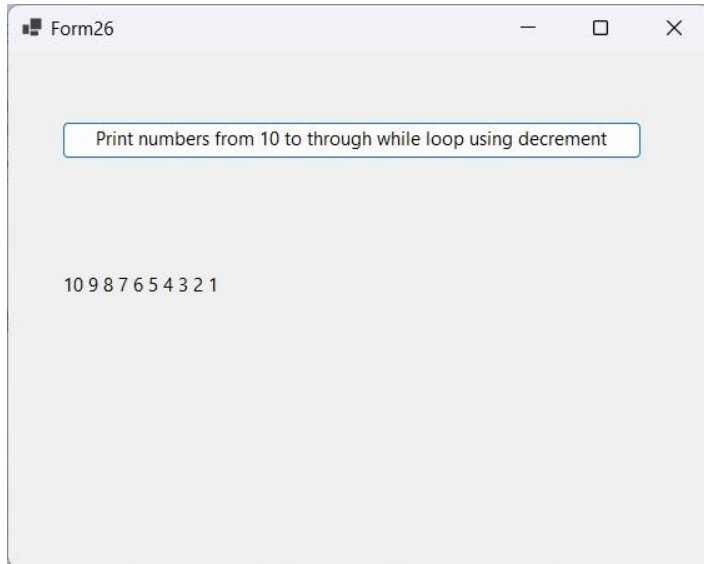


```

{
    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

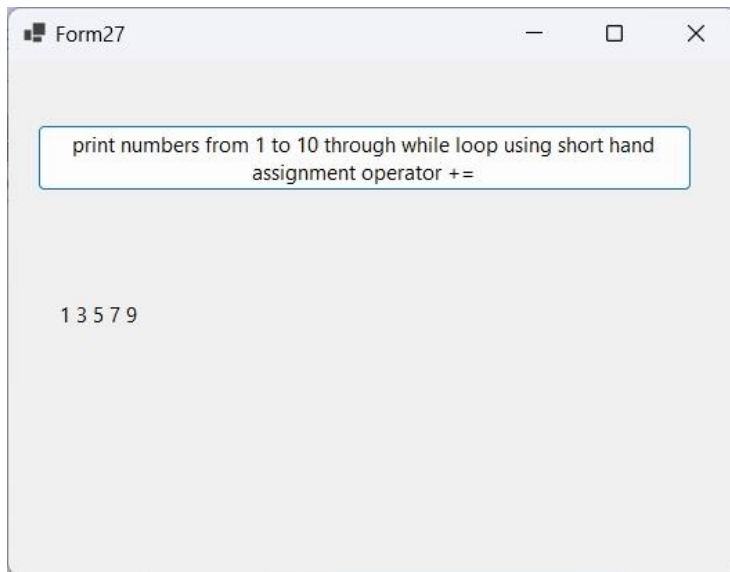


```

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

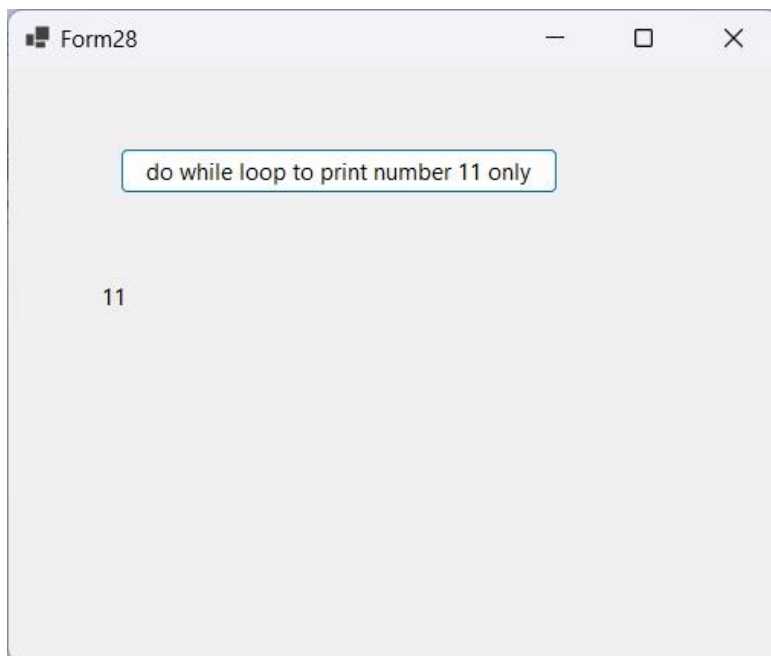
```

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

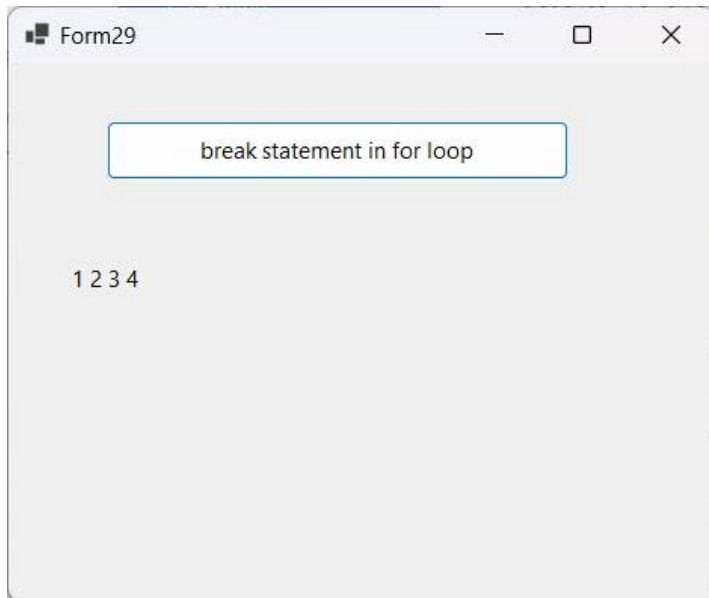


```
private void button1_Click(object sender, EventArgs e)
{
    int i = 11;
    do
    {
        label1.Text = label1.Text + " " + i;
        i++;
    } while (i <= 10);
}
```

```
}
```

Program to demonstrate break statement in for loop

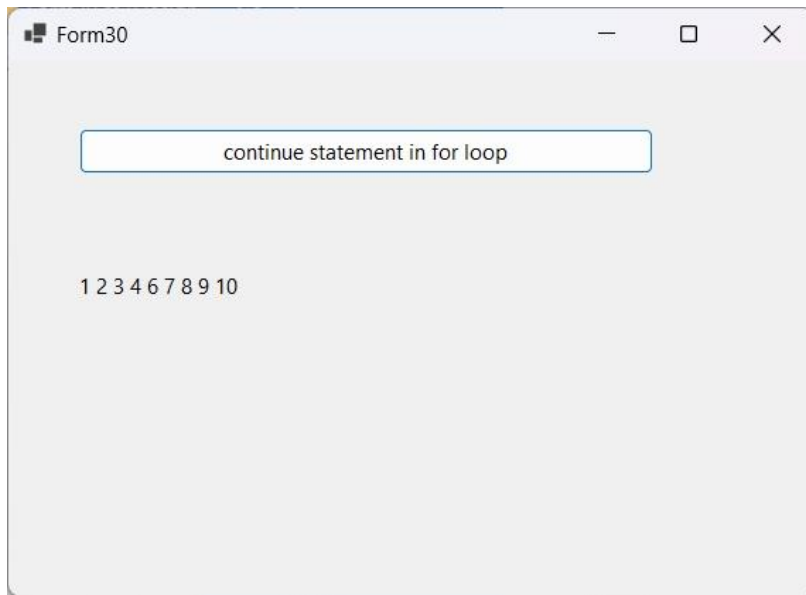
Break statement terminates the loop at the point where break statement is given



```
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;
    }
}
```

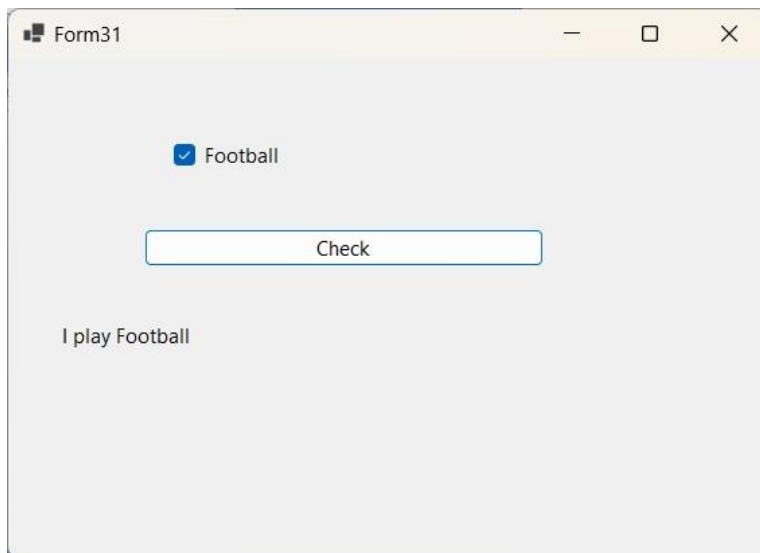
Program to demonstrate continue statement in for loop

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
    {

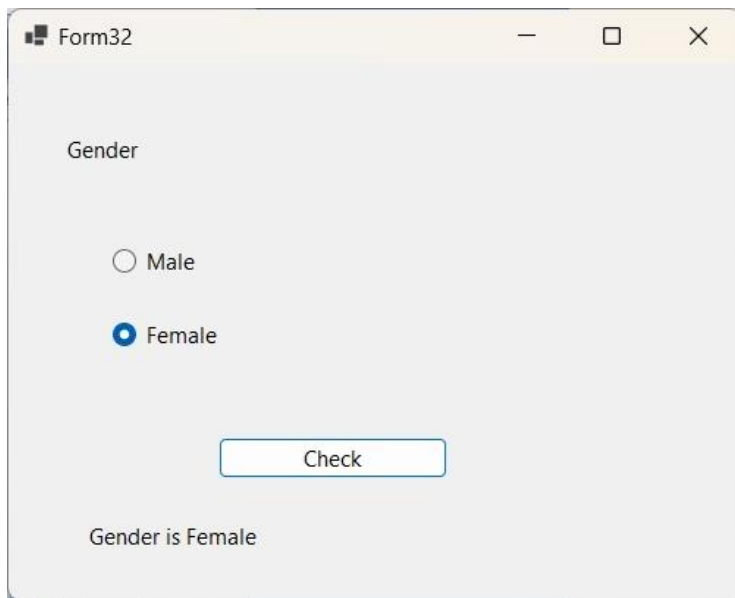
```

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

Program to demonstrate radiobutton control

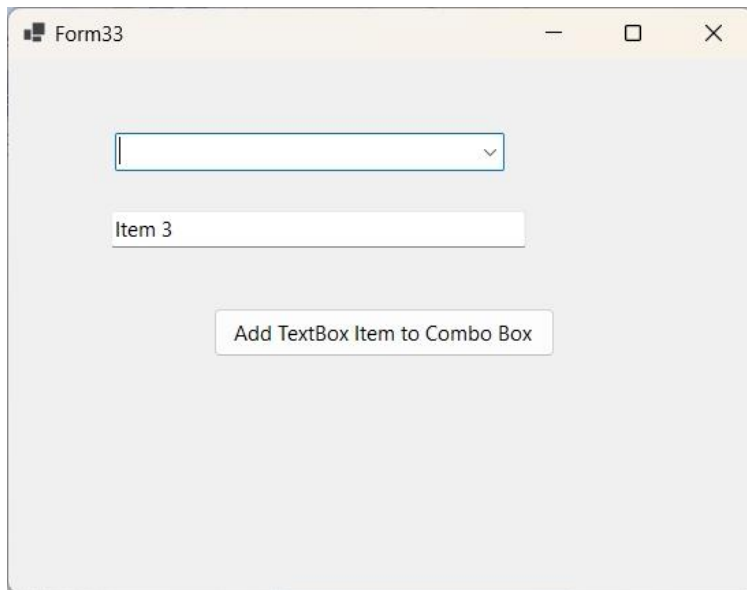
To make only one radio button selected at a time you need to place all radio buttons in a group box or in a panel.

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



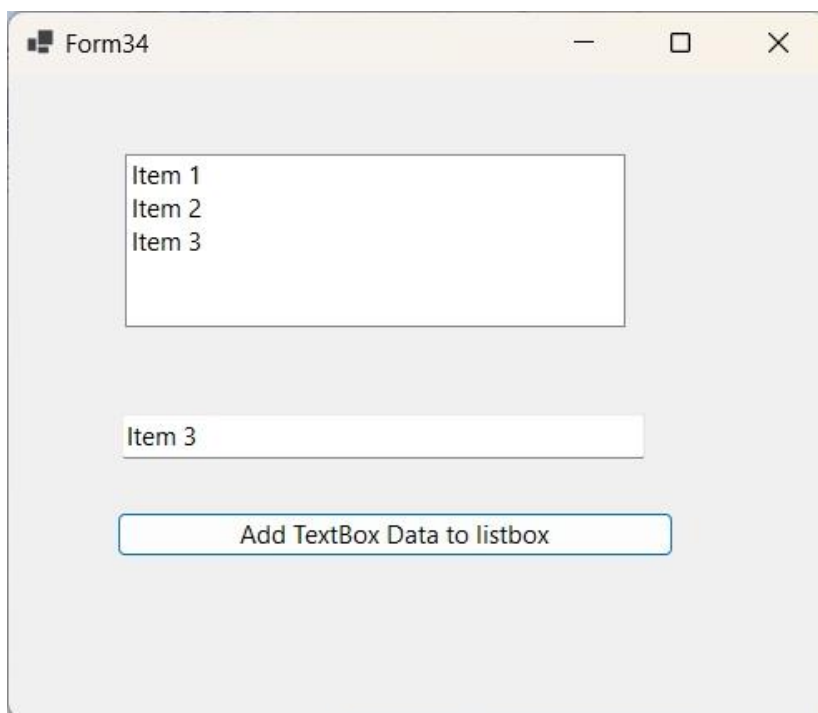
```
private void button1_Click(object sender, EventArgs e)  
{  
    if(radioButton1.Checked==true)  
    {  
        label2.Text = "Gender is Male";  
    }  
    if (radioButton2.Checked == true)  
    {  
        label2.Text = "Gender is Female";  
    }  
}
```

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);
}
```
