

Moving Pictures

The location of an object on the form can be represented on an xy axis using the following code

```
Sub Go ()  
    picCar.Location = New Point(x, y)  
    x = x + 1  
End Sub
```

Every time the Sub Go() is run, the image inside picCar will move will move one pixel to the right.

Call the sub Go() from a button called btnMove.

The image will move every time you click on the button.

Moving...one pixel at a time.

```
Public Class Form1
```

```
    Dim x As Integer = 0
```

```
    Dim y As Integer = 50
```

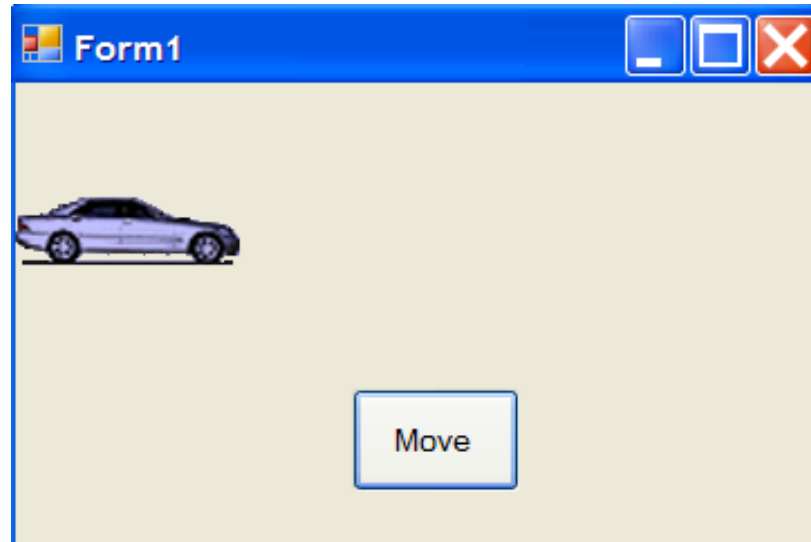
```
    Private Sub Button1_Click(ByVal sender As System.Object,
```

```
        picCar.Location = New Point(x, y)
```

```
        x = x + 1
```

```
    End Sub
```

```
End Class
```



Modifications and Improvements

By changing the values to $x = x + 5$ the image will move 5 pixels each time the button is clicked.

```
Private Sub Button1_Click(ByVal sender As  
    picCar.Location = New Point(x, y)  
    x = x + 5  
End Sub
```

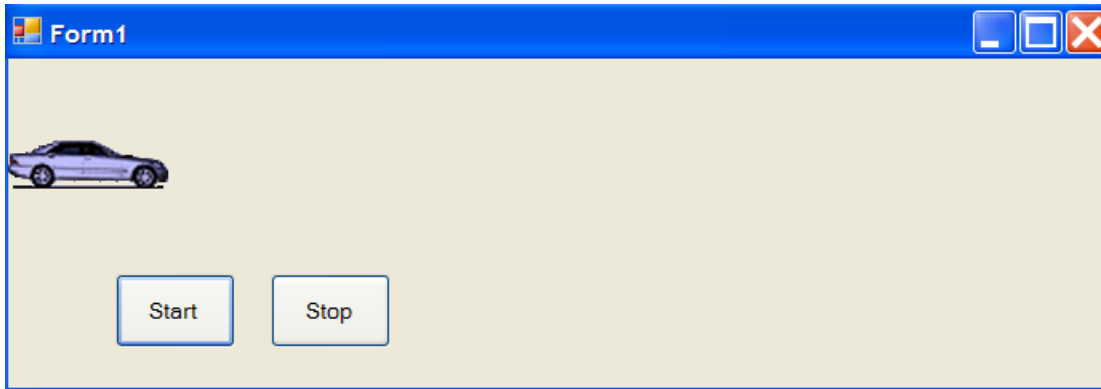
Modify the programs so that the car image goes down.

```
Private Sub Button1_Click(ByVal sender  
    picCar.Location = New Point(x, y)  
    y = y + 5  
End Sub
```

What changes would cause the image to move diagonally?

```
Private Sub Button1_Click(ByVal sender As  
    picCar.Location = New Point(x, y)  
    x = x + 5  
    y = y + 5  
End Sub
```

Using the Timer to Move Images



```
Public Class Form1
    Dim x As Integer = 0
    Dim y As Integer = 50

    Private Sub btnStart_Click(ByVal sender
        Timer1.Start()
    End Sub

    Private Sub Timer1_Tick(ByVal sender As
        MoveCar()
    End Sub

    Sub MoveCar()
        picCar.Location = New Point(x, y)
        x = x + 1
    End Sub

    Private Sub btnStop_Click(ByVal sender .
        Timer1.Stop()
    End Sub
End Class
```

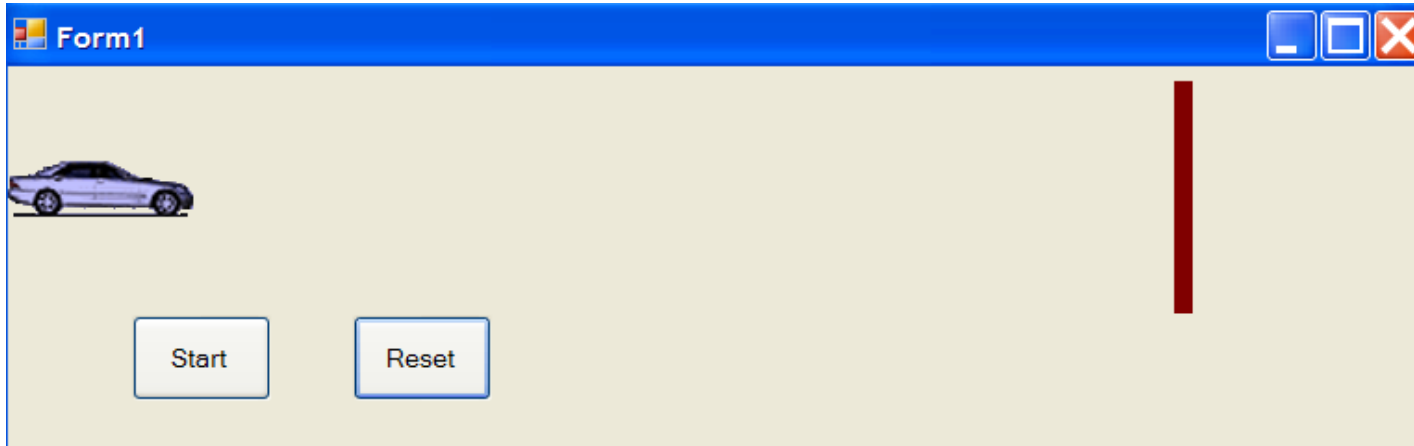
Button starts Timer1

Timer1 fires the
MoveCar() Sub

MoveCar() Sub cause image
to move right 1 pixel every time
Timer1 fires.

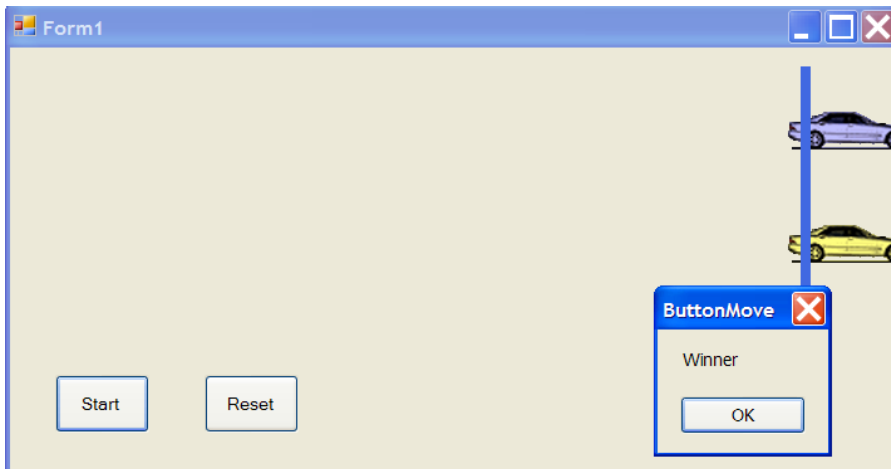
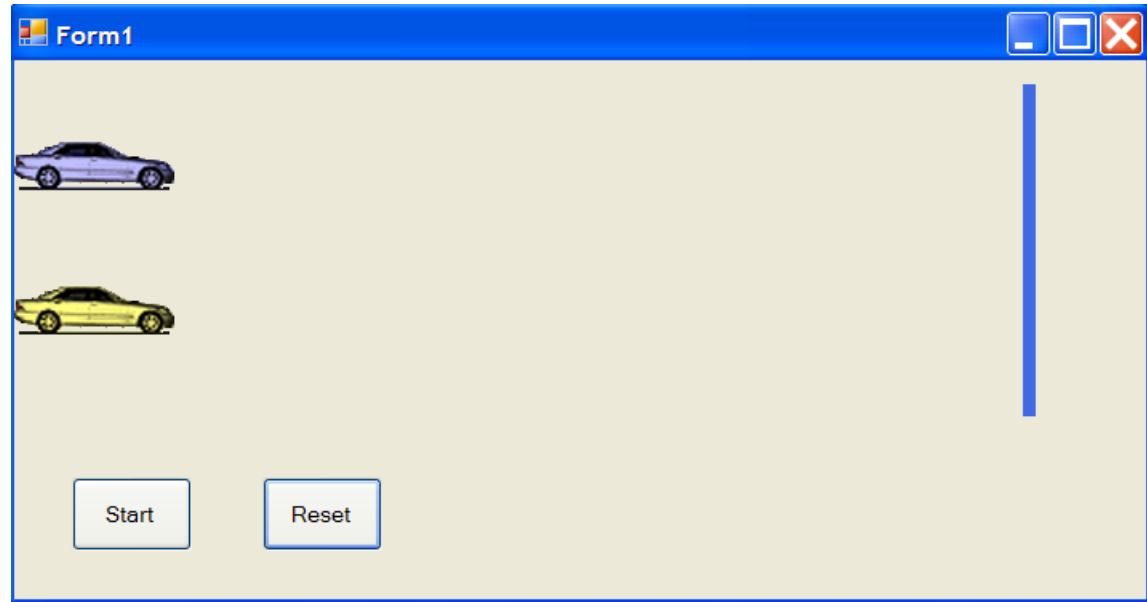
btnStop causes Timer1 to stop

The Finish Line



```
Sub MoveCar()  
    If (x <= 629) Then  
        picCar.Location = New Point(x, y)  
        x = x + 10  
    Else  
        Timer1.Stop()  
        MsgBox("Winner")  
    End If  
End Sub  
  
Private Sub btnReset_Click(ByVal sender  
    picCar.Location = New Point(0, 50)  
    x = 0  
End Sub
```

The Race



Always a tie!

The Tie

```
Sub MoveCar()  
  If (x <= 629) And (b <= 629) Then  
    picCar.Location = New Point(x, y)  
    picCar2.Location = New Point(a, b)  
    a = a + 10  
    x = x + 10  
  Else  
    Timer1.Stop()  
    MsgBox("Winner")  
  End If  
  
End Sub
```

As written the code ensures the two pictures arrive at the finish line at the same time.

Adding Random

```
Public Class Form1
    Dim x As Integer = 0
    Dim y As Integer = 50
    Dim a As Integer = 0
    Dim b As Integer = 140
    Dim i As Integer
    Dim j As Integer


---


    Private Sub btnStart_Click(ByVal sender As
        Timer1.Start()
    End Sub


---


    Private Sub Timer1_Tick(ByVal sender As Sys
        MoveCar()
    End Sub


---


```

```
Sub MoveCar()
    i = Int(5 * Rnd()) + 1
    j = Int(5 * Rnd()) + 1
    If (x <= 629) And (b <= 629) Then
        picCar.Location = New Point(x, y)
        picCar2.Location = New Point(a, b)
        a = a + i
        x = x + j
    Else
        Timer1.Stop()
        If (a > x) Then
            MsgBox("Winner is Yellow")
        Else
            MsgBox("Winner is Blue")
        End If
    End If
End Sub
```

Random value between 1 and 5



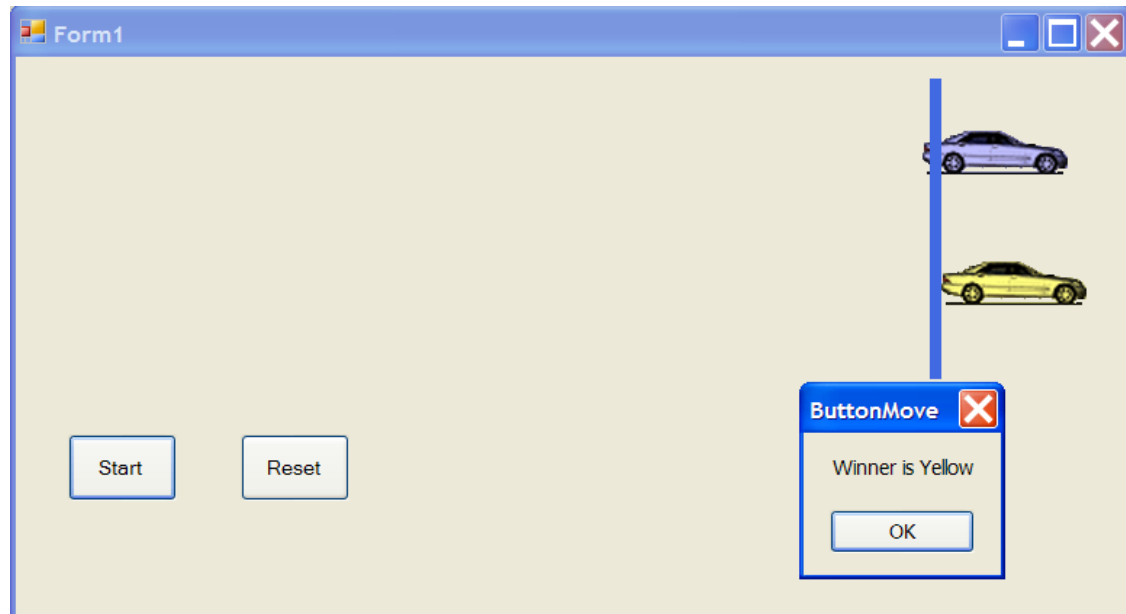
The Reset Button

Reset location of both images and the values of 'x' and 'a' to 0.

```
Private Sub btnReset_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles btnReset.Click  
    picCar.Location = New Point(0, 50)  
    x = 0  
    picCar2.Location = New Point(0, 140)  
    a = 0  
End Sub
```

```
Private Sub Form1_Load(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles MyBase.Load  
    Randomize()  
End Sub
```

Don't forget to start program with Randomize() function.



HomeWork



Create a stopwatch feature to record the time of the race winner.

Keep a tally of wins and output the winning percentages of both cars.

```

Public Class Form1
    Dim x As Integer = 0
    Dim y As Integer = 50
    Dim a As Integer = 0
    Dim b As Integer = 140
    Dim i As Integer
    Dim j As Integer
    Dim time As Decimal
    Private Sub btnStart_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles btnStart.Click
        Timer1.Start()
        Timer2.Start()
    End Sub

    Private Sub Timer1_Tick(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles Timer1.Tick
        MoveCar()
    End Sub

    Sub MoveCar()
        i = Int(5 * Rnd()) + 1
        j = Int(5 * Rnd()) + 1
        If (x <= 629) And (b <= 629) Then
            picCar.Location = New Point(x, y)
            picCar2.Location = New Point(a, b)
            a = a + i
            x = x + j
        Else
            Timer1.Stop()
            Timer2.Stop()
            If (a > x) Then
                MsgBox("Winner is Yellow")
            Else
                MsgBox("Winner is Blue")
            End If
        End If
    End Sub

    Private Sub btnReset_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles btnReset.Click
        picCar.Location = New Point(0, 50)
        x = 0
        picCar2.Location = New Point(0, 140)
        a = 0
        time = 0
        lblStopwatch.Text = time
    End Sub

    Private Sub Form1_Load(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles MyBase.Load
        Randomize()
    End Sub

    Private Sub Timer2_Tick(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles Timer2.Tick
        time = time + 1
        lblStopwatch.Text = time
    End Sub
End Class

```