



```

Dim query = From st In senateData.Descendants("senator")
             Let name = st.<name>.Value
             Let state = st.<state>.Value
             Let party = st.<party>.Value
             Order By state, name Ascending
             Select name, state, party
dgvSenators.DataSource = query.ToList
dgvSenators.CurrentCell = Nothing
dgvSenators.Columns("name").HeaderText = "Senator"
dgvSenators.Columns("state").HeaderText = "State"
dgvSenators.Columns("party").HeaderText = "Party Affiliation"
End Sub

```

CHAPTER 9

EXERCISES 9.1

1. Chopin is deleted from the list.
3. The currently selected item in `lstBox`, Mozart, is deleted.
5. The item Haydn is inserted into `lstBox` between Chopin and Mozart.
7. The names in the list box will appear in descending alphabetical order.
9. `cboBox.Text = "Dante"`
11. `cboBox.Items.Remove("Shakespeare")`
13. `cboBox.Items.RemoveAt(cboBox.Items.Count - 1)`
15.


```

Dim i As Integer = 0
Do While i < cboBox.Items.Count
    If CStr(cboBox.Items(i)).Substring(0, 1) = "M" Then
        cboBox.Items.RemoveAt(i)
    Else
        i += 1
    End If
Loop

```
17.


```

Private Sub btnSort_Click(...) Handles btnSort.Click
    Dim names() As String = IO.File.ReadAllLines("PopularName.txt")
    lstOutput.Sorted = True
    lstOutput.DataSource = names
    lstOutput.SelectedItem = Nothing
    For i As Integer = 0 To lstOutput.Items.Count - 1
        names(i) = CStr(lstOutput.Items(i))
    Next
    IO.File.WriteAllLines("SortedNames.txt", names)
    MessageBox.Show("The ordered file has been created.", "Done")
End Sub

```
23.

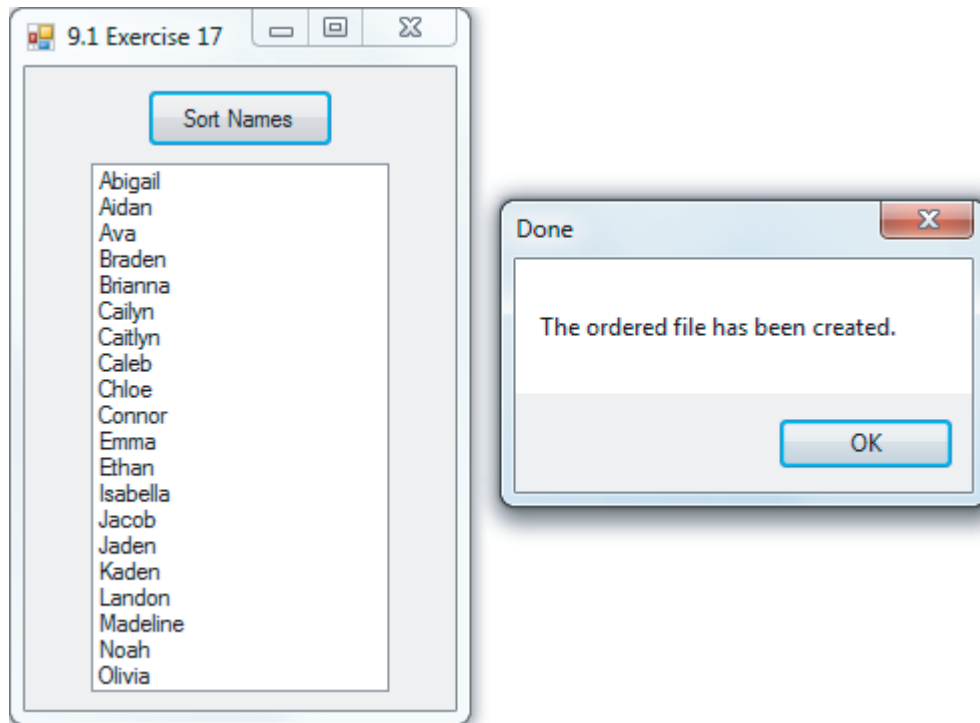

```

Dim ages() As String = IO.File.ReadAllLines("AgesAtInaugural.txt")

Private Sub frmPres_Load(...) Handles MyBase.Load
    Dim pres() As String = IO.File.ReadAllLines("USPres.txt")
    lstPres.DataSource = pres
End Sub

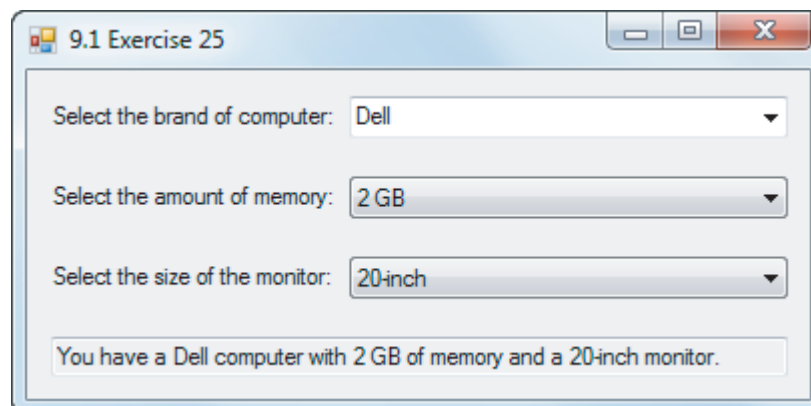
```

```
Private Sub lstPres_SelectedIndexChanged(...) Handles _
    lstPres.SelectedIndexChanged
    txtAge.Text = ages(lstPres.SelectedIndex)
End Sub
```



25. 'Note: This event procedure handles events from all three combo boxes

```
Private Sub SelectedIndexChanged(...) Handles _
    cboBrand.SelectedIndexChanged,
    cboMemory.SelectedIndexChanged,
    cboMonitor.SelectedIndexChanged
    'Update output if all choices have been made.
    If (cboBrand.SelectedIndex >= 0) And
        (cboMemory.SelectedIndex >= 0) And
        (cboMonitor.SelectedIndex >= 0) Then
        txtOutput.Text = "You have a " & cboBrand.Text &
            " computer with " & cboMemory.Text &
            " of memory and a " & cboMonitor.Text & " monitor."
    End If
End Sub
```



EXERCISES 9.2

1. The Tick event will be triggered every 5 seconds (5000 milliseconds).
3. The tooltip will appear one second after the cursor is hovered over a control.
5. A check mark appears in front of the `mnuOrderAsc` menu item.
7. The Tick event will be triggered every `intVar` seconds.
9. The name of one of the 44 U.S. presidents is selected at random and displayed in `txtBox`.
11. Two states are selected at random and displayed in the list box.
13. The contents of the Clipboard are deleted.
15. The text currently selected in `txtBox`, if any, is copied into the Clipboard.
17. The contents of the Clipboard are displayed in `txtBox`.
19. The contents of the Clipboard are assigned to the variable `strVar`.
21. A blue circle of radius 50 pixels will be drawn in the picture box. Its upper- leftmost point will be 20 pixels from the left side of the picture box and 30 pixels from the top side.
23. A picture of an airplane will be placed in the picture box.
25. Clicking on the arrow on either end of the scroll bar will move the button the same ("large") distance as clicking on the bar between the scroll box and an arrow.
27. `Timer1.Enabled = False`
29.

```
Dim randomNum As New Random()
txtBox.Text = CStr(randomNum.Next(1, 13))
```
31.

```
Dim sr As IO.StreamReader = IO.Files.ReadText("Towns.txt")
Dim randomNum As New Random()
Dim num As Integer = randomNum.Next(1, 26)
Dim city As String
For i As Integer = 1 To num
    city = sr.ReadLine
Next
txtBox.Text = city
```
33.

```
Dim n As Integer = rivers.Count
If n ≥ 2 Then
    Dim randomNum As New Random()
    Dim firstNumber, secondNumber As Integer
    firstNumber = randomNum.Next(0, n)
    Do
        secondNumber = randomNum.Next(0, n)
    Until secondNumber <> firstNumber
    lstBox.Items.Add(rivers(firstNumber))
    lstBox.Items.Add(rivers(secondNumber))
Else
    MessageBox.Show("The array has fewer than two elements.")
End If
```
35. `Clipboard.SetText("")`
37. `Clipboard.SetText(txtBox.SelectedText)`
39.

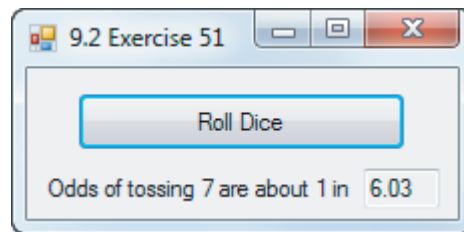
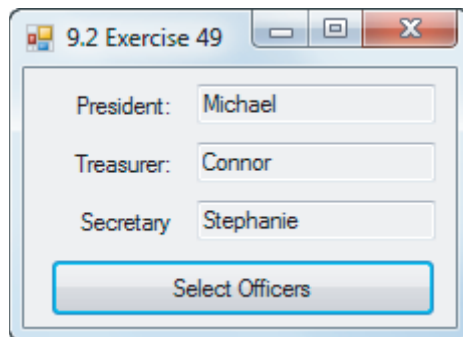
```
Dim amount As Integer
amount = CInt(Clipboard.GetText)
```

41. `mnuOrderDesc.Checked = False`

43. `VScrollBar2.Value = VScrollBar2.Minimum`

45. The menu item `mnuOrderAsc` is grayed out and cannot be selected.

```
49. Private Sub btnSelect_Click(...) Handles btnSelect.Click
    'Assume there are at least three members in the club.
    Dim names() As String = IO.File.ReadAllLines("Members.txt")
    Dim n As Integer = names.Count
    Dim p As Integer
    Dim randomNum As New Random()
    p = randomNum.Next(0, n)
    txtPresident.Text = names(p)
    'Swap President with the person in the last array element.
    names(p) = names(n - 1)
    names(n - 1) = txtPresident.Text
    'Choose a random person from first n-1 for Treasurer.
    p = randomNum.Next(0, n - 1)
    txtTreasurer.Text = names(p)
    'Swap Treasurer with the person in the next to last array element.
    names(p) = names(n - 2)
    names(n - 2) = txtTreasurer.Text
    'Choose a random person from first n-2 for Secretary.
    p = randomNum.Next(0, n - 2)
    txtSecretary.Text = names(p)
End Sub
```

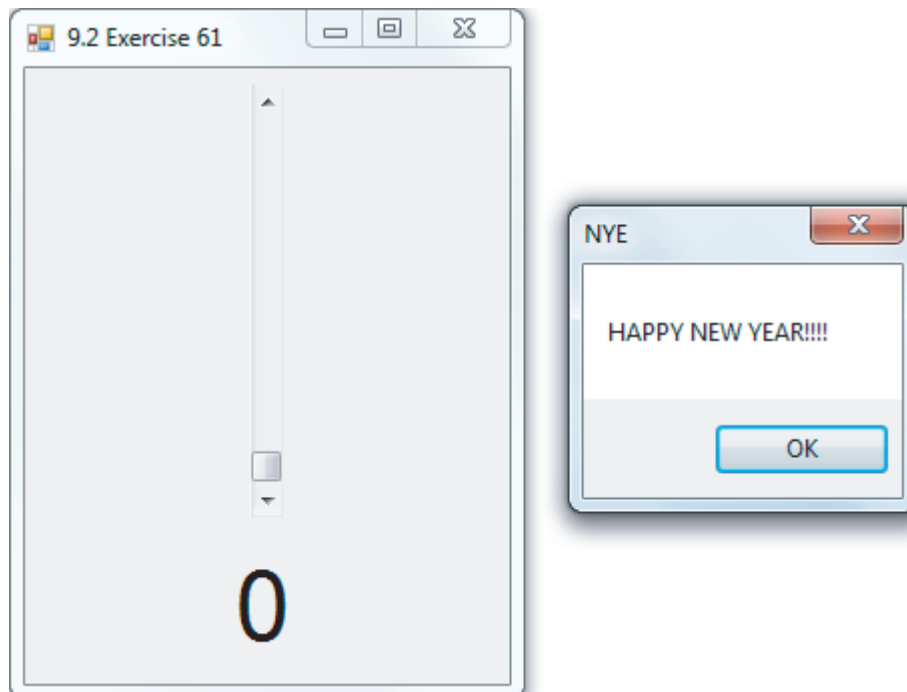


51. `Dim randomNum As New Random()`

```
Private Sub btnPlay_Click(...) Handles btnPlay.Click
    'Roll a pair of dice until 7 appears 1000 times.
    Dim die1, die2 As Integer
    Dim numberOfSevens As Integer = 0
    Dim numberOfRolls As Integer = 0
    Do
        'Roll the dice
        die1 = randomNum.Next(1, 7)
        die2 = randomNum.Next(1, 7)
        'If lucky 7, increment the sevens counter.
        If (die1 + die2) = 7 Then
            numberOfSevens += 1
        End If
        numberOfRolls += 1 'Increment the rolls counter.
    Loop Until (numberOfSevens = 1000)
    'Display the result to two decimal places.
    txtOutput.Text = FormatNumber(numberOfRolls / numberOfSevens, 2)
End Sub
```



- 57.** `Private Sub btnDisplay_Click(...) Handles btnDisplay.Click`
 'Display the open file dialog box to get the file
 Dim fileSpec As String
 OpenFileDialog1.ShowDialog()
 fileSpec = OpenFileDialog1.FileName
 'Display picture contained in the file.
 pictureBox.Image = Image.FromFile(fileSpec)
 End Sub
- 59.** `Private Sub tmrMoon_Tick(...) Handles tmrMoon.Tick`
 'Update the phase and display the image.
 'Timer Interval setting is 2000; Timer Enabled setting is True
 phase += 1
 If phase = 9 Then
 phase = 1
 End If
 pictureBox.Image = Image.FromFile("Moon" & phase & ".bmp")
 End Sub
- 61.** `Private Sub tmrBall_Tick(...) Handles tmrBall.Tick`
 'Update the value of the scroll bar and label.
 'Timer Interval setting is 1000
 'vsbBall.Minimum = 0, vsbBall.Maximum = 10
 count = count - 1
 vsbBall.Value = 10 - count
 lblBall.Text = CStr(count)
 'If at zero, display the message and end program.
 If count = 0 Then
 tmrBall.Enabled = False
 MessageBox.Show("HAPPY NEW YEAR!!!!", "NYE")
 Me.Close()
 End If
 End Sub



EXERCISES 9.3

1. \$106.00 3. Your last name begins with K.

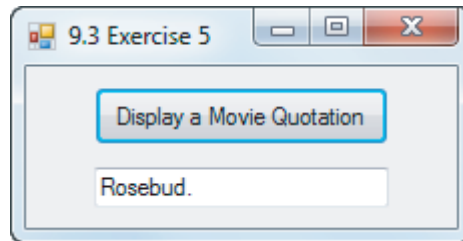
5. 'Form1's code

```
Private Sub btnDisplay_Click(...) Handles btnDisplay.Click
    Form2.ShowDialog()
    txtQuotation.Text = Form2.quotation
End Sub
```

'Form2's code

```
Public quotation As String
```

```
Private Sub btnProcessSelection_Click(...) Handles _
    btnProcessSelection.Click
    If rad1.Checked Then
        quotation = "Plastics."
    End If
    If rad2.Checked Then
        quotation = "Rosebud."
    End If
    If rad3.Checked Then
        quotation = "That's all folks."
    End If
    Me.Close()
End Sub
```



7. 'Code for frmMillionaire

```
Public numberOfYrs As Integer
```

```
Public Const INTEREST_RATE As Double = 0.06
```

```
Private Sub btnCalculate_Click(...) Handles btnCalculate.Click
    Dim balance As Double, numYears As Integer
    balance = CDbl(txtAmount.Text)
    Do While balance < 1000000
        balance += INTEREST_RATE * balance
        numYears += 1
    Loop
    txtWhen.Text = "In " & numYears &
        " years you will have a million dollars."
    numberOfYrs = numYears
    frmBalance.ShowDialog()
End Sub
```

'Code for frmBalance

```
Structure Year
```

```
    Dim num As Integer
```

```
    Dim amount As Double
```

```
End Structure
```



```

Private Sub frmBalance_Activated(...) Handles Me.Load
    Dim a(frmMillionaire.numberofYrs) As Year
    a(0).num = 0
    a(0).amount = CDb1(frmMillionaire.txtAmount.Text)
    For i As Integer = 1 To a.Count - 1
        a(i).num = i
        a(i).amount = (1 + frmMillionaire.INTEREST_RATE) * a(i - 1).amount
    Next
    Dim query = From yr In a
        Let Year = yr.num
        Let Amount = FormatCurrency(yr.amount)
        Select Year, Amount
    dgvBalance.DataSource = query.ToList
    dgvBalance.CurrentCell = Nothing
End Sub

Private Sub frmBalance_FormClosing(...) Handles Me.FormClosing
    frmMillionaire.txtAmount.Clear()
    frmMillionaire.txtWhen.Clear()
    frmMillionaire.txtAmount.Focus()
End Sub

```

11. 'Form1's code (Customer)

```

Private Sub btnGet_Click(...) Handles btnGet.Click
    If radBillCust.Checked Then
        Form2.ShowDialog()
    Else
        Form3.ShowDialog()
    End If
End Sub

```

```

'Form2's code (Customer Info)
Private Sub Form2_Load(...) Handles MyBase.Load
    txtName.Text = Form1.txtName.Text
End Sub

```

```

Private Sub btnRecord_Click(...) Handles btnRecord.Click
    Dim city, state, zip As String
    Form1.lstOutput.Items.Add("Mail bill to:")
    Form1.lstOutput.Items.Add(txtName.Text)
    Form1.lstOutput.Items.Add(txtAddress.Text)
    city = txtCity.Text
    state = cboState.Text
    zip = txtZip.Text
    Form1.lstOutput.Items.Add(city & ", " & state & " " & zip)
    Me.Close()
End Sub

```

```

'Form3's code (Credit Card Info)
Private Sub Form3_Load(...) Handles MyBase.Load
    Dim num As Integer = Today.Year
    For i As Integer = num To num + 5
        cboYear.Items.Add(i)
    Next
End Sub

```

```

Private Sub btnRecord_Click(...) Handles btnRecord.Click
    Form1.lstOutput.Items.Add("Bill " & cboCard.Text)
    Form1.lstOutput.Items.Add("Name on card: " & txtName.Text)
    Form1.lstOutput.Items.Add("Card number: " & txtCardNumber.Text)

```

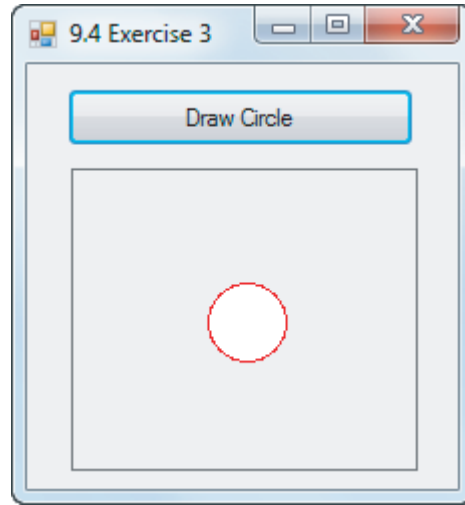
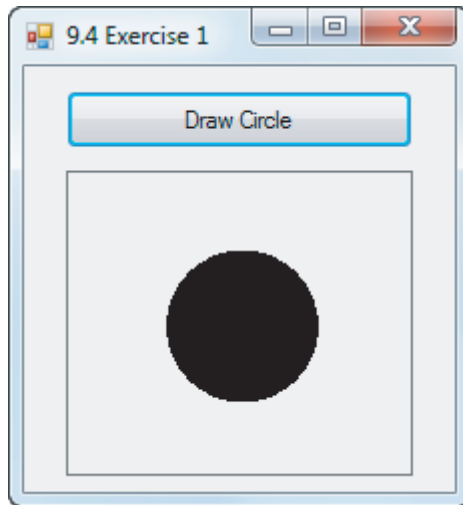
```

Form1.lstOutput.Items.Add("Expiration date: " &
    cboMonth.Text & "/" & cboYear.Text)
Me.Close()
End Sub

```

EXERCISES 9.4

1. Private Sub btnDraw_Click(...) Handles btnDraw.Click
 Dim gr As Graphics = picBox.CreateGraphics
 Dim x As Double = picBox.Width / 2
 Dim y As Double = picBox.Height / 2
 Dim r As Double = x / 2
 If r > y / 2 Then
 r = y / 2
 End If
 gr.FillEllipse(Brushes.Black, CSng(x - r), CSng(y - r),
 CSng(2 * r), CSng(2 * r))
 End Sub



3. Private Sub btnDraw_Click(...) Handles btnDraw.Click
 Dim gr As Graphics = picBox.CreateGraphics
 Dim x As Double = picBox.Width / 2
 Dim y As Double = picBox.Height / 2
 Dim r As Double = 20
 gr.FillEllipse(Brushes.Red, CSng(x - r), CSng(y - r),
 CSng(2 * r), CSng(2 * r))

 r = 19
 gr.FillEllipse(Brushes.White, CSng(x - r), CSng(y - r),
 CSng(2 * r), CSng(2 * r))
 End Sub
5. Private Sub btnCreate_Click(...) Handles btnCreate.Click
 Dim gr As Graphics = picFlag.CreateGraphics
 Dim br() As Brush = {Brushes.Green, Brushes.White, Brushes.Red}
 'picFlag.Width = 149; picFlag.Height = 99
 For i As Integer = 0 To 2
 gr.FillRectangle(br(i), 0 + i * 50, 0, 50, 99)
 Next
 gr.DrawLine(Pens.Black, 0, 0, 148, 0) 'top border
 End Sub



```

    gr.DrawLine(Pens.Black, 0, 0, 0, 98)      'left border
    gr.DrawLine(Pens.Black, 0, 98, 148, 98)   'bottom border
    gr.DrawLine(Pens.Black, 148, 0, 148, 98)  'right border
End Sub

```

```

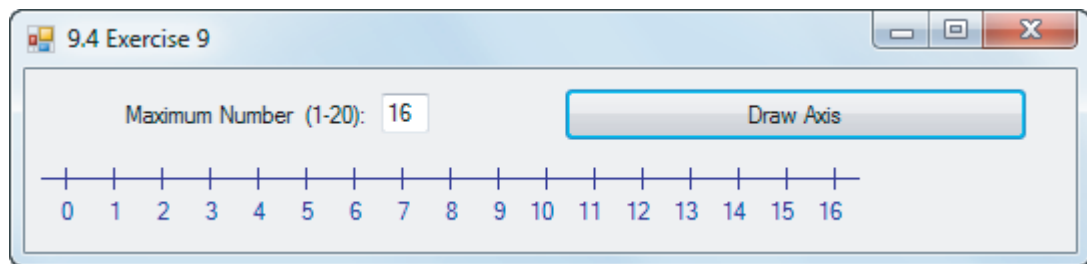
7. Private Sub btnCreate_Click(...) Handles btnCreate.Click
    Dim gr As Graphics = picFlag.CreateGraphics
    Dim br() As Brush = {Brushes.Orange, Brushes.White, Brushes.Green}
    Dim r As Integer = 12 'radius of circle
    'picFlag.Width = 149; picFlag.Height = 99
    For i As Integer = 0 To 2
        gr.FillRectangle(br(i), 0, 0 + i * 33, 149, 33)
    Next
    gr.FillPie(Brushes.Orange, 75 - r, 49 - r, 2 * r, 2 * r, 0, 360)
    gr.DrawLine(Pens.Black, 0, 0, 148, 0)    'top border
    gr.DrawLine(Pens.Black, 0, 0, 0, 98)      'left border
    gr.DrawLine(Pens.Black, 0, 98, 148, 98)   'bottom border
    gr.DrawLine(Pens.Black, 148, 0, 148, 98)  'right border
End Sub

```

```

9. Private Sub btnDraw_Click(...) Handles btnDraw.Click
    Dim numbers As String = ""
    Dim gr As Graphics = picBox.CreateGraphics
    picBox.Refresh()
    Dim n As Integer = CInt(txtNumber.Text)
    'Font is Microsoft Sans Serif
    For i As Integer = 0 To n
        If i < 9 Then
            numbers &= i & "      "
        Else
            numbers &= i & "    "
        End If
        gr.DrawLine(Pens.Blue, 12 + (24 * i), 5, 12 + (24 * i), 15)
    Next
    gr.DrawLine(Pens.Blue, 0, 10, 24 * (n + 1), 10)
    gr.DrawString(numbers, Me.Font, Brushes.Blue, 8, 20)
End Sub

```



CHAPTER 10

EXERCISES 10.1

1. (e) 3. (d) 5. (b)

```

7. Private Sub frmCities_Load(...) Handles MyBase.Load
    Me.CitiesTableAdapter.Fill(Me.MegacitiesDataSet.Cities)
End Sub

```