

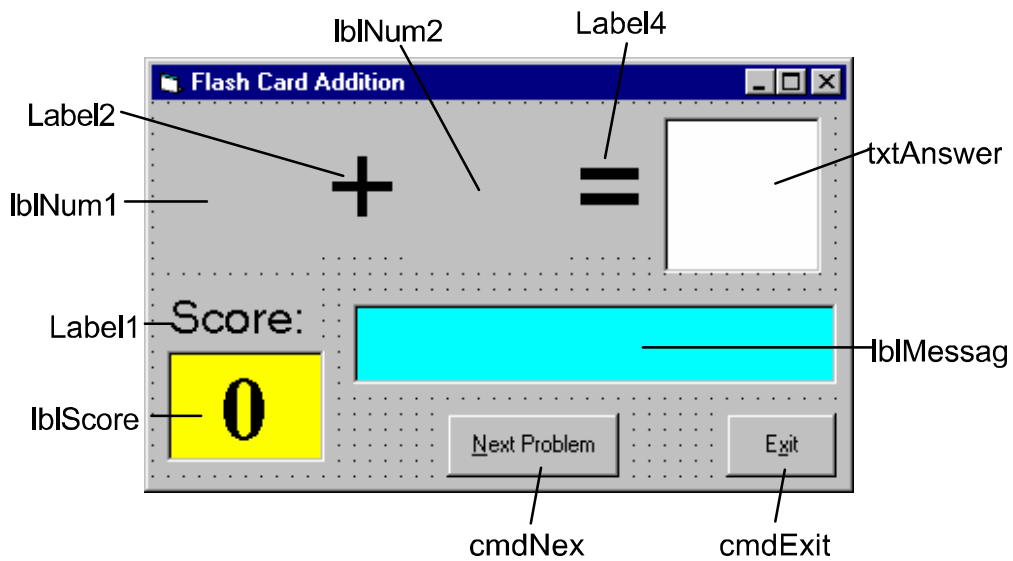
**Exercise 2-2**

**Flash Card Addition Problems**

Write an application that generates random addition problems. Provide some kind of feedback and scoring system as the problems are answered.

**My Solution:**

Form:



Properties:

Form **frmAdd:**

BorderStyle = 1 - Fixed Single  
Caption = Flash Card Addition

CommandButton **cmdNext:**

Caption = &Next Problem  
Enabled = False

CommandButton **cmdExit:**

Caption = E&xit

TextBox **txtAnswer:**

FontName = Arial  
FontSize = 48  
MaxLength = 2

Label **lblMessage**:

Alignment = 2 - Center  
BackColor = &H00FFFF00& (Cyan)  
BorderStyle = 1 - Fixed Single  
FontName = MS Sans Serif  
FontBold = True  
FontSize = 24  
FontItalic = True

Label **lblScore**:

Alignment = 2 - Center  
BackColor = &H0000FFFF& (Yellow)  
BorderStyle = 1 - Fixed Single  
Caption = 0  
FontName = Times New Roman  
FontBold = True  
FontSize = 36

Label **Label1**:

Alignment = 2 - Center  
Caption = Score:  
FontName = MS Sans Serif  
FontSize = 18

Label **Label4**:

Alignment = 2 - Center  
Caption = =  
FontName = Arial  
FontSize = 48

Label **lblNum2**:

Alignment = 2 - Center  
FontName = Arial  
FontSize = 48

Label **Label2**:

Alignment = 2 - Center  
Caption = +  
FontName = Arial  
FontSize = 48

Label **lblNum1**:

Alignment = 2 - Center  
FontName = Arial  
FontSize = 48

Code:

**General Declarations:**

```
Option Explicit
Dim Sum As Integer
Dim NumProb As Integer, NumRight As Integer
```

**cmdExit Click Event:**

```
Private Sub cmdExit_Click()
End
End Sub
```

**cmdNext Click Event:**

```
Private Sub cmdNext_Click()
'Generate next addition problem
Dim Number1 As Integer
Dim Number2 As Integer
txtAnswer.Text = ""
lblMessage.Caption = ""
NumProb = NumProb + 1
'Generate random numbers for addends
Number1 = Int(Rnd * 21)
Number2 = Int(Rnd * 21)
lblNum1.Caption = Format(Number1, "#0")
lblNum2.Caption = Format(Number2, "#0")
'Find sum
Sum = Number1 + Number2
cmdNext.Enabled = False
txtAnswer.SetFocus
End Sub
```

**Form Activate Event:**

```
Private Sub Form_Activate()
Call cmdNext_Click
End Sub
```

**Form Load Event:**

```
Private Sub Form_Load()  
Randomize Timer  
NumProb = 0  
NumRight = 0  
End Sub
```

**txtAnswer KeyPress Event:**

```
Private Sub txtAnswer_KeyPress(KeyAscii As Integer)  
Dim Ans As Integer  
'Check for number only input and for return key  
If (KeyAscii >= vbKey0 And KeyAscii <= vbKey9) Or KeyAscii  
= vbKeyBack Then  
Exit Sub  
ElseIf KeyAscii = vbKeyReturn Then  
'Check answer  
Ans = Val(txtAnswer.Text)  
If Ans = Sum Then  
NumRight = NumRight + 1  
lblMessage.Caption = "That's correct!"  
Else  
lblMessage.Caption = "Answer is " + Format(Sum, "#0")  
End If  
lblScore.Caption = Format(100 * NumRight / NumProb,  
"##0")  
cmdNext.Enabled = True  
cmdNext.SetFocus  
Else  
KeyAscii = 0  
End If  
End Sub
```