

NOTES ON DEBUGGING TO HELP YOU WITH YOUR CREDIT CARD VALIDATOR PROGRAM

Use "Print" statements, breakpoints and the "Debug" menu in VB when you need to verify whether your program is working correctly!

Example 1

```
Option Explicit                                     'Line 1

Private Sub Command1_Click()

    Dim Number As Integer, Sum As Integer, X As Integer    'Line 2

    Number = Val(Text1.Text)                               'Line 3
    Sum = 0                                                  'Line 4

    'Adds up numbers 1 to number-1
    For X = 1 To Number - 1                                'Line 5
        Sum = Sum + X                                       'Line 6
        'Printing loop counter and the running sum
        Print X, Sum                                       'Line 7
    Next X                                                  'Line 8

    Text1.Text = CStr(Sum)                                  'Line 9

End Sub
```

Example 2

```
Private Sub Command1_Click()                            'Line 10

    Dim ccNum As String, Message As String               'Line 11
    Dim Sum As Integer, X As Integer                     'Line 12

    Sum = 0                                               'Line 13
    ccNum = Text1.Text                                   'Line 14

    'Calculates sum of all the digits
    For X = 1 To Len(ccNum)                              'Line 15
        Sum = Sum + Val(Mid(ccNum, X, 1))               'Line 16
        'Printing loop counter and the running sum
        Print X, Sum                                     'Line 17
    Next X                                                'Line 18

    Message = "The sum of the digits is " & CStr(Sum) & "." 'Line 19
    MsgBox Message                                       'Line 20

End Sub                                                  'Line 21
```

Questions

1. What is the purpose of the **Option Explicit** statement on line 1? How does it help you to reduce the amount of time needed to debug your programs?
2. On line 3, the "Val" function is used to convert the string value stored in the "Text" property of the text box to a numeric value. If you omit the "Val" function, will the code still work? Why is it a bad idea to leave out the "Val" function.
3. In line 9, the "CStr" function is used to convert the numeric value stored in the "Sum" variable to a string value. If you omit the "CStr" function, will the code still work? Why is it a bad idea to leave out the "CStr" function.
4. Will the code on line 16 still work if the "Val" function is omitted? Why is it a bad idea to omit the "Val" function?
5. Explain why the use of "Print" statements can be very helpful in the debugging process.
6. What other methods of debugging have you already used in the development of VB programs?
7. Explore the "Debug" menu in VB. Explain how all the options in this menu ("Step Into", "Step Out", "Step Over", "Run to Cursor", "Add Watch", "Edit Watch", "Quick Watch", "Toggle Breakpoint", "Clear All Breakpoints", "Set Next Statement", "Show Next Statement") can help you to debug programs.