



### Design Issues

1. An algorithm should be created for event procedures that contain complex tasks, such as decision structures.
2. Both an algorithm and an application should be thoroughly tested to ensure their accuracy.
3. Indents should be used to make the code easy to follow. For example, the indent of an *If..Then..Else* structure should resemble:

```
If iScore > 60 Then
    lblMessage.Text = "You passed"
Else
    lblMessage.Text="You will have to try again!"
EndIf
```

4. The *If..Then..ElseIf* structure can be used instead of a series of *If..Then..Else* statements to decide among three or more actions and should resemble:

```
If decPayment = decBalance Then
    lblMessage.Text = "Thank you for your full payment."
ElseIf decPayment < decBalance Then
    lblMessage.Text = "Your balance is now overdue."
Else
    lblMessage.Text = "You have a credit."
```

5. A *Select Case* structure may be more efficient than an *If..Then..Else* statement when the branching depends on one variable. For example:

```
Select Case Age
    Case Is < 12
        Price = 4.00
    Case 13 to 18
        Price = 6.00
    Case Is > 18
        Price = 8.00
```

6. Even though the IDE automatically indents statements, students should be made aware of what is considered *good style* since not all programming languages automatically indent statements and also the indents may be incorrect after code has been edited.
7. The first instance of an identifier is important in that the IDE automatically makes the case of identifiers consistent based on the first instance typed.

### Critical Thinking

1. If an **If** statement compares two values, what are three cases that should be tested?
2. How can sketching the user interface and creating an algorithm before starting to work on the computer save time when developing an application?
3. How can a multi-line text box be created?
4. What is the main difference between **Check Box** and **Radio Button** controls?

Suggested solutions to the Critical Thinking questions are found in the Appendix at the end of this handbook.



When conducting an onscreen assessment of an application that contains a decision structure, the application should be run several times to test all possible outcomes. The choice of test data should be explained to students to reinforce the importance of selecting appropriate test data.