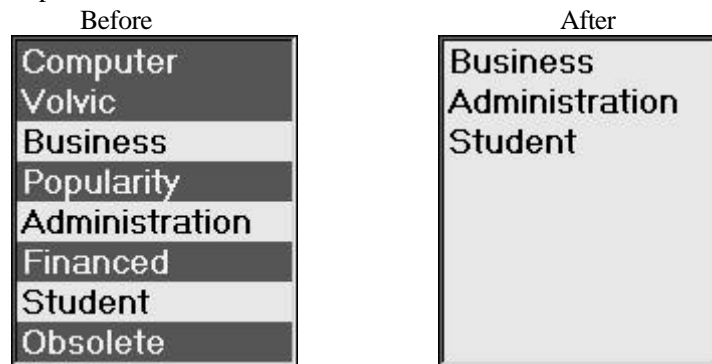


1. (10) Assume you have a list box named List1, which has its Multiselect property set to “2 - Extended”. Write a click event procedure for this list box that deletes the selected items and leaves the unselected items in the list. For example, the figures below show the list box before and after the click event takes place.



Hints: Consider using the ListCount and Selected() properties and the RemoveItem method of the list box in your solution. Also be aware that the ListCount property of a list box is updated *as soon as* an item is removed from the list.

2. (8) You have an array that stores the unit sales of four products in three sales regions. This array is shown below:

UnitSales Array

		Product Number			
		1	2	3	4
Sales	1	100	324	213	543
Region	2	213	432	657	845
	3	143	498	475	633

You also have an array that stores the price for each product. Prices are the same across all sales regions. This array is shown below:

Price Array

Product	1	32.55
	2	36.43
	3	98.99
	4	13.95

Assuming that these arrays are already declared and have the data stored in them, write a segment of code that computes and displays (via a message box) the total dollar sales (units sold times price) by region. Write your solution so that it will work for any number of products and any number of regions.

3. a. (4) Create VB programmer-defined type for a project. The data for a project includes ProjNo (string), ProjDesc (string), NumEmps (integer - number of employees assigned to the project) and a list of up to 1000 employees. Data for each employee includes Name (string) and JobClass (integer).
- b. (2) Declare a variable that can store the information described in part (a) for up to 50 projects.
- c. (6) Assume the variable you declared in part (b) has been filled with data. Also assume that you have a variable named NumProjects that defines the exact number of projects (≤ 50).
- Write a code segment that goes through all the projects and counts the number of employees whose JobClass variable is equal to 5. After the count has been determined, have the code display it via a message box.

4. (8) Consider the following click event procedure that manipulates a list box named List1.

```
Private Sub Exam2_Click()  
Dim K As Integer  
Dim J As Integer  
Dim Temp As String  
  
K = List1.ListIndex  
If K = -1 Then Exit Sub  
If K < List1.ListCount - 1 Then  
    J = K + 1  
Else  
    J = 0  
End If  
  
Temp = List1.List(K)  
List1.List(K) = List1.List(J)  
List1.List(J) = Temp  
  
List1.Selected(J) = True  
End Sub
```

Assume that ListCount is equal to 4.

- a. Describe what will happen to the contents of the list box if ListIndex is equal to 2 when this event is executed.
- b. Describe what will happen to the contents of the list box if ListIndex is equal to 3 when this event is executed.

5. (6) What is the main difference between a list box and a combo box?
6. (6) Study the following code segment (assume the variables have been declared appropriately).

```
Sum = 0
Count = 0
Do While X < 100
    Sum = Sum + X
    Count = Count + 1
Loop
Average = Sum / Count
```

What is wrong with this code? What needs to be done to fix it?

7. (6) In the context of a data control, how are the NoMatch and EOF properties similar?
8. (6) In a sequential search, does having the values ordered (sorted) improve the efficiency of the search? Explain.
9. (6) Is it possible for the object references in the following two statements to be referring to the same instance variable? Explain.

```
Student.Name = "Sue"
MsgBox Student.StudentName
```

1. Because ListCount is updated as soon as an item is selected, you must start at the bottom of the list.

```
Private Sub cmdRemove_Click()  
Dim K As Integer  
  
For K = List1.ListCount - 1 To 0 Step -1  
    If List1.Selected(K) Then  
        List1.RemoveItem K  
    End If  
Next K  
  
End Sub
```

2. A valid code segment is:

```
For R = 1 To NumRegions  
    TotSales = 0  
    For P = 1 To NumProds  
        TotSales = TotSales + UnitSales(R,P) * Price(P)  
    Next P  
    MsgBox "Sales for region " & R & " = " & TotSales  
Next R
```

3. a. **Type** Employee

```
    Name As String  
    JobClass As Integer
```

End Type

Type Project

```
    ProjNo As String  
    ProjDesc As String  
    NumEmps As Integer  
    EmpList (1 To 1000) As Employee
```

End Type

- b. **Dim** ProjList(1 to 50) **As** Project

- c. Class5Count = 0

```
For P = 1 To NumProjects  
    EmpCount = ProjList(P).NumEmps  
    For E = 1 To EmpCount  
        If ProjList(P).EmpList(E).JobClass = 5 Then  
            Class5Count = Class5Count + 1  
        End If  
    Next E
```

Next P

```
MsgBox "Count of Job Class 5 is " & Class5Count
```

4.
 - a. The third and fourth elements (items 2 and 3) of the list are exchanged and the fourth element is set as the selected element.
 - b. The fourth and the first elements (item 4 and 0) are exchanged and the first element is set as the selected element.
5. The main difference is a combo box includes a text box for the user to edit values (for Dropdown and Simple Styles). This editing capability is not available with a list box.
6. The value of the variable X never changes within the loop. If X is less than 100 initially and the loop starts to execute, it will loop forever. There needs to be some statement within the loop (InputBox for example) that defines a new value for X each time the loop repeats.
7. Both NoMatch and EOF signal that there are no more records left to process. EOF signals that you have gone beyond the last physical record in the recordset (beyond the End Of File). NoMatch means that there are no more records in the recordset that match your search target criteria. This is sometimes referred to as a logical end of file.
8. When searching an ordered array, the search can stop as soon as a value is found in the array that is greater than or equal to the search target (assuming that the array is in ascending order). This means that the search for a nonexistent value will terminate sooner than if the array was unordered (for an unordered array, you must search every value before you can be sure that the target does not exist).

However, if some values of an array are searched for more often than others, then ordering the array with the most popular at the beginning will produce a more efficient sequential search when the target exists in the array.

Therefore, ordering (sorting) an array may or may not improve the efficiency of a sequential search.

9. Yes it is possible (but not a good idea). This would happen if the name of the Property Get and Property Let methods referring to the same instance variable had different names (Name and StudentName). This is a bad programming practice because it causes confusion with no other benefit.