Week 4, Chapter 8

Arrays and Disk Files

OBJECTIVES:

Upon completion of this chapter, your students will be able to

1. Explain a Sequential Disk File Structure
2. Write filters to search arrays for certain information
3. Save single dimension arrays to a disk file.
4. Save multi-dimension arrays to a disk file.
5. Load single dimension array from a disk file.
6. Load multi-dimension arrays from a disk file.

CHAPTER OUTLINE:

I. Sequential Disk File Structure

	Field 1	Field 2
Record 1	Jerry Smith	233-4422
Record 2	Bill Jones	344-2234
Record 3	Jamie Kunz	322-3443

A. A Sequential Disk File is a collection of Records separated or deliminated by carriage returns. A record is a collection of fields separated or deliminated by commas.

Fields delimited by the “,” . Records delimited by the “cr”.

II. Saving Data to a Disk File

```
FileOpen(1, filename, OpenMode.Append)   'Open the file for append
WriteLine(1, Field1, Field2, Field3) 'Store 3 Fields
FileClose(1)  'Close File
```

A. Opening a Disk File

1. ***FileOpen*** *statement*

FileOpen(1, filename, OpenMode.Append)

File #   Name↑ Mode ↑   ↗

Open Mode:

1. ***append*** If file exists add to end of data, if not, create new file. Program outputs to file
2. ***output*** Delete existing file and start over with new empty file. Program outputs to file
3. ***input*** Open file for input , error if file doesn’t exist (ie. Program inputs from file)

B. Writing Data Into A Disk File

1. ***WriteLine*** *statement*

   WriteLine(1, TextBox1.Text, TextBox2.Text, Now) ‘Store 3 Fields

   1. The above WriteLine stores three text strings in the next sequential record in file #1
   2. Any number of Fields may be written
   3. May Loop on this statement
   4. Each **WriteLine** advances the **File Pointer**

C. Closing a Disk File

1. ***FileClose*** *statement*

   FileClose(1) ‘Closes File #1

III. Reading Data from a Disk File

```
FileOpen(1, filename, OpenMode.Input)   'Open file for read
Do While Not EOF(1)                     'Read until end of file
   Input(1, var)                        'Read Field from File
   ListBox1.Items.Add(var)              'Print field in list box
Loop
FileClose(1)
```

A. Detecting when the file pointer is at the End Of File

1. ***EOF*** *Function*

   Do While Not EOF(1)   'Read until end of file

   1. Loops until the The **EOF(1)** Returns a “1” when file #1 pointer is at End Of File
   2. Used for looping until all of the data is read.

B. Reading a Field from the File

1. ***Input*** *Statement*

   Input(1, var)   ‘Read Field from File

   1. Reads one Field from File #1 and advances the Files’ Data Pointer to the next comma or carriage return/ line feed delimiter

   2. The above may cause “Read past end of data” error if data goes past data.

IV. Using a Variable File Name

A. The **OpenFile** Dialog Box and the **SaveFile** Dialog Box

1. ***OpenFile Dialog*** to use variable file names

```
Me.OpenFileDialog1.FileName = "C:\jnk.txt"
Me.OpenFileDialog1.ShowDialog()
filename = Me.OpenFileDialog1.FileName
FileOpen(1, filename, OpenMode.Append)   'Open the file for append
```

V. Write/Read Example Program

```
'Save Data into and retrieve data from files
Public Class Form1
   Dim filename As String = "c:\jnk.txt"

   'Store data in file from text boxes
   Private Sub SaveBtn_Click(ByVal sender As System.Object,
      ByVal e As System.EventArgs) Handles SaveBtn.Click
      'Me.saveFileDialog1.FileName = "C:\jnk.txt"
      'Me.SaveFileDialog1.ShowDialog()
      'filename = Me.SaveFileDialog1.FileName
      FileOpen(1, filename, OpenMode.Append)  'Open the file for append
      WriteLine(1, TextBox1.Text, TextBox2.Text, Now)
      FileClose(1)
   End Sub

   'List the data from file
   Private Sub ListBtn_Click(ByVal sender As System.Object,
                  ByVal e As System.EventArgs
                  ) Handles ListBtn.Click
      Dim food(4, 2) As String
      Dim ptr, hell, cold As Int32
      ListBox1.Items.Clear()
      Do
         Try
            FileOpen(1, filename, OpenMode.Input) 'Open file for read
            hell = 0
         Catch ex As Exception
            hell = 1        'If file not found let user pick one
            Me.OpenFileDialog1.FileName = filename
            Me.OpenFileDialog1.ShowDialog()
            filename = OpenFileDialog1.FileName
            End Try
        Loop Until hell = cold      'keep picking till you find one

        Do Until EOF(1)             'Read until end of file
            Input(1, food(ptr, 0))
            Input(1, food(ptr, 1))
            Input(1, food(ptr, 2))
            ListBox1.Items.Add(food(ptr, 0).PadLeft(6) &
                               food(ptr, 1).PadLeft(6) &
                               food(ptr, 2).PadLeft(24))
            If ptr >= UBound(food, 1) Then Exit Do 'Quit if array full
            ptr += 1
        Loop
        FileClose(1)
    End Sub

    'Delete a file
    Private Sub DeleteBtn_Click(ByVal sender As System.Object,
                              ByVal e As System.EventArgs
                              ) Handles DeleteBtn.Click
        Try
            My.Computer.FileSystem.DeleteFile(filename)
        Catch       'Ignore if file doesn't exist.
        End Try
    End Sub
End Class
```

Assignment 4

Date Due ________________

Program 1:

Stans Grocery Store has 3 aisles. In each aisle there are five items. Write a program that will input 15 items from the disk file into the subscripted string array Food$(aisle,item), dimensioned 3 by 5. Allow Stans customers to enter the name of an item they want to buy by typing the item's name in a text box or selecting the item from a combo-box or listbox. The computer will then search the array Food for the desired item and if found, inform them of the aisle and item # of where to find the item. If the item is not found, inform the customer in a message box.

When zzz is typed, the program stops.

The output should resemble the following:

What are you looking for? apples

You will find apples on aisle #1, item #4

Store the data file on the same disk and in the same folder as the program.

Name the program "Stans".

Name the data file "Grocery.txt"

Save the program and data file in drive\wk4 folder.

Program Grading Check List Week 4

	Stans
Functions according to specification	
Output is formatted and accurate	
Correct solution folder name	
Correct form file name	
Correct control names	
Variable names and Scope	
Form comments	
Procedure comments	
Form title bar	
Option Strict On Statement	
Tab order and Tab stops	
Tool Tip Text usage	
Setting Focus in code	
Access Keys	
Menu's	
Input Validation	
Frames Usage	
Accept and Cancel buttons	
Grade	