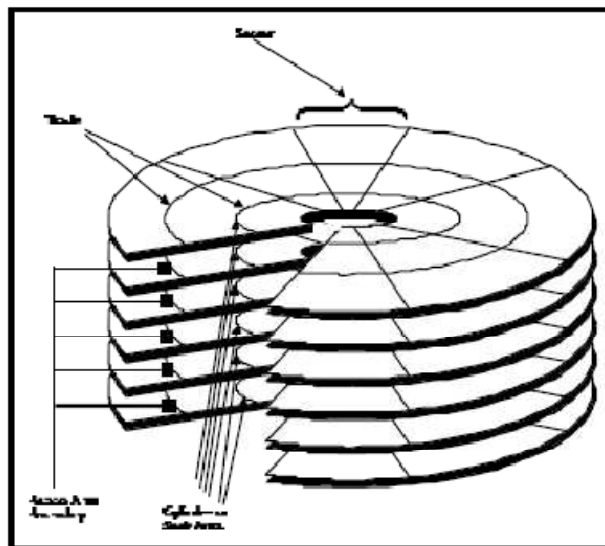




UNESCO-NIGERIA TECHNICAL & VOCATIONAL
EDUCATION REVITALISATION PROJECT-PHASE II



NATIONAL DIPLOMA IN COMPUTER TECHNOLOGY



File Organization and Management

YEAR II- SEMESTER I

PRACTICAL

Version 1: December 2008

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WEEK 1

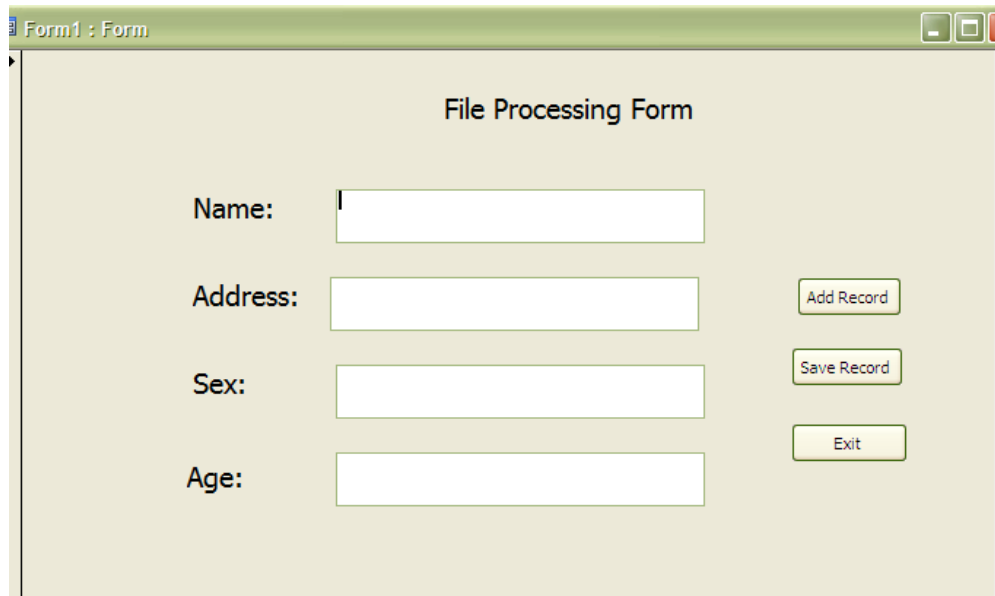
THIS WEEK SPECIFIC LEARNING OUTCOMES

To understand:

- ✓ How to write a simple program that creates and updates records of a file.

Program that creates and updates records of a file.

During this week students are to complete a project named “Week1” to use text boxes to enter data into a text file created and later access the content of the file back. The main form looks like this form



How to write a simple program that creates and updates records of a file.

1. Open project and name it week1
2. Double-click on " The form" and write this code

```
Private Sub Form_Load()  
    Dim intmsg As String  
    Open "c:\documents and settings\student.txt" For Output As #1  
    intmsg = MsgBox("file student.txt opened")  
End Sub
```

3. Double-click on " command Exit" and write this code

```
Private Sub Cmdexit_Click()  
  
    Close #1  
  
    End  
  
End Sub
```

4. Double-click on " Command Report" and write this code

- Before then add another form name it ***Frmprint***

```
Private Sub cmdprint_Click()  
  
    'section to echo the file back  
  
    Dim Name As String  
  
    Dim Address As String  
  
    Dim sex As String  
  
    Dim age As Integer  
  
    'Kill "c:\documents and settings\student.txt"  
  
    Open "c:\documents and settings\student.txt" For Input As #1  
  
  
    Do While Not EOF(1)  
  
        Input #1, Name, Address, sex, age  
  
  
        Frmprint.Print "Student Name is ....."; Name  
  
        Frmprint.Print "Address is ....."; Address  
  
        Frmprint.Print "Sex is ....."; sex  
  
        Frmprint.Print "Age is ....."; age  
  
    Loop  
  
End Sub
```

5. Double-click on " Command Save Rec" and write this code

```
Private Sub Cmdsave_Click()  
  
    Dim Name As String  
  
    Dim Address As String  
  
    Dim sex As String  
  
    Dim age As Integer  
  
    Dim sntmsg As String  
  
  
    Name = Txtname  
  
    Address = Txtaddress  
  
    sex = Txtsex  
  
    age = Txtage  
  
  
    Print #1, Name, Address, sex, age  
  
    Close #1  
  
    Txtname.Text = ""  
  
    Txtaddress.Text = ""  
  
    Txtsex.Text = ""  
  
    Txtage.Text = ""  
  
  
    sntmsg = MsgBox("file student.txt opened")  
  
End Sub
```

6. Save your project with the name "week1-2".
7. Run the program

Students' Practical Assessment

1. Write short notes on;
 - i. File
 - ii. Bit
 - iii. Nibble
 - iv. Byte
 - v. Character
 - vi. Field
 - vii. Record
 - viii. Database
2. In what unit is bit, byte and computer memory measured?
3. Clearly differentiate between;
 - i. File and record
 - ii. File and directory
 - iii. Record and database
 - iv. File and character
4. Explain what you understand by *file extension* and give appropriate examples.
5. Mention what make implementation of database necessary.

6. Draw a diagram to illustrate file processing system environment.

7. What is file organization?

8. State the main objectives of database implementation

9. With the aid of a diagram, explain a centralized database.

THIS WEEK SPECIFIC LEARNING OUTCOMES

To understand:

- ✓ How to create an input form to maintain records of a file.

WEEK 2:

To create an input form to maintain records of a file.

During this week students are to create an input Form named “Week3” to use text boxes to enter data into a sequential text file created. The Form should contain command buttons to enable user to maintain the data/contents of the file as shown in the diagram below.



The screenshot shows a Windows-style application window titled "Student Record". On the left side, there are five labels with corresponding text boxes: "Reg No", "Name", "Sex", "Course", and "Level". On the right side, there are eight command buttons arranged in two columns. The top row contains "Create File" and "Delete Record". The second row contains "Edit Record" and "Modify record". The third row contains "Refresh Record" and "Save Record". The bottom row contains "Command17" and "Quit Application". The "Command17" button is highlighted with a red border.

How to do this

1. Start Visual Basic 6
2. In the New Project box, Click Standard.EXE and then Click OK.
3. Double-click the Label control. Visual Basic puts a new label in the center of your Form window. Move the control to the approximate place on your form. Repeat this until all the labels are placed on the form.
4. Double-click the textbox. Visual Basic puts a new label in the center of your Form window. Move the textbox to approximate label on your form. Repeat this until all the textboxes are placed on the form.
5. Double-click the Command Button control to place a command button on your Form window as shown on the form above.
6. Save the Form as 'week 3'

Students' Practical Assessment

1. What is file system?

2. Describe the basic services of a file system.

3. Clearly differentiate between file manager and file system.

4. Compare and contrast file system and operating system.

5. Identify the characteristics of a file system under Mac O/S X and file under Microsoft Windows.

6. Enumerate the qualities of a good file system.

7. What is the relevance of file sharing in a file processing system?

WEEK 3

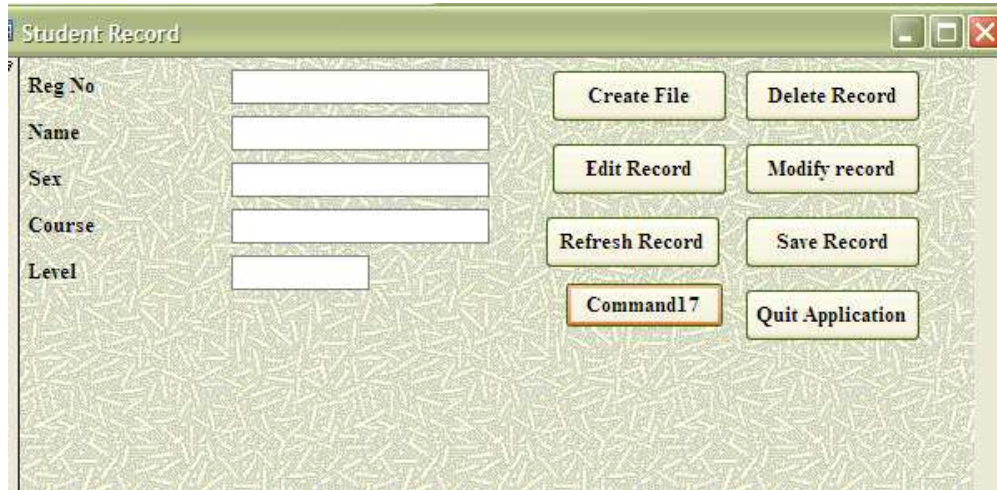
THIS WEEK SPECIFIC LEARNING OUTCOMES

To understand:

- ✓ How to write a simple program for creating and maintaining different file organization.

To write a program that create and maintaining different file organization.

During this week students are to complete a project named “Week4” to use text boxes to enter data into a sequential text file created. The user should be able to maintain the data/content of the file. The main form should looks like this form



How to write a simple program that creates and updates records of a file.

1. Open project and name it week4
2. Double-click on " The form" and write this code

```
Private Sub Form_Load()  
  
    Dim intmsg As String  
  
    Open "c:\studentRecord\students.txt" For Output As #2  
  
    intmsg = MsgBox("file students.txt opened")  
  
End Sub
```

3. Double-click on " command Quit Application" and write this code

```
Private Sub Command16_Click()
```

```
On Error GoTo Err_Command16_Click
```

```
DoCmd.Quit
```

```
Exit_Command16_Click:
```

```
Exit Sub
```

```
Err_Command16_Click:
```

```
MsgBox Err.Description
```

```
Resume Exit_Command16_Click
```

```
End Sub
```

4. Double-click on " Create file" and write this code:

```
Private Sub Command10_Click()
```

```
On Error GoTo Err_Command10_Click
```

```
DoCmd.GoToRecord , , acNewRec
```

```
Exit_Command10_Click:
```

```
Exit Sub
```

```
Err_Command10_Click:
```

```
MsgBox Err.Description
```

```
Resume Exit_Command10_Click
```

5. Double-click on " Delete record" and write this code:

```
Private Sub Command11_Click()
```

```
On Error GoTo Err_Command11_Click
```

```
DoCmd.DoMenuItem acFormBar, acEditMenu, 8, , acMenuVer70
```

```
DoCmd.DoMenuItem acFormBar, acEditMenu, 6, , acMenuVer70
```

```
Exit_Command11_Click:
```

```
Exit Sub
```

```
Err_Command11_Click:
```

```
MsgBox Err.Description
```

```
Resume Exit_Command11_Click
```

```
End Sub
```

6. Double-click on " Edit record" and write this code:

```
Private Sub Command12_Click()
```

```
On Error GoTo Err_Command12_Click
```

```
DoCmd.DoMenuItem acFormBar, acRecordsMenu, 0, 2, acMenuVer70
```

```
Exit_Command12_Click:
```

```
Exit Sub
```

```
Err_Command12_Click:
```

```
MsgBox Err.Description
```

```
Resume Exit_Command12_Click
```

```
End Sub
```

7. Double-click on " Modify record" and write this code:

```
Private Sub Command13_Click()
```

```
On Error GoTo Err_Command13_Click
```

```
DoCmd.DoMenuItem acFormBar, acRecordsMenu, 5, , acMenuVer70
```

```
Exit_Command13_Click:
```

```
Exit Sub
```

```
Err_Command13_Click:
```

```
MsgBox Err.Description
```



```
Resume Exit_Command13_Click
```

```
End Sub
```

8. Double-click on " Refresh record" and write this code:

```
Private Sub Command14_Click()
```

```
On Error GoTo Err_Command14_Click
```

```
DoCmd.DoMenuItem acFormBar, acRecordsMenu, 5, , acMenuVer70
```

```
Exit_Command14_Click:
```

```
Exit Sub
```

```
Err_Command14_Click:
```

```
MsgBox Err.Description
```

```
Resume Exit_Command14_Click
```

```
End Sub
```

9. Double-click on " Refresh record" and write this code:

```
Private Sub Command15_Click()
```

```
On Error GoTo Err_Command15_Click
```

```
DoCmd.DoMenuItem acFormBar, acRecordsMenu, acSaveRecord, , acMenuVer70
```

```
Exit_Command15_Click:
```

```
Exit Sub
```

```
Err_Command15_Click:
```

```
MsgBox Err.Description
```

```
Resume Exit_Command15_Click
```

```
End Sub
```

10. Save your project with the name "week4".

11. Run the program

Students' Practical Assessment

1. Enumerate various file processing operations.
2. Explain data processing.
3. Identify two types of data processing.

4. Differentiate between file processing and data processing.

WEEK 4 -6

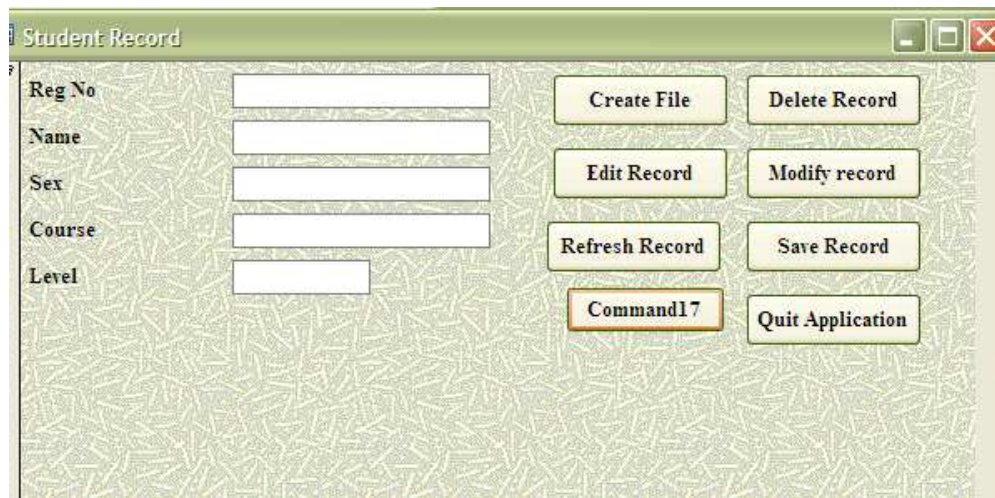
THIS WEEK SPECIFIC LEARNING OUTCOMES

To understand:

- ✓ How to write a simple program for creating and maintaining different file organization.

To write a program that create and maintaining file organization.

During this week students are to complete a project named “Week 5-6” to use text boxes to enter data into a sequential text file created. The user should be able to maintain the data/content of the file. The main form should looks like this form



How to write a simple program that creates and updates records of a file.

1. Open project and name it week 5-6
2. Double-click on " The form" and write this code

```
Private Sub Form_Load()  
  
    Dim intmsg As String  
  
    Open "c:\studentRecord\students.txt" For Output As #2  
  
    intmsg = MsgBox("file students.txt opened")  
  
End Sub
```

3. Double-click on " command Quit Application" and write this code

```
Private Sub Command16_Click()
```

```
On Error GoTo Err_Command16_Click
```

```
DoCmd.Quit
```

```
Exit_Command16_Click:
```

```
Exit Sub
```

```
Err_Command16_Click:
```

```
MsgBox Err.Description
```

```
Resume Exit_Command16_Click
```

```
End Sub
```

4. Double-click on " Create file" and write this code:

```
Private Sub Command10_Click()
```

```
On Error GoTo Err_Command10_Click
```

```
DoCmd.GoToRecord , , acNewRec
```

```
Exit_Command10_Click:
```

```
Exit Sub
```

```
Err_Command10_Click:
```

```
MsgBox Err.Description
```

```
Resume Exit_Command10_Click
```

5. Double-click on " Delete record" and write this code:

```
Private Sub Command11_Click()
```

```
On Error GoTo Err_Command11_Click
```

```
DoCmd.DoMenuItem acFormBar, acEditMenu, 8, , acMenuVer70
```

```
DoCmd.DoMenuItem acFormBar, acEditMenu, 6, , acMenuVer70
```

```
Exit_Command11_Click:
```

```
Exit Sub
```

```
Err_Command11_Click:
```

```
MsgBox Err.Description
```

```
Resume Exit_Command11_Click
```

```
End Sub
```

6. Double-click on " Edit record" and write this code:

```
Private Sub Command12_Click()
```

```
On Error GoTo Err_Command12_Click
```

```
DoCmd.DoMenuItem acFormBar, acRecordsMenu, 0, 2, acMenuVer70
```

```
Exit_Command12_Click:
```

```
Exit Sub
```

```
Err_Command12_Click:
```

```
MsgBox Err.Description
```

```
Resume Exit_Command12_Click
```

```
End Sub
```

7. Double-click on " Modify record" and write this code:

```
Private Sub Command13_Click()
```

```
On Error GoTo Err_Command13_Click
```

```
DoCmd.DoMenuItem acFormBar, acRecordsMenu, 5, , acMenuVer70
```

```
Exit_Command13_Click:
```

```
Exit Sub
```

```
Err_Command13_Click:
```

```
MsgBox Err.Description
```

```
Resume Exit_Command13_Click
```

```
End Sub
```

8. Double-click on " Refresh record" and write this code:

```
Private Sub Command14_Click()
```

```
On Error GoTo Err_Command14_Click
```

```
DoCmd.DoMenuItem acFormBar, acRecordsMenu, 5, , acMenuVer70
```

```
Exit_Command14_Click:
```

```
Exit Sub
```

```
Err_Command14_Click:
```

```
MsgBox Err.Description
```

```
Resume Exit_Command14_Click
```

```
End Sub
```

9. Double-click on " Refresh record" and write this code:

```
Private Sub Command15_Click()
```

```
On Error GoTo Err_Command15_Click
```

```
DoCmd.DoMenuItem acFormBar, acRecordsMenu, acSaveRecord, , acMenuVer70
```

```
Exit_Command15_Click:
```

```
Exit Sub
```

```
Err_Command15_Click:
```

```
MsgBox Err.Description
```

```
Resume Exit_Command15_Click
```

```
End Sub
```

10. Save your project with the name "week 5-6".

11. Run the program

WEEK 7

THIS WEEK SPECIFIC LEARNING OUTCOMES

To understand:

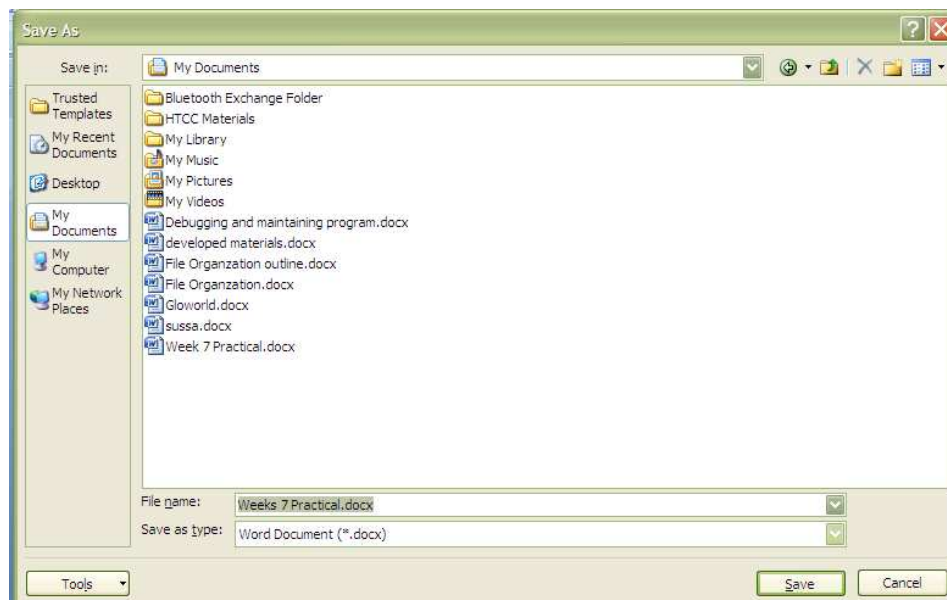
- ✓ How to load and retrieve documents to and from different storage media.

To load and retrieve documents to and from different storage media.

During this week students are to load and retrieve documents to and from different storage media, such as diskette, flash disk, HDD, etc

How to load or save documents into diskette, hard disk, etc:

- i. Click on File menu
- ii. Select Open option to display open dialog box as shown below;



- iii. Select the folder/drive in the **look in** where you want to save your document (that is, specify the drive – diskette or flash disk or folder in the local disk (HDD))

Note that the diskette or flash disk must be slot/plug onto the appropriate computer port and recognized by the computer before this operation.

- iv. Type the file name in the **file name** (e.g **week 7 Practical**) text box.

Note that the Microsoft word will give file extension to your file name depending on the *type of file* specified.

- v. Click on the *save button*

Students' Practical Assessment

1. What do you observe when saving or storing data into different storage media?

2. Why is that, the computer is slower when accessing the external disk compared to when accessing hard disk?

3. Briefly describe;

- i. Primary storage
- ii. Secondary storage

4. What are the characteristics of internal memory of a computer?

5. Outline the characteristics of ROM and RAM.

6. Explain the performance of computer storage with respect to;

- i. Latency
- ii. Throughput.

7. What do you understand by off-line storage?

WEEK 8

THIS WEEK SPECIFIC LEARNING OUTCOMES

To understand:

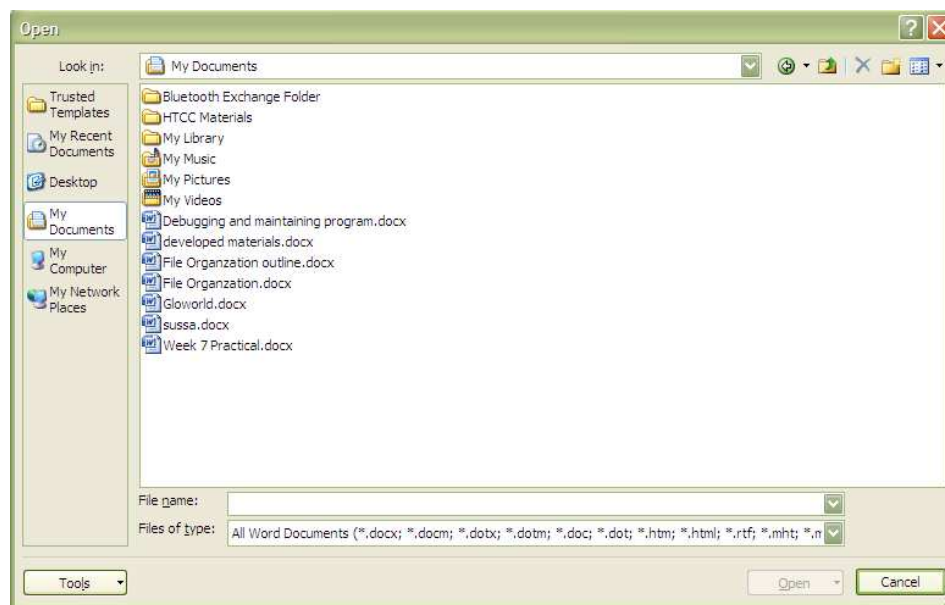
- ✓ How to load and retrieve documents to and from different storage media.

Week 8: To load and retrieve documents to and from different storage media.

During this week students are to load and retrieve documents to and from different storage media, such as diskette, flash disk, HDD, etc

How to retrieve documents into diskette, hard disk, etc:

- i. Click on File menu
- ii. Select Open option to display open dialog box as shown below;



- iii. Select the folder/drive in the **look in** from where you want to retrieve your document (that is, specify the drive – diskette or flash disk or folder in the local disk (HDD))

Note that the diskette or flash disk must be slot/plug onto the appropriate computer port and recognized by the computer before this operation.

- iv. Type the file name in the **file name** (e.g **week 7 Practical.docx**) text box.
Note that you can select the file name from the list of file names displayed.
- v. Click on the **save button**

Students' Practical Assessment

1. What do you understand by off-line storage?

2. What do you observe when saving or storing data into different storage media?

3. Why is that, the computer is slower when accessing the external disk compared to when accessing hard disk?

4. Briefly explain the characteristics of the following storage devices:

- i. CD-ROM
- ii. Hard Disk
- iii. Flash Disk
- iv. Diskette
- v. Magnetic tap

WEEK 9

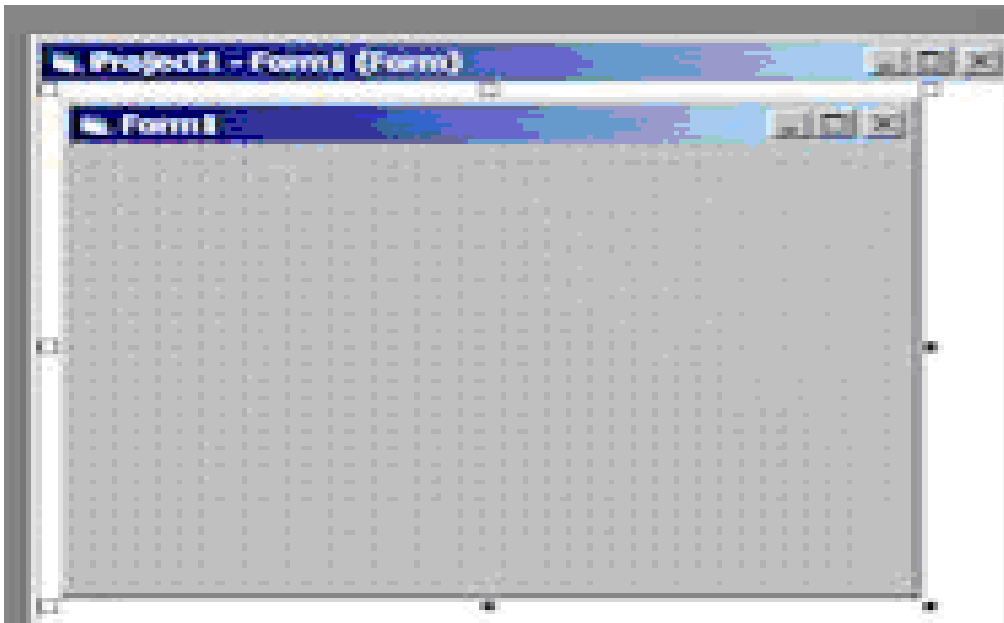
LEARNING OUTCOMES

To understand:

- ✓ To be able to write simple programs involving sequential and random access methods.

Week 9: To be able to write simple programs involving sequential and random access methods.

During this week students are to complete a project named “Week 9” to create sequential file. The user should be able to maintain the data/content of the file.



How to do this

1. Open project and name it week 9
2. Double-click on " The form" and write this code

```
Private Sub Form_Load()
```

```
Dim intmsg As String
```

```
Open "c:\studentsRec\student.txt" For Output As #3
```

```
intmsg = MsgBox("file student.txt opened")
```

```
End Sub
```

3. Save your project with the name “week 9”.

WEEK 10

THIS WEEK SPECIFIC LEARNING OUTCOMES

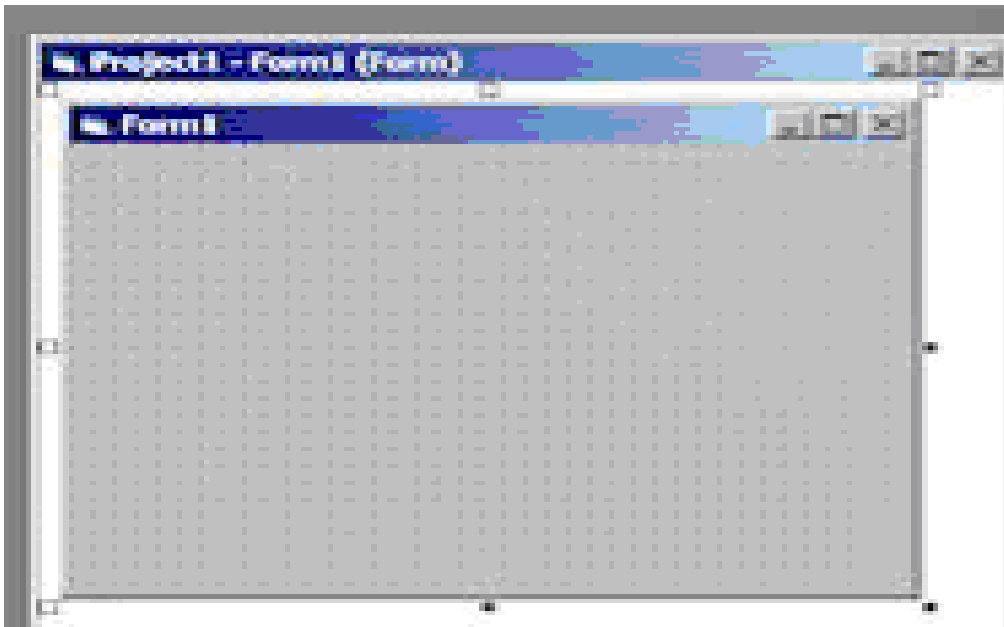
To understand:

- ✓ To be able to write simple programs involving sequential and random access methods.

Week 10: To write programs involving sequential and random access methods.

During this week students are to complete a project named “Week 10” to create random file.

The user should be able to maintain the data/content of the file.



How to do this

1. Open project and name it week10
2. Double-click on " The form" and write this code

Private Sub Form_Load()

Open "stud.dat" for random as #2 len=len(myrecord)

Private sub form_load()

Type single-Record

Record-key as integer

*Sname As String*20*

*Snum as string*10*

End type

Dim myrecord As single-record

Open "stud.txt" for random as #2, Len = len(myrecord)

End sub

3. Save your project with the name "week10".

WEEK 11

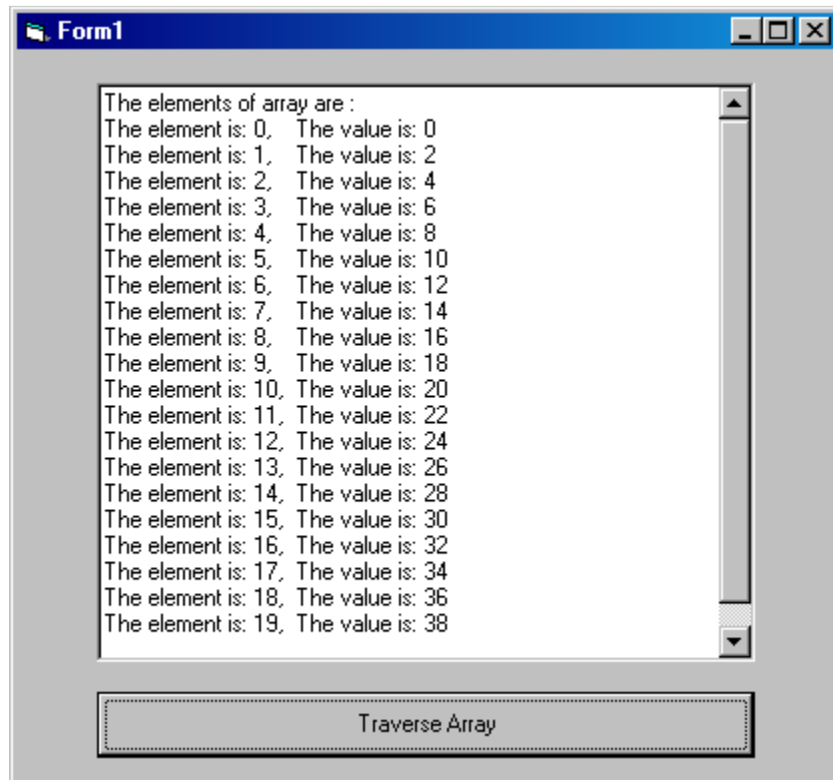
THIS WEEK SPECIFIC LEARNING OUTCOMES

To understand:

- ✓ How to write simple program involving 1,2,3 dimensional arrays, stacks and Queues.

Week 11: To write program involving 1 dimensional arrays.

During This Lab we want to Complete a project “Week11” to add the numbers (0,2,4,.....36,38) to one dimension array and display it in a text box. The main form looks like this form



1. Open project week11
2. Double-click the " Traverse Array" Command button and write this code

```
Dim i As Integer
```

```
Dim iMyArray(19) As Integer
```

```
Dim BeginMsg As String
```

```
Dim MidMsg As String
```

```
Dim LoopMsg As String
```

```
Dim FullMsg As String
For i = 0 To 19
    iMyArray(i) = i * 2
Next i
BeginMsg = "The element is: "
MidMsg = "The value is: "
FullMsg = "The elements of array are : " & vbCrLf
For i = 0 To 19
    LoopMsg = LoopMsg & BeginMsg & i & "," & vbCrLf
    LoopMsg = LoopMsg & MidMsg & iMyArray(i)
    FullMsg = FullMsg & LoopMsg & vbCrLf
    LoopMsg = ""
Next i
Text1.Text = FullMsg
```

3. Save your project with the name "week11".
4. Run the program

WEEK 12

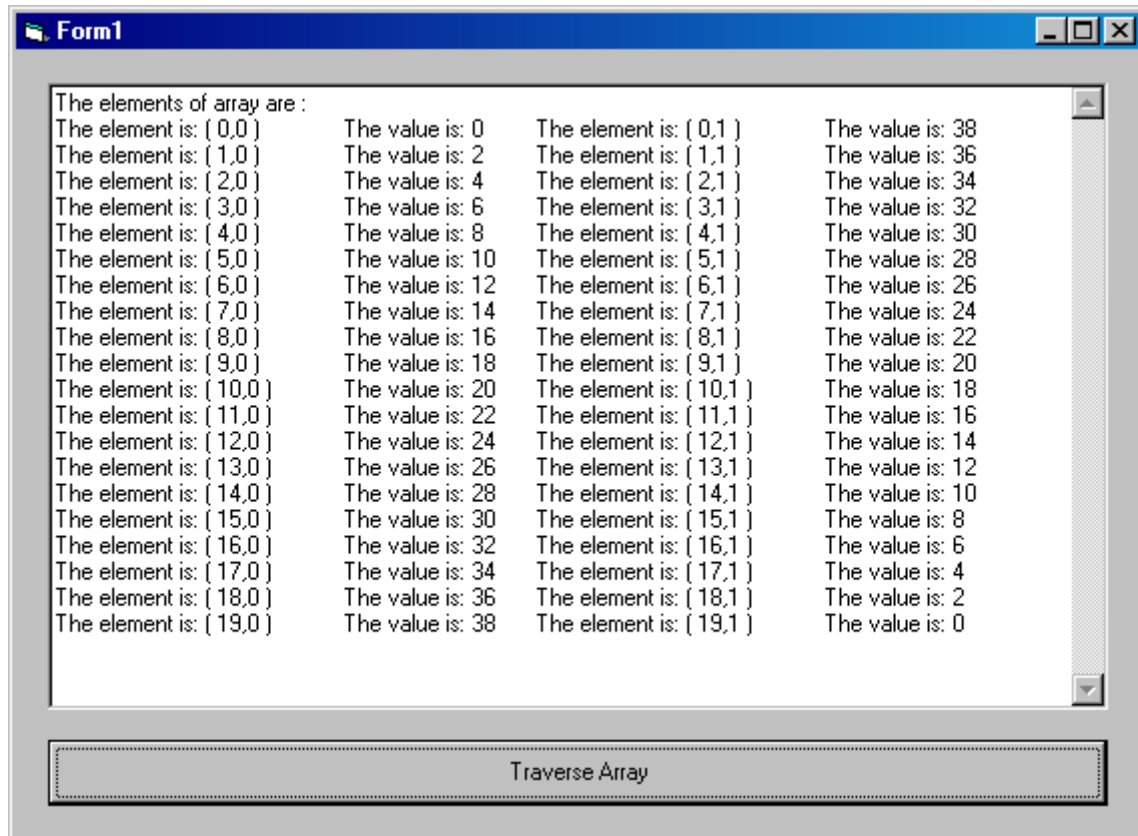
THIS WEEK SPECIFIC LEARNING OUTCOMES

To understand:

- ✓ How to write simple program involving 1,2,3 dimensional arrays, stacks and Queues.

Week 12: To write program involving 2 dimensional arrays..

During This Lab we want to Complete a project “Week12” to add the numbers (0,38) (2,36)(36,2) (38,0) to two dimension array and display it in a text box. The main form looks like this form



1. Open project week12
2. Double-click the " Traverse Array" Command button and write this code

```
Dim i As Integer
```

```
Dim j As Integer
```

```
Dim iMyArray(19, 1) As Integer
```

```
Dim BeginMsg As String
```



```
Dim MidMsg As String
Dim LoopMsg As String
Dim FullMsg As String
For i = 0 To 19

    iMyArray(i, 0) = i * 2
    iMyArray(i, 1) = 38 - i * 2
Next i

BeginMsg = "The element is: "
MidMsg = "The value is: "
FullMsg = "The elements of array are : " & vbCrLf
LoopMsg = ""

For i = 0 To 19
    For j = 0 To 1
        LoopMsg = LoopMsg & BeginMsg & "(" & i & "," & j & ")"
        LoopMsg = LoopMsg & vbCrLf & MidMsg & iMyArray(i, j)
        LoopMsg = LoopMsg & vbCrLf
    Next j
    FullMsg = FullMsg & LoopMsg & vbCrLf
    LoopMsg = ""
Next i

Text1.Text = FullMsg
```

3. Save your project with the name "week12" in your folder.
4. Run the program

WEEK 13

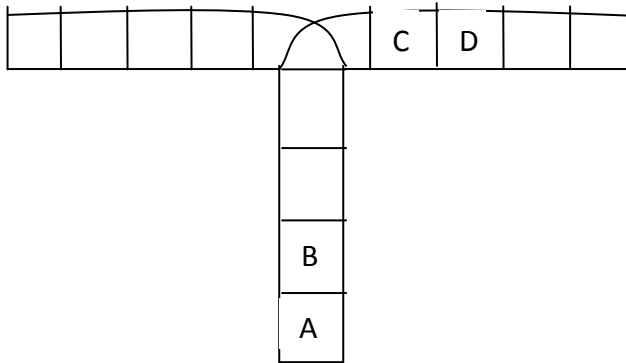
THIS WEEK SPECIFIC LEARNING OUTCOMES

To understand:

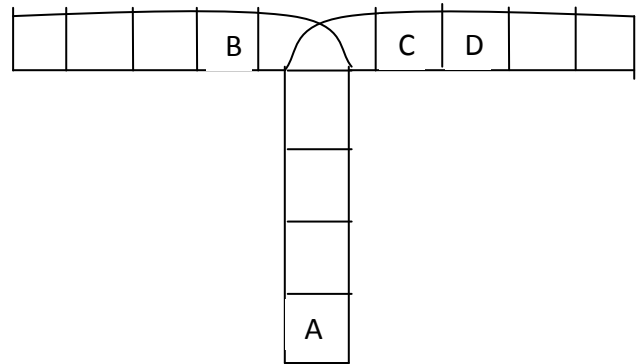
- ✓ The techniques of stacks and Queues in file organization.

Week 13: The techniques of stacks and Queues in file organization.

Students are to study the stacks illustrated by railroad spur in diagrams below and briefly explain the **push** and **pop** operations represented in the diagram



Push



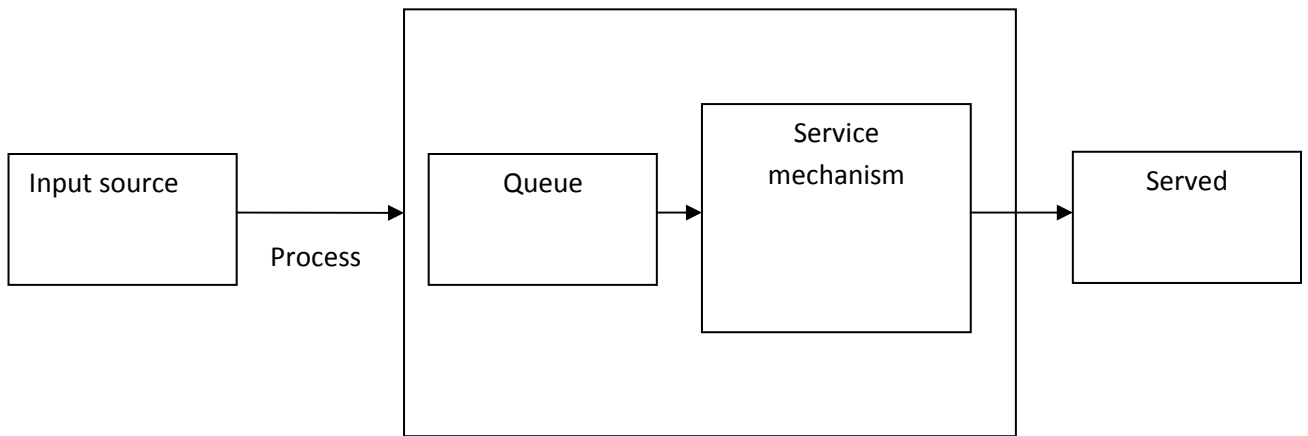
Pop

1. Define Stack.

2. Differentiate between stack and queue systems.

3. What do understand by the term – queue?

4. Explain the queue system represented in the diagram below;



5. Enumerate and briefly explain five file processing techniques you know.

WEEK 14

THIS WEEK SPECIFIC LEARNING OUTCOMES

To understand:

- ✓ How to write a file access protection and security program.

Week 14: To write a file access protection and security program.

At the end of this week students are expected write simple program using any of the file security techniques to protect unauthorized persons from gaining access to data file.

Students Assessment

1. Define file security.

2. Give five (5) reasons why file security is important

3. Enumerate the various file security techniques you know

WEEK 15

THIS WEEK SPECIFIC LEARNING OUTCOMES

To understand:

- ✓ How to write a file access protection and security program.

Week 15: To write a file access protection and security program.

At the end of this week students are expected write simple program using any of the file security techniques to protect unauthorized persons from gaining access to data file.

Students Assessment

1. Identify clearly the difference between file dumping and archiving.
2. Identify and briefly explain problems associated with;
 - i. File access,
 - ii. File achieving
 - iii. File security
 - iv. File back-up