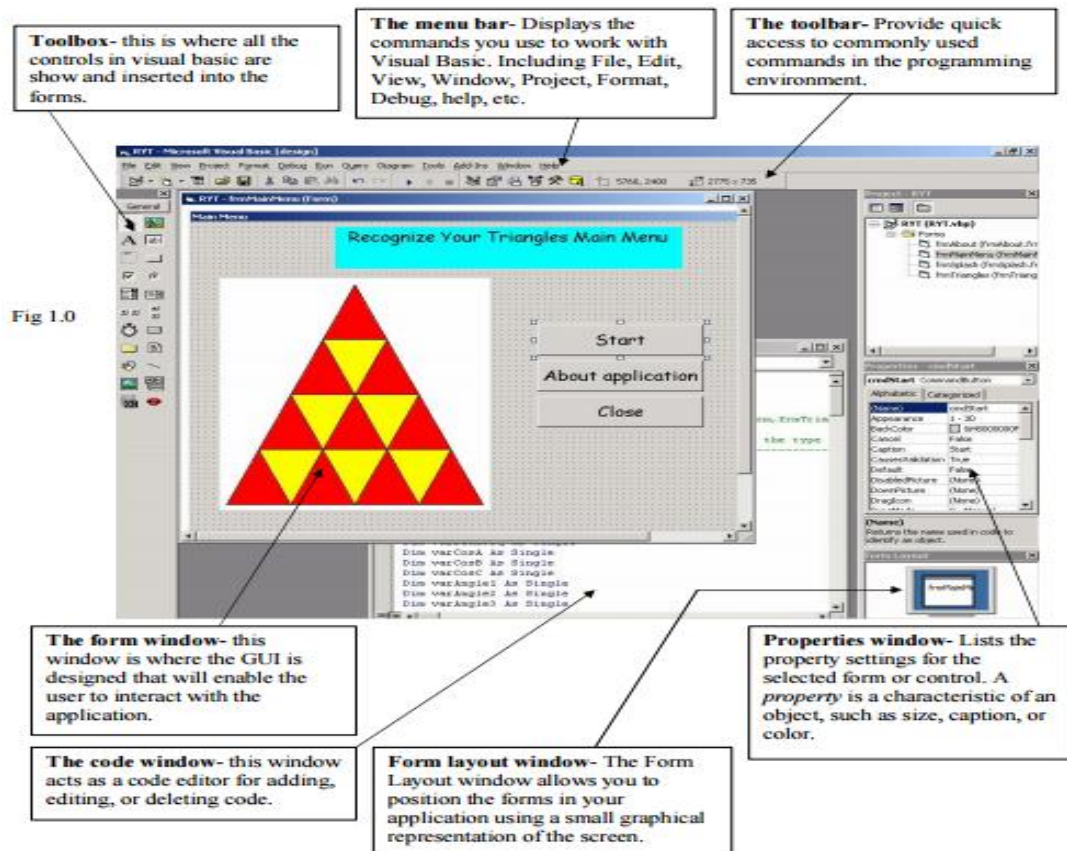


Day1

Lesson1

- The VB6 (Visual Basic 6.0) environment
BASIC- Beginners All-Purpose Symbolic Instruction Code



- Defining terms

Ref: [https://msdn.microsoft.com/en-us/library/ksh7h19t\(v=vs.90\).aspx](https://msdn.microsoft.com/en-us/library/ksh7h19t(v=vs.90).aspx)

<http://www.vbtutor.net/VBGuide/vbguide.html>

https://en.wikibooks.org/wiki/Visual_Basic/Glossary

- Access Protocol: API that interacts with other objects like odbc, ado, soap etc
- ActiveX: reusable piece of code
- COM: Component Object Model
- CDO: Configurable Data Objects – used primarily for SMTP operations
- OLE: Object Linking & Embedding (common code written for MS apps like office, win32, vb6)
- Collection: group of similar objects but we can customise
- Control: UI component that users interact with
- Event Procedure: piece of code or user action that triggers and event
- Expression

```
Dim Result as Integer
```

```
Result = CInt((10 + CInt(vbRed) = 53 * vbThursday))
```

- Function / Procedure: piece of code that does some action
- Instance: object

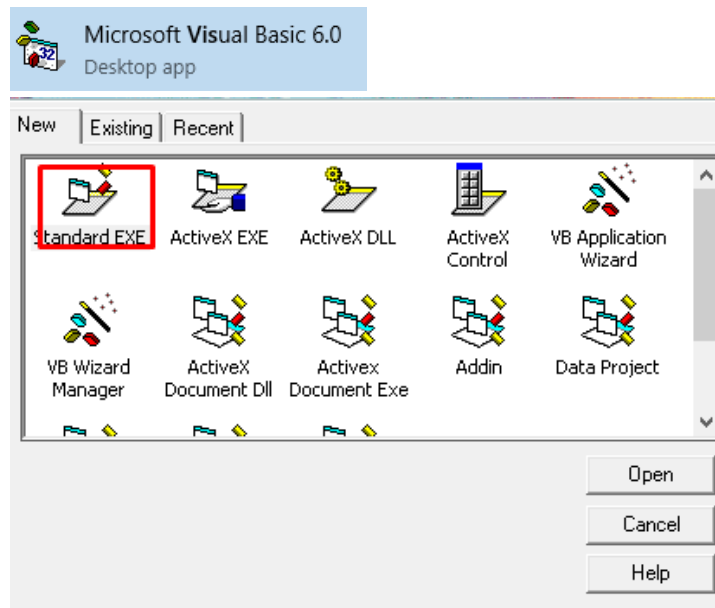
```
Dim ExcelSheet As Object
```

```
Set ExcelSheet = CreateObject("Excel.Sheet")
```

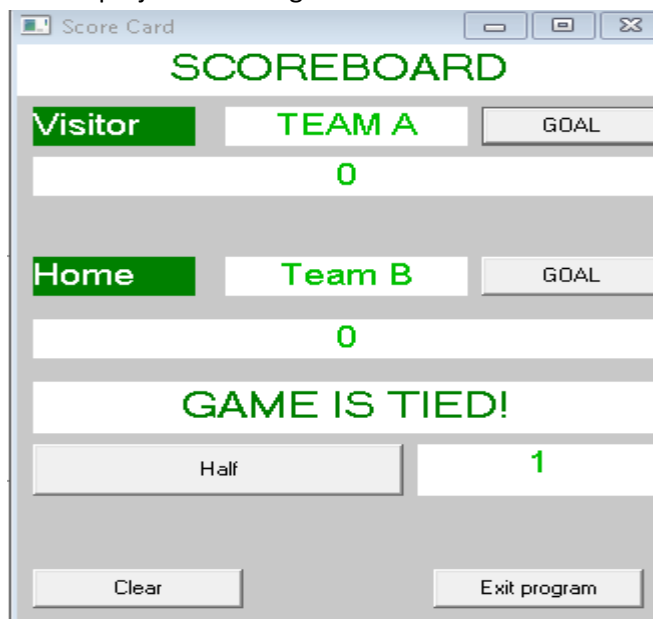
- Keyword: dim, for, if, then, end, goto, err, break, step, all datatypes
- Module(.bas): file containing piece of code generally global in nature but necessary

- Project file: .vbp
- Form file: .frm
- Object Library (F2): lists all functions available by default
- Scope: local, public, private, protected
- Option Explicit: forces compiler to check if variable is declared
- **Creating a project**

Locate this icon in START->Program Files



- **Practice project – building a football scorecard (UI Design)**
- Open standard project and design UI like below



Lesson2

- **Improving the VB6 application** – to be discussed in Day 3
 - **VB procedure / function** – argument types (byval, byref)
- <https://msdn.microsoft.com/en-IN/library/6xxtk8kx.aspx>
<https://msdn.microsoft.com/en-IN/library/y6yz79c3.aspx>

Function

```
Public Function Sum(ByRef Number1 As Double, ByRef Number2 As Double) As Double
    'Return the result by writing it to a variable having the same name as the function
    Sum = Number1 + Number2
End Function
```

Procedure / routine

```
Public Sub Tell(ByVal MyString1 as String, ByVal MyString2 as String)
    MsgBox MyString1 & MyString2
End Sub
```

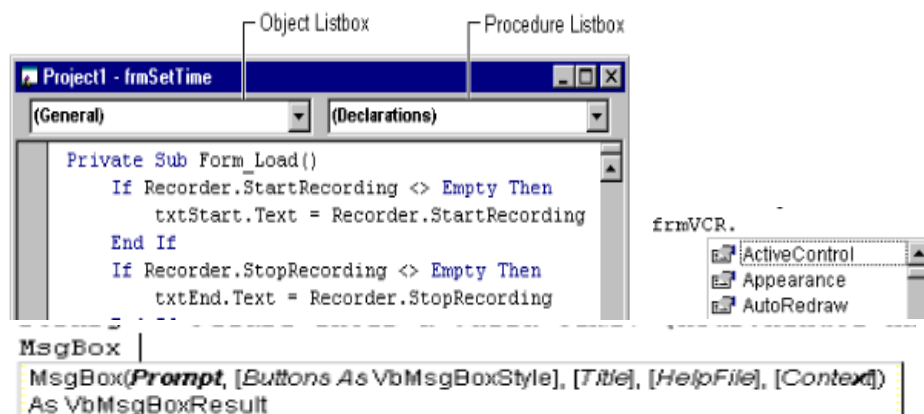
- **Call procedures**

```
'On the next line, argument order matters
Tell "Hello there.", ""
'On the next line, names of arguments are used and argument order does not matter.
Tell MyString1:="Hello there.", MyString2:=" again."
'Tell ("Hello there.", "") -- syntax error

MySum = Sum(123.456, 234)
MySum2 = Sum(Number2:=8, Number1:=6)
'MySum3 = Sum Number2:=8, Number1:=6 -- syntax error
```

Lesson3

- **Using visual basic 6 code editor (F7, shift+F7)**



- **Adhering to programming standards**

Basically, we should follow the good coding practices like defining meaningful variables, commenting, indenting, clean UI, easy navigation design, object clean-up etc

<http://www.vb6.us/tutorials/vb6-programming-standards>

<https://msdn.microsoft.com/en-us/library/h63fsef3.aspx>

[https://msdn.microsoft.com/en-us/library/aa240822\(v=vs.60\).aspx](https://msdn.microsoft.com/en-us/library/aa240822(v=vs.60).aspx)

- **Data types, variables, constants in visual basic**

Data Types

Boolean, double, integer, string, date, byte, char, decimal, long, object, short, sbyte

Variable

Dim <varName> as <datatype>

Public <varName> as <datatype>

Constants

```
Public Const DaysInYear = 365
```

```
Private Const WorkDays = 250
```

```
Public Const gsngTAX_RATE As Single = 0.06
```

```
Private Const mdtmCUT_OFF_DATE As Date = #1/1/1980#
```

```
Const strERROR_MESSAGE = "Invalid Data" 'String data type assumed
```

Ref: <https://msdn.microsoft.com/en-IN/library/47zceaw7.aspx>

- Using operators

Arithmetical Operators

Operators	Description	Example	Result
+	Add	5+5	10
-	Subtract	10-5	5
/	Divide	25/5	5
\	Integer Division	20\3	6
*	Multiply	5*4	20
^	Exponent (power of)	3^3	27
Mod	Remainder of division	20 Mod 6	2
&	String concatenation	"George"&" "&"Bush"	"George Bush"

Relational Operators

Operators	Description	Example	Result
>	Greater than	10>8	True
<	Less than	10<8	False
>=	Greater than or equal to	20>=10	True
<=	Less than or equal to	10<=20	True
<>	Not Equal to	5<>4	True
=	Equal to	5=7	False

Logical Operators

Operators	Description
OR	Operation will be true if either of the operands is true
AND	Operation will be true only if both the operands are true

- Control structures – IF...THEN, select case, DO...LOOP, FOR...NEXT

<http://www.freetutes.com/learn-vb6/lesson3.html>

[https://msdn.microsoft.com/en-us/library/aa242123\(v=vs.60\).aspx](https://msdn.microsoft.com/en-us/library/aa242123(v=vs.60).aspx)

If <condition> Then <List of Statements> Else <List of Statements> EndIf	If <condition> Then <List of Statements> EndIf
--	--

High Distinction

Compute

```

Dim grade As String

Private Sub Compute_Click()
    grade = txtGrade.Text
    Select Case grade
        Case "A"
            result.Caption = "High Distinction"
        Case "A-"
            result.Caption = "Distinction"
        Case "B"
            result.Caption = "Credit"
        Case "C"
            result.Caption = "Pass"
        Case Else
            result.Caption = "Fail"
        End Select
    End Sub
  
```

Form1

Hello
 Tutorial: 1 - 1
 Tutorial: 1 - 2
 Tutorial: 1 - 3
 Tutorial: 1 - 4
 Hello
 Tutorial: 2 - 1
 Tutorial: 2 - 2
 Tutorial: 2 - 3
 Tutorial: 2 - 4
 Hello
 Tutorial: 3 - 1
 Tutorial: 3 - 2
 Tutorial: 3 - 3
 Tutorial: 3 - 4
 Hello
 Tutorial: 4 - 1
 Tutorial: 4 - 2
 Tutorial: 4 - 3
 Tutorial: 4 - 4
 Hello
 Tutorial: 5 - 1

Tutorial: 1 - 1
 Tutorial: 1 - 2
 Tutorial: 1 - 3
 Tutorial: 1 - 4
 Tutorial: 2 - 1
 Tutorial: 2 - 2
 Tutorial: 2 - 3
 Tutorial: 2 - 4
 Tutorial: 3 - 1
 Tutorial: 3 - 2
 Tutorial: 3 - 3
 Tutorial: 3 - 4
 Tutorial: 4 - 1
 Tutorial: 4 - 2
 Tutorial: 4 - 3

Dim lines As String

```
Private Sub Form_Activate()  
For firstCounter = 1 To 5  
    Print "Hello"  
    For secondCounter = 1 To 4  
        line1 = "Tutorial: " & firstCounter & " - " & secondCounter  
        lines = lines & line1 & vbCrLf  
        Print line1  
    Next secondCounter  
Next firstCounter  
Print "Thank you"  
txt1 = lines  
End Sub
```

|

Syntactical bits

While <condition> do
 <List of Statements>

Wend

For <Variable> = <start> to <finish>
 <List of Statements>
Next <Variable>

For <Variable> = <start> to <finish> Step <increment>
 <List of Statements>
Next <Variable>

Example:

```
For I = 1 to 10 do  
    A[I] = A[I] + 1  
Next I
```

- **Practice Assignment – Upgrading Scoreboard (Wiring the controls)**



FootScoreboard2.zip

Lesson4

- **Designing the application**

Essentially, we have done this in above lesson and practice where we had created visual basic forms and coded their behaviours. But in general, application designing is not just a form design; it involves understanding the end to end application architecture. How UI will be interacted to database and how reports will display data to users and how code will efficiently handles all these behaviours. All such questions form part of application designing.

- **Guiding principals**

These are about following best naming conventions, clean ui design, fault tolerant system build, commenting etc. Read below url or more details

<https://msdn.microsoft.com/en-us/library/office/gg264773.aspx>

- **Choosing the visual basic interface style**

It completely depends on the project need and UI design (using various UI component) will come into picture. However, typical styles can be looked at following link

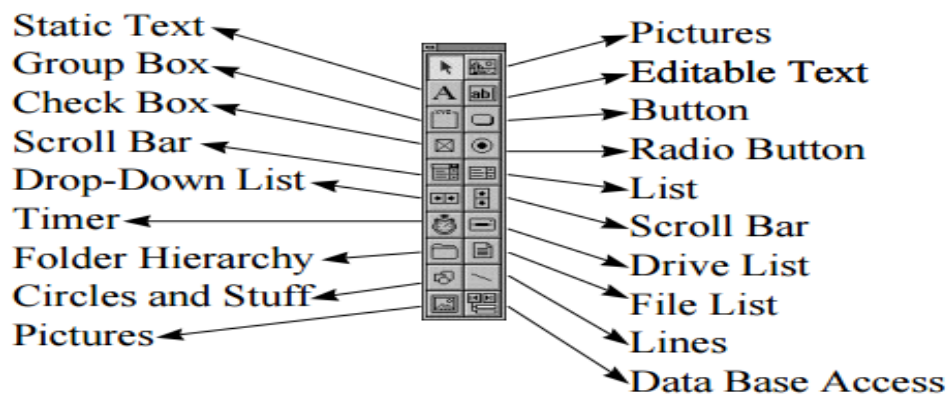
[https://msdn.microsoft.com/en-us/library/aa242113\(v=vs.60\).aspx](https://msdn.microsoft.com/en-us/library/aa242113(v=vs.60).aspx)

Lesson5

- **Defining the visual basic form**

This section is the same as VB6 environment where we have defined the environment which each of its displayed components

- **Standard controls – Picture, Frame, CommandButton, Label, TextBox, CheckBox, etc**



- Visual Basic Practice Assignment – creating a payroll form



PayrollFile.zip



SimplePay.zip

Lesson6

- Arrays

Indices Always Start With Zero

Dim A[10] As Integer Declares 11 elements, indexed from 0 through 10.

Multi-Dimensional Arrays are Permitted.

Arrays can be resized at run time (See VB Help File for *ReDim*)

Control of array test

Text1	Text2	Text3	Text4	Array of Control Test
-------	-------	-------	-------	-----------------------

```

Private Sub cmdArrayOfControlTest_Click()
    Dim iCounter As Integer, strData As String
    For iCounter = 0 To 3
        strData = strData & txtArrCtl(iCounter).Text & vbCrLf
    Next
    MsgBox strData
End Sub

Private Sub txtArrCtl_DblClick(Index As Integer)
    MsgBox txtArrCtl(Index).Text
End Sub

'alternatively, we can do below as, looping over each contro
Dim txt As TextBox
For Each txt In txtArrCtl
    MsgBox txt.Text
Next
  
```

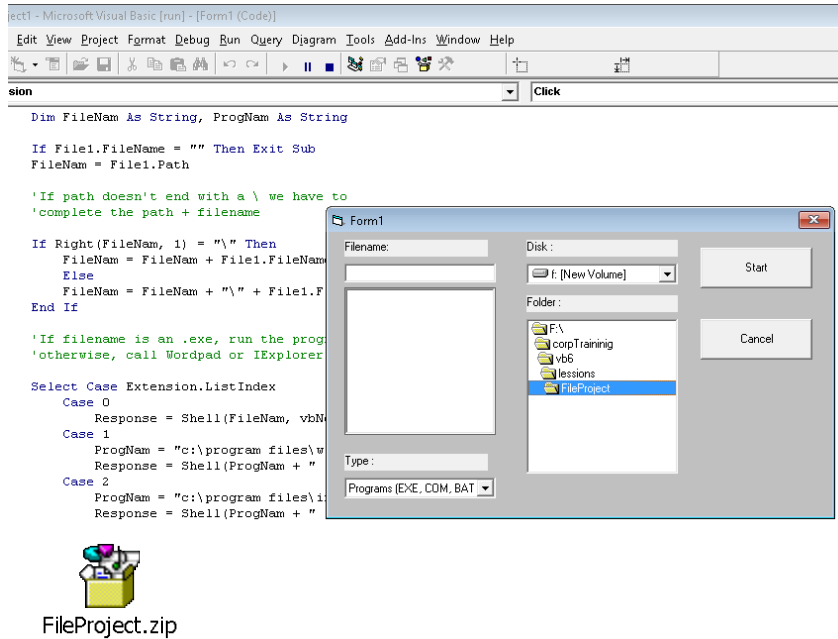
- More Controls – ListBox, ComboBox

<div style="border: 1px solid gray; padding: 2px;">cboExample</div> <div style="border: 1px solid gray; height: 100px; margin-top: 5px;"></div>	<div style="border: 1px solid gray; padding: 5px; text-align: center; margin-bottom: 5px;">ADD</div> <div style="border: 1px solid gray; padding: 5px; text-align: center; margin-bottom: 5px;">DELETE</div> <div style="border: 1px solid gray; padding: 5px; text-align: center;">EXIT</div>
---	--



combo.zip

- **Building a file search application: DriveListBox, DirListBox, FileListBox**

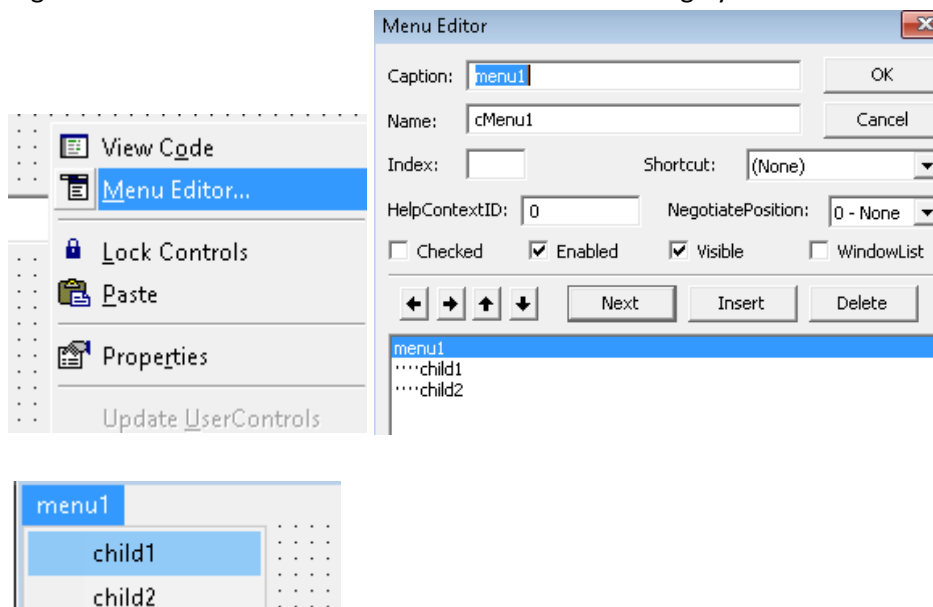


Day2

Lesson7

- **Building a Menu**

Right click on the form and choose menu editor and design your menu



- **Debugging Visual Basic Code**

F9: toggle breakpoint, by default it's of maroon colour

Ctrl+g: debug window. We can type in expressions as well in debug window

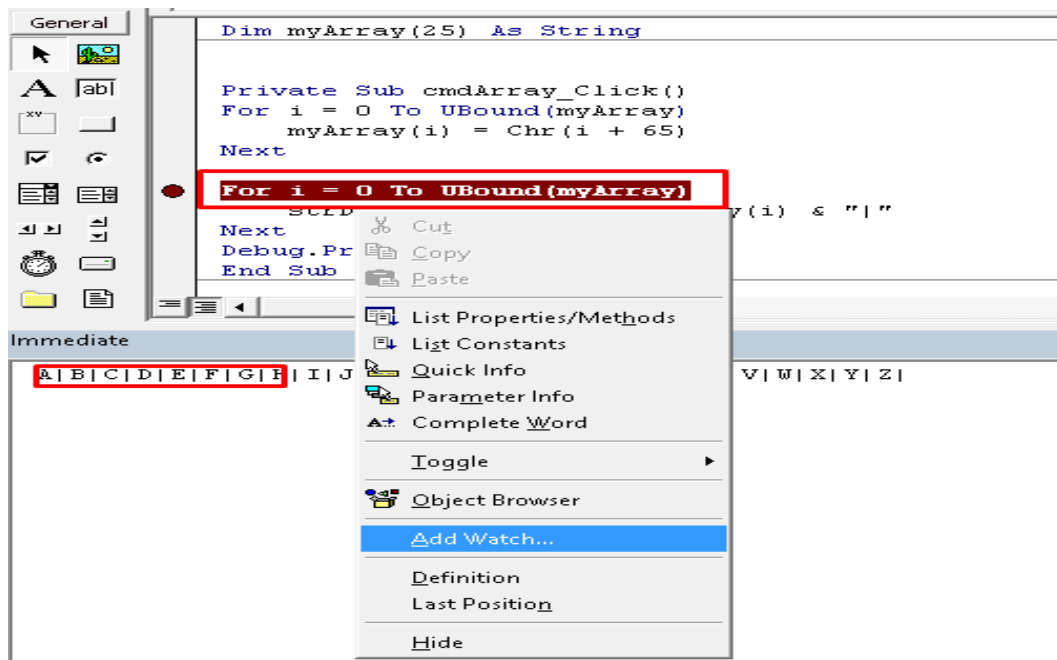
e.g. ?2+3 = 5

When in debug mode, print value of a variable e.g. ?strData, <enter>

Debug.Print <expression> / <variable>

F8: step by step program execution

Add Watch: adding variable to watch window so that don't have to repeat writing variable for debugging



- **Error trapping**

On error resume next: all errors after this line will be skipped and program won't crash

On error goto 0: this command turns off any error handler in the code

e.g. at times we want to cut short the code and hence had to use this command

in below code, I have cut short the code and delete the file without checking if its existing. In other scenario, this would have resulted in error and crash but it will safely be skipped, if file doesn't exist.

```
On Error Resume Next
```

```
Kill strFilePath
```

```
On Error GoTo 0
```

```
Sub testError()
```

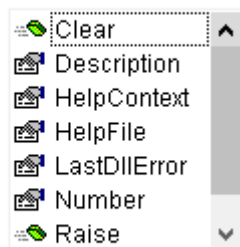
```
On Error GoTo trap
```

```
Exit Sub
```

```
trap:
```

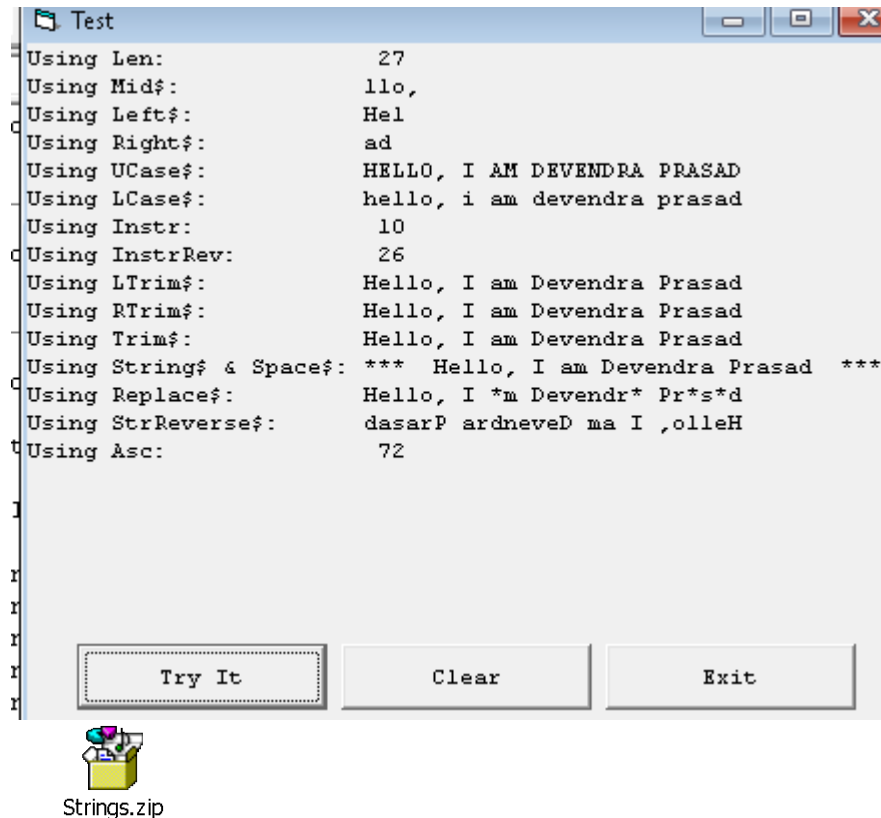
```
msgbox err.
```

```
End Sub
```

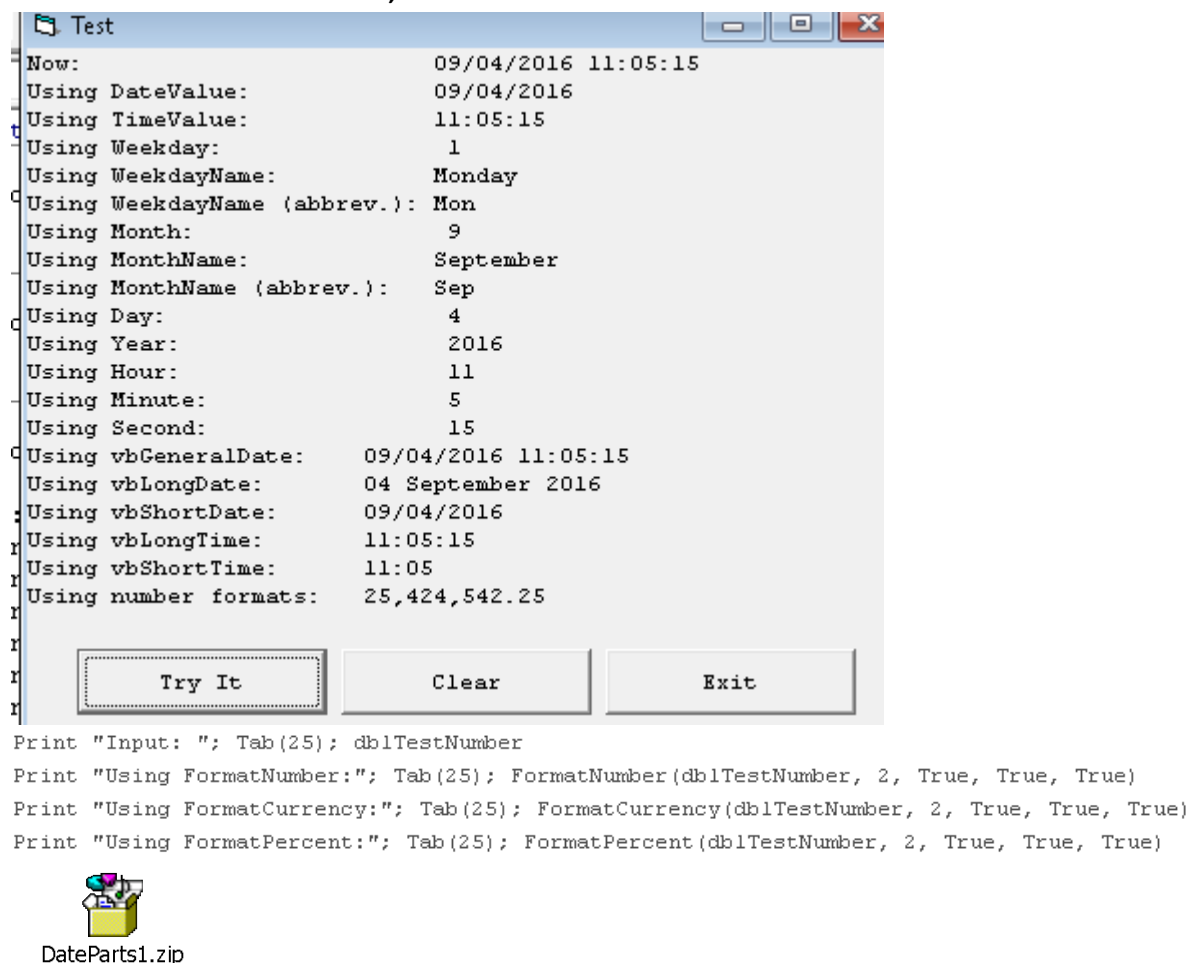


Lesson8

- Manipulating Text – String functions



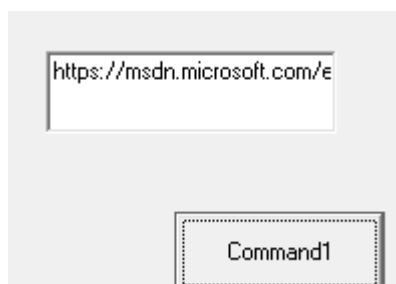
- Visual basic functions for dates, numbers



- Using windows clipboard and screen objects (copy, paste, delete)

[https://msdn.microsoft.com/en-us/library/ebwdx8yh\(v=vs.90\).aspx](https://msdn.microsoft.com/en-us/library/ebwdx8yh(v=vs.90).aspx)

[https://msdn.microsoft.com/en-us/library/aa262347\(v=vs.60\).aspx](https://msdn.microsoft.com/en-us/library/aa262347(v=vs.60).aspx)

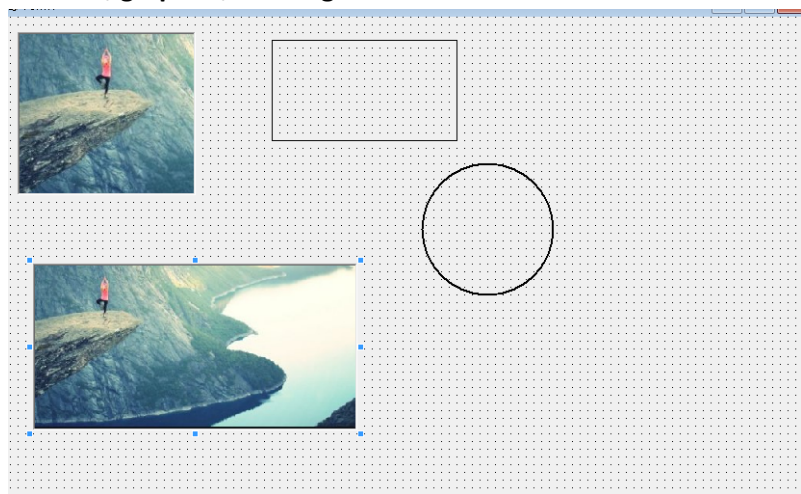


```
Private Sub mnuPaste_Click ()
    Screen.ActiveControl.SelText = Clipboard.GetText()
End Sub
```

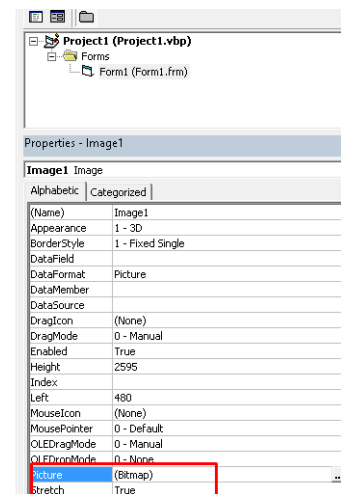


clipboard.zip

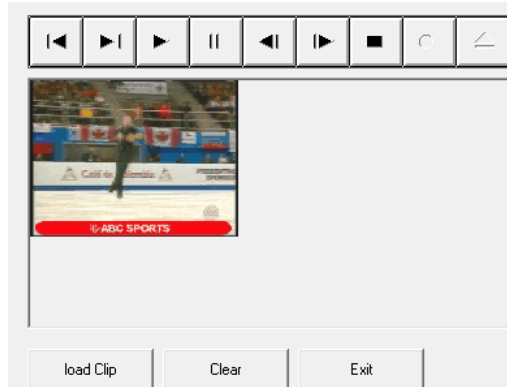
- **Pictures, graphics, drawing controls in visual basic**



drawing.zip

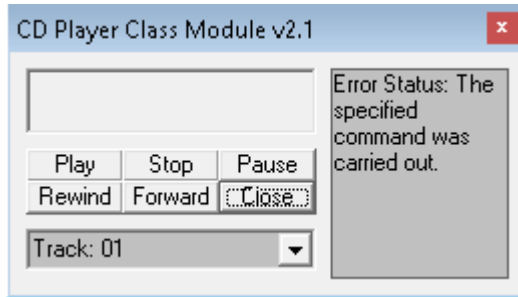


- **Multimedia – incorporating sounds, video, pictures**



MMVideo.zip

- Building a CD player in code



cdclassv21.zip

Lesson9

- Writing & reading a sequential access file

Print Date: 09/04/16
Print Time: 08:18:49

THEVBPROGRAMMER.COM
NORTHWIND TRADERS SALES REPORT
WITH NO CONTROL BREAKS (GRAND TOTALS ONLY)

Page: 1

YEAR/ MONTH	ORDER DATE	ORDER NUMBER	CUST ID	PRODUCT DESCRIPTION	UNIT PRICE	QTY	EXTENDED PRICE	DISCOUNT AMOUNT	SALE TOTAL
200410	10/3/2004	10295	VINET	Gnocchi di nonna Alice	30.40	4	? 121.60	? 0.00	? 121.60
200410	10/4/2004	10296	LILAS	Pavlova	13.90	30	? 417.00	? 0.00	? 417.00
200410	10/4/2004	10296	LILAS	Gudbrandsdalsost	28.80	15	? 432.00	? 0.00	? 432.00
200410	10/4/2004	10296	LILAS	Queso Cabrales	16.80	12	? 201.60	? 0.00	? 201.60
200410	10/5/2004	10297	BLONP	Mozzarella di Giovanni	27.80	20	? 556.00	? 0.00	? 556.00
200410	10/5/2004	10297	BLONP	Chartreuse verte	14.40	60	? 864.00	? 0.00	? 864.00
200410	10/6/2004	10298	HUNGO	Chang	15.20	40	? 608.00	? 0.00	? 608.00
200410	10/6/2004	10298	HUNGO	Inlagd Sill	15.20	40	? 608.00	? 152.00	? 456.00
200410	10/6/2004	10298	HUNGO	Raclette Courdavault	44.00	30	? 1,320.00	? 330.00	? 990.00
200410	10/6/2004	10298	HUNGO	Tarte au sucre	39.40	15	? 591.00	? 0.00	? 591.00
200410	10/7/2004	10299	RTOPR	Tartine Chocolate Biscuits	7.30	15	? 109.50	? 0.00	? 109.50



NoBreaks.zip

- Creating a sequential output form

EMP NAME	DEPT	JOB TITLE	HIRE DATE	HRLY RATE
ANDY ANDERSON	100	PROGRAMMER	03/04/1997	25.00
BILLY BABCOCK	110	SYSTEMS ANALYST	02/16/1996	33.50
CHARLIE CHEESEMAN	100	COMPUTER OPERATOR	03/01/1996	15.00
DARLENE DUNCAN	200	RECEPTIONIST	10/11/1998	12.75
ERNIE EACHUS	300	MAIL ROOM CLERK	08/19/1997	10.00

- Creating and using random access file



RandomFiles.zip

- Sample project - address book

The controls here are all bound controls

Address Book Database Example

First Name: John Last Name: Doe

Address: 1234 Doughboy Way

City: NoMans State: Land Zipcode: 00000

Phone #: 555-555-5555 Email: johndoe@nothing.co

Comments: Just testing the database.

Add Delete Update New Exit

First | Previous Next | Last



addressExample.zip

Day3

Lesson10

<https://hoopercharles.wordpress.com/2012/11/25/connecting-to-an-oracle-database-with-visual-basic-6-0-on-windows-8-64-bit/>

- **Integrate with oracle / sql server database**

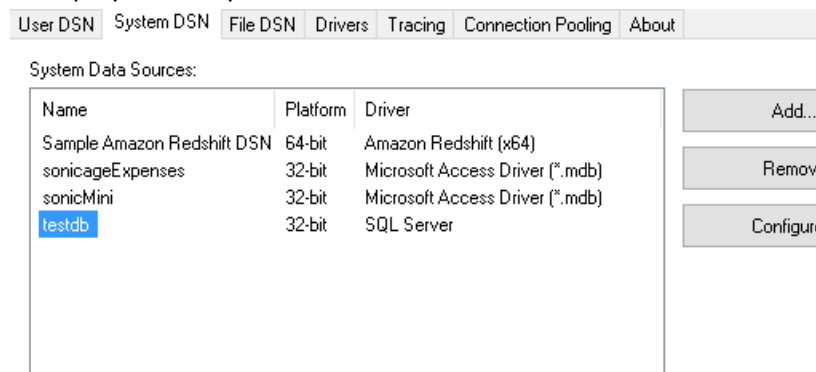
Connect via DSN:

Goto run, type odbcad32 and hit enter

Goto system DSN, so that DSN created by you is accessible to all users

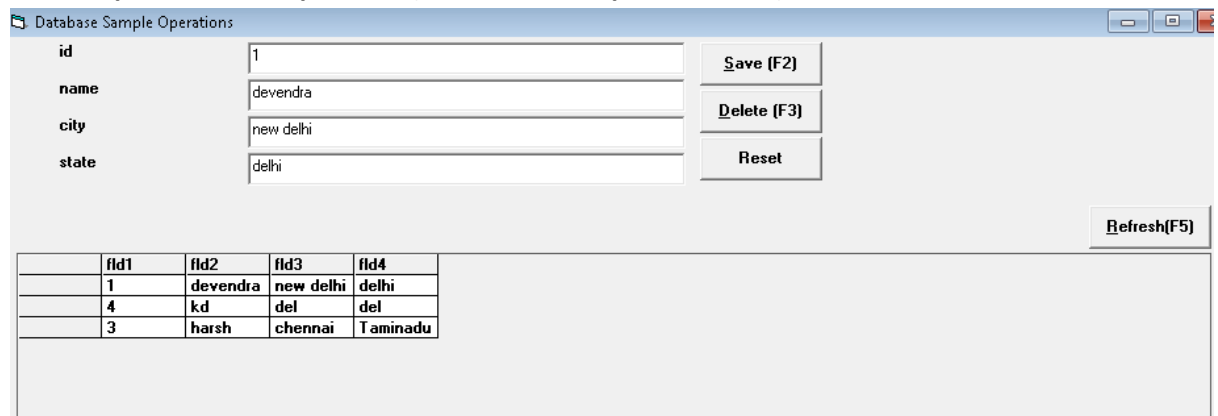
<userDSN>: local to the user who is creating it, used when a specific user needs to run the application or meant to have database access

<fileDsn>: is created when you wish to ship the dsn configuration to some other computer or deploy remotely



Connect via connection string: *"Provider = sqloledb;Data Source=IDEA-PC\SQLEXPRESS;Initial Catalog=dp; integrated security=SSPI;"*

- **The Sample Database Operation (Select, Insert, Update, Delete)**



- **The data control**
Refer to address book project
- **Visual basic bound controls – textbox controls linked to database**
Refer to address book project
- **Validating data – ensuring database integrity**
Refer to code attached
- **Finding a specific record in database**
Refer to code attached

Lesson11

- **Creating multiple data controls**

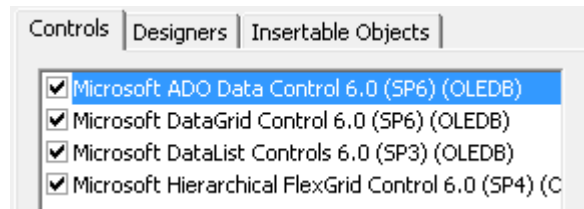
[https://msdn.microsoft.com/en-us/library/aa231244\(v=vs.60\).aspx](https://msdn.microsoft.com/en-us/library/aa231244(v=vs.60).aspx)

[https://msdn.microsoft.com/en-us/library/aa231244\(v=vs.60\).aspx](https://msdn.microsoft.com/en-us/library/aa231244(v=vs.60).aspx)

[https://msdn.microsoft.com/en-us/library/aa231248\(v=vs.60\).aspx](https://msdn.microsoft.com/en-us/library/aa231248(v=vs.60).aspx)

[https://msdn.microsoft.com/en-us/library/aa241632\(v=vs.60\).aspx](https://msdn.microsoft.com/en-us/library/aa241632(v=vs.60).aspx)

Add controls to form



Drag onto form to make following UI

Follow steps mentioned in

[https://msdn.microsoft.com/en-us/library/aa231246\(v=vs.60\).aspx](https://msdn.microsoft.com/en-us/library/aa231246(v=vs.60).aspx)

ado data control		refresh	
fld1	fld2	fld3	fld4
1	devendra	new delhi	delhi
4	kd	del	del
3	harsh	chennai	Taminadu
5	test	test	test

- **Using data bound list controls**

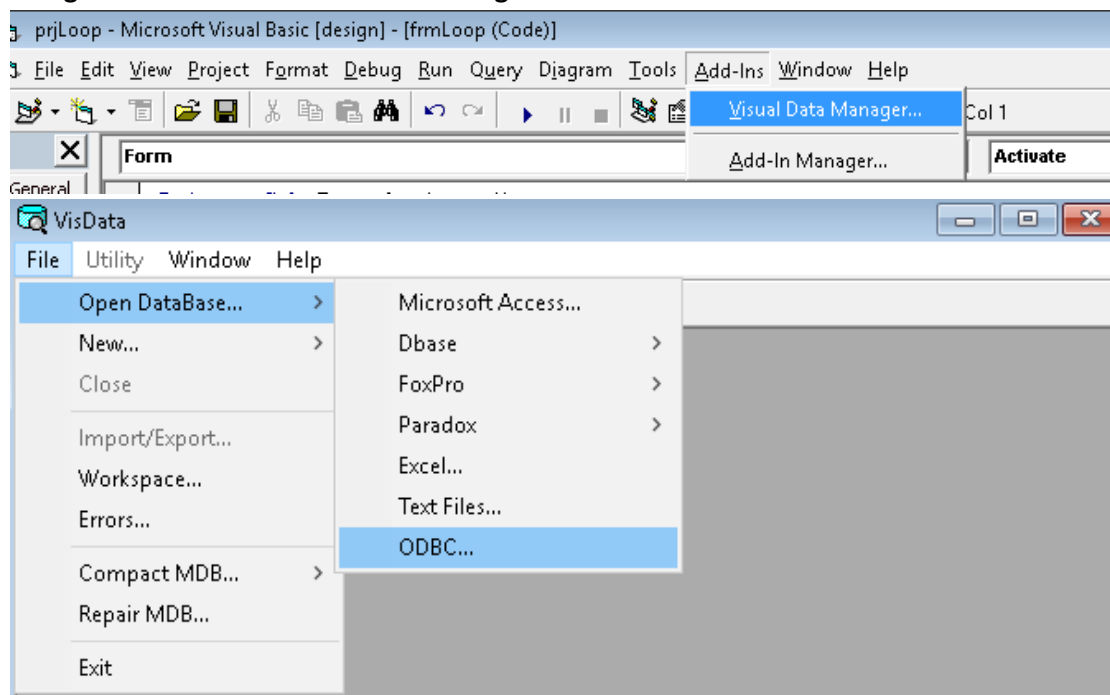
List bound control works the same way, try following the grid bounding pattern

```
' set the new binding - start with the string properties
DataCombo1.DataField = "ProductID" ' the bound field in master table
DataCombo1.BoundColumn = "ID" ' the bound field in detail table
DataCombo1.ListField = "ProductName" ' the display field in detail tab
Set DataCombo1.RowSource = rsProducts ' the detail table
Set DataCombo1.DataSource = rsOrder ' the master table
```



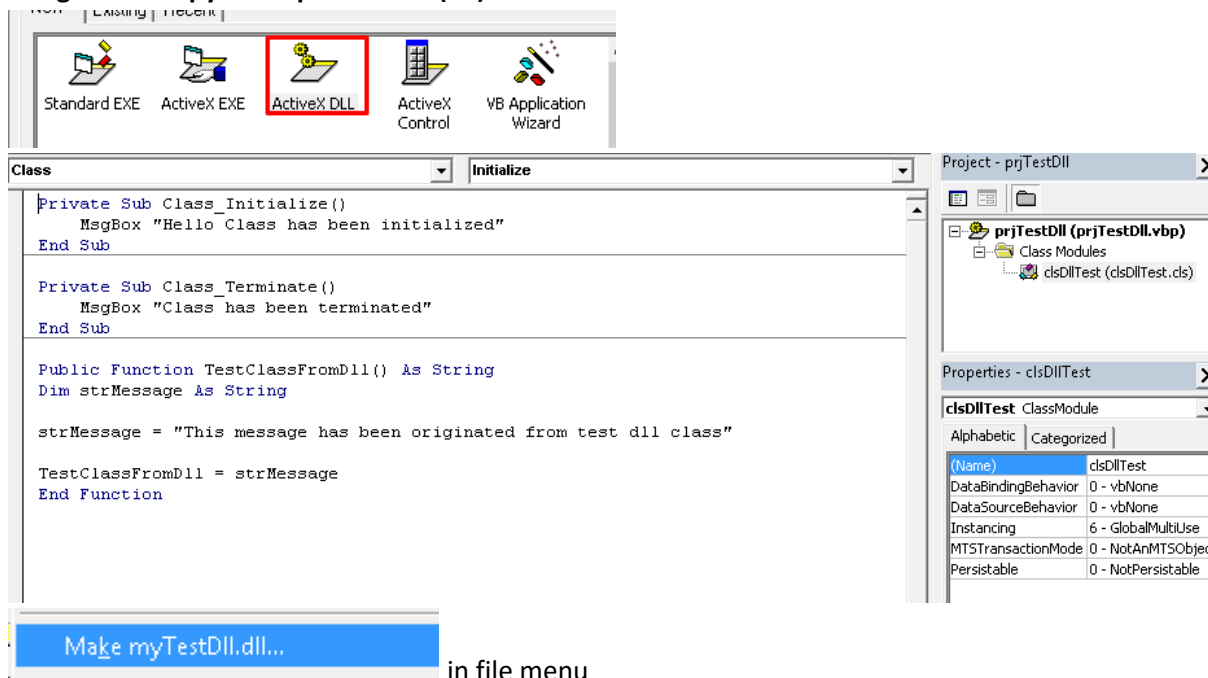
finalProject.zip

- **Using VISDATA – visual basic data manager**

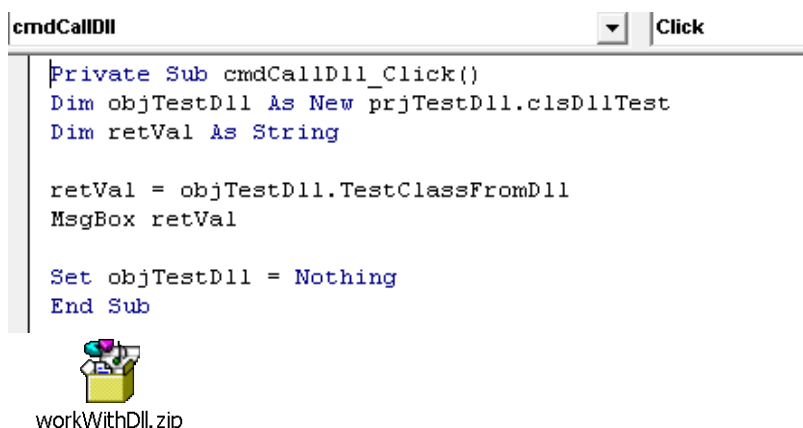
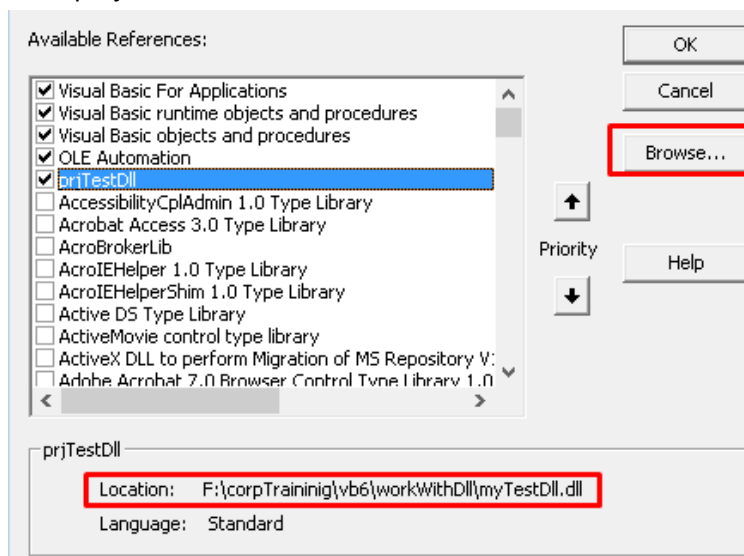


Lesson12

- Integrate with python api+VB6 API (dll)



Open Standard exe project and call this dll created in your exe project
Goto project->references and add reference to this dll



Python Code

Generally pywin32 doesn't get installed on the python setup. You must try any of the below but essentially below package must get installed in lib\site-packages in python root

This PC > Windows8_OS (C:) > Python27 > Lib > site-packages >

Name	Date modified	Type	Size
adodbapi	09/08/2016 21:13	File folder	
isapi	09/08/2016 21:13	File folder	
py2exe	09/07/2016 21:03	File folder	
pythonwin	09/08/2016 21:13	File folder	
pywin32_system32	09/08/2016 21:13	File folder	
win32	09/08/2016 21:13	File folder	
win32com	09/08/2016 21:13	File folder	
win32comext	09/08/2016 21:13	File folder	
memimposter.nud	11/11/2008 02:10	DVD File	12 KB

Option1

```
F:\corpTraininig\vb6\Ub2Py>C:\Python34\Scripts\pip.exe install pywin32
```

Option2

```
F:\corpTraininig\vb6\Ub2Py>C:\Python34\Scripts\pip.exe install --upgrade pip
You are using pip version 6.0.8, however version 8.1.2 is available.
You should consider upgrading via the 'pip install --upgrade pip' command.
Collecting pip from https://pypi.python.org/packages/9c/32/004ce0852e0a127f07f358b7150157632
3799bd798956fa930814b60f39/pip-8.1.2-py2.py3-none-any.whl#md5=0570520434c5b600d89ec95393b265
b
  Downloading pip-8.1.2-py2.py3-none-any.whl (1.2MB)
    14% ##### | 172kB 28kB/s eta 0:00:36
```

Option3

Install py2exe on your python root, if not already there

```
C:\Python27\Scripts>py2exe_postinstall.py -install
py2exe is now installed on your machine.

There are some samples in the 'samples' subdirectory.
```

After I copied `pywintypes26.dll` and `pythoncom26.dll` to `c:\Python26\Lib\site-packages\win32` I solved the problem!

"Python 3.4 users must manually run `python.exe Scripts\pywin32_postinstall.py -install` from an elevated command prompt."

Option4

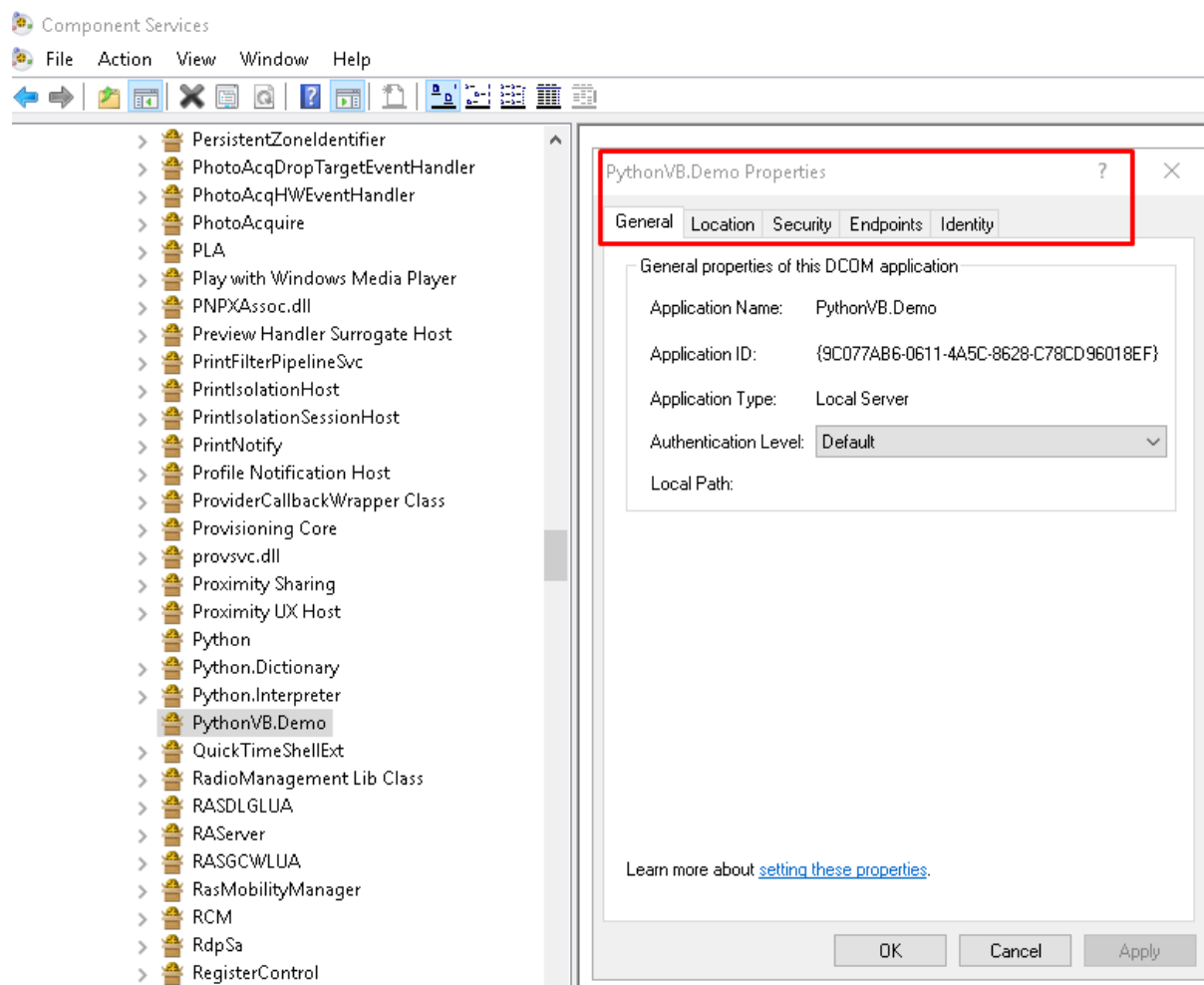
SETUP for pywin32 api: `pywin32-220.win32-py2.7.exe`

***Win32all distribution <http://starship.python.net/crew/mhammond/downloads/win32all-132.exe>

Once above gets done and settled in python root, below code will be compiled to COM API for VB6 and you are ready to hit the python COM server

```
f:\corpTraininig\vb6\Ub2Py>PythonVB.py
Registering COM Server...
Requesting elevation and retrying...
Registering COM Server...
Registered: PythonVB.Demo
f:\corpTraininig\vb6\Ub2Py>
```

Python code to expose pythonVB class to COM server at following location. This can be local or remote based on configuration over the COM component



Python code

```
class PythonVB:
    _public_methods_ = ['SayHello','func1','func2']
    _reg_progid_ = "PythonVB.Demo"
    # create GUID with pythoncom api, never change it manuall
    # example: import pythoncom
    # print pythoncom.CreateGuid()
    _reg_clsids_ = "{9C077AB6-0611-4A5C-8628-C78CD96018EF}"

    def SayHello(self):
        return "I love doing python bits, its easy and fast"
    def func1(self):
        return "new function has been added"
    def func2(self):
        return "wow, what a wonder"

if __name__ == '__main__':
    print ("Registering COM Server...")
    import win32com.server.register
    win32com.server.register.UseCommandLine(PythonVB)
```


VBCode

```
Private Sub Command1_Click()  
  
Dim objPythonVB As Object  
  
Set objPythonVB = CreateObject("PythonVB.Demo")  
retval = objPythonVB.SayHello()  
  
MsgBox retval  
  
End Sub
```

NOTE: when you recompile the component, don't forget to open the VB6 project, somehow, this doesn't refresh the environment.

Running Python Script using Shell Object

```
Dim ReturnValue  
  
ReturnValue= Shell("C:\python23\python ""C:\Myscripts\Mypythonscript.py"" ", vbHide)  
  
obj = CreateObject("WScript.Shell")  
obj.run("C:\Directory\File.py")
```

Sample Exercises: <http://www.vbtutor.net/vbtutor.html>

Some history: <http://www.itwriting.com/frozensvb6.php>