

كلية المأمون الجامعة

قسم هندسة تقنيات القدرة الكهربائية

المرحلة الثانية

**Computer Application and programming**

**Example:** Design a form with one textbox, set the text properties so that this message appears when project runs (welcome to visual basic world).

**Sol:** There are two methods:

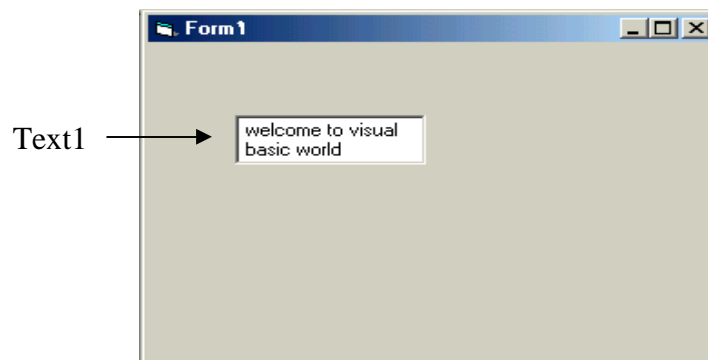
First method: changing property by code:

```
Private Sub Form_Load()  
Text1.Text = "welcome to visual basic world"  
End Sub
```

Second method: by properties window

| Text1 |                               |
|-------|-------------------------------|
| text  | Welcome to visual basic world |

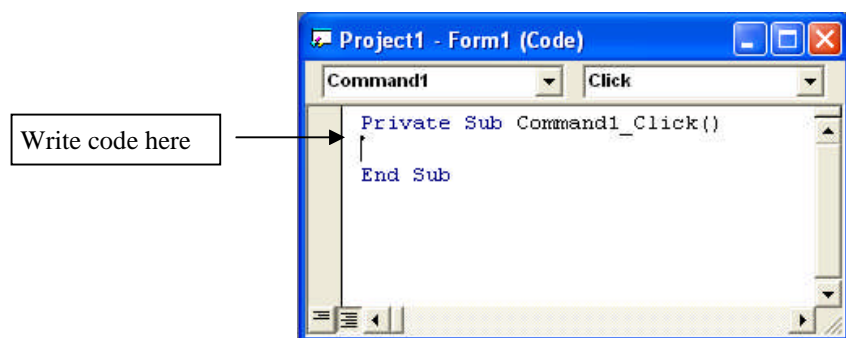
Running stage



### Command button

It acts as a switch. To deal with tool property> click on command button> property window appear> change setting of any desired property. Usually change set its caption property to a suitable string.

To make the button functional, the user should add some code. To do this: click on command tool> code form appears with click event procedure. Write code in this event or other events like press key event.



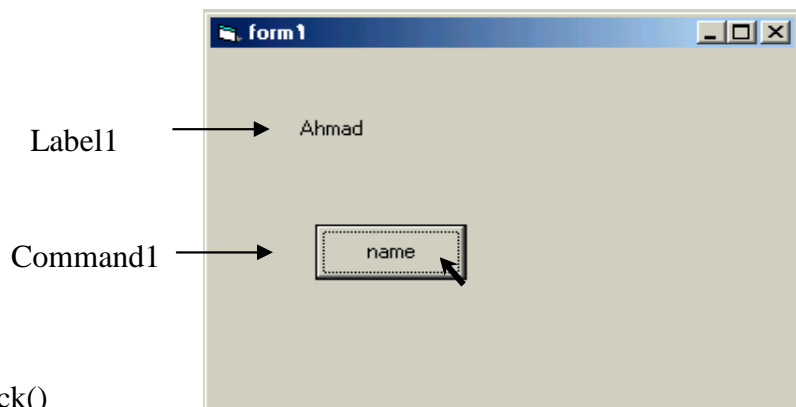
The most familiar properties that are needed for the command button are stated in the table below.

| Property name | Objective                        | Code   | Stage of Changing |
|---------------|----------------------------------|--|-------------------|
| Caption       | String appear on command         | command <sub>no.</sub> .caption="any name"   | Design and run    |
| style         | Determine the style of command   | 1-graphical<br>0-standard  | Design            |
| BackColor     | Background color for command     | command <sub>no.</sub> .BackColor=Qbcolor(no.)   | Design and run    |
| ForeColor     | Color of text written on command | command <sub>no.</sub> .forecolor=Qbcolor(no.)   | Design and run    |
| Font          | Font style, type and size        | Size: command <sub>no.</sub> .fontsize= no.<br>Style: $font \begin{cases} italic \\ bold \\ underline \end{cases}$<br>Type: command <sub>no.</sub> .FontName = "arial" | Design and run    |
| visible       | The command appear or disappear  | command <sub>no.</sub> .visible= true or false   | Design and run    |
| Enabled       | The command enable or disable.   | command <sub>no.</sub> . Enabled =true or false  | Design and run    |

**Example:** Design a form with label, such that when click on the command button "name" your name appears on label (at running stage).

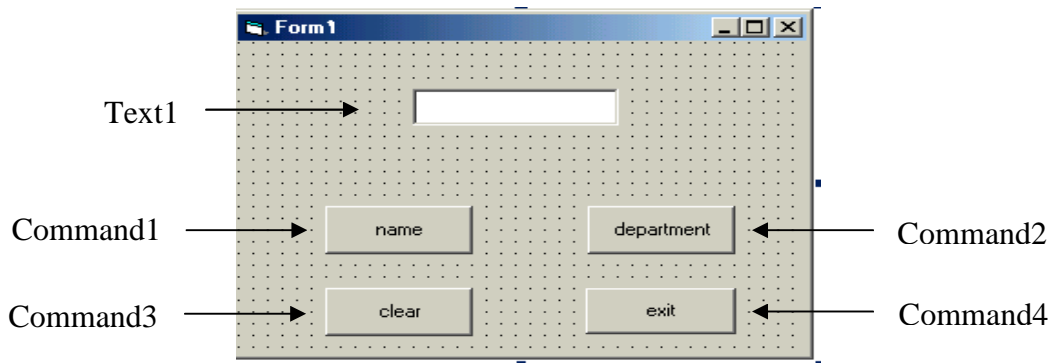
**sol:**

|          |      |
|----------|------|
| Label1   |      |
| caption  |      |
| Command1 |      |
| caption  | name |



```
Private Sub Command1_Click()
Label1.Caption = "Ahmad"
End Sub
```

**Example:** Design a form to appear your name and department in textbox, when click on command button "name" and "department" respectively so that you can clear these informations when click on command "clear" and stop project when click on command "exit".



|          |            |
|----------|------------|
| Text1    |            |
| text     |            |
| Command1 |            |
| caption  | name       |
| Command2 |            |
| caption  | department |
| Command3 |            |
| caption  | Clear      |
| Command4 |            |
| caption  | exit       |

```
Private Sub Command1_Click()
Text1.text="Muna"
End Sub
```

```
Private Sub Command2_Click()
Text1.text="Science"
End Sub
```

```
Private Sub Command3_Click()
Text1.text=""
End Sub
```

```
Private Sub Command4_Click()
end
End Sub
```

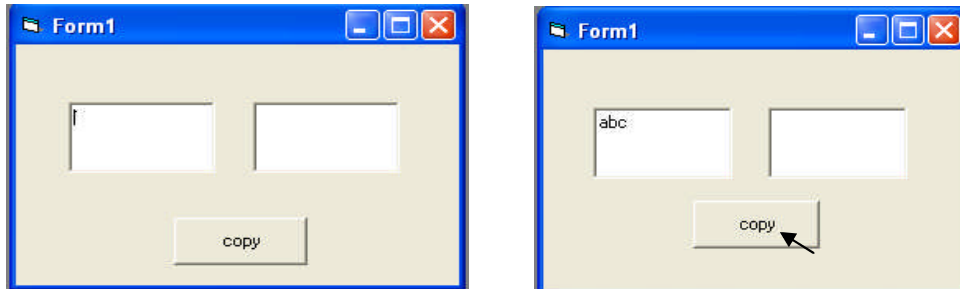
**Example:** Design a form contains two textbox so that when click on command button "copy" the text copied from first textbox to the second textbox but in size (28).

**Sol:**

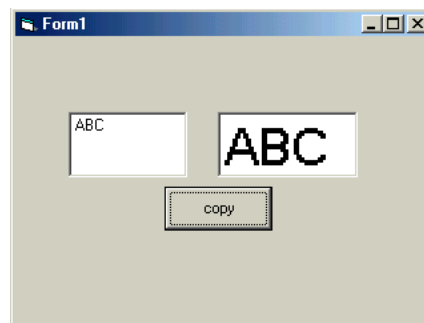
|          |      |
|----------|------|
| Text1    |      |
| text     |      |
| Text2    |      |
| Text     |      |
| Command1 |      |
| caption  | copy |

```
Private Sub Command1_Click()  
Text2.Text = Text1.Text  
Text2.FontSize = 28  
End Sub
```

At run stage this window appear

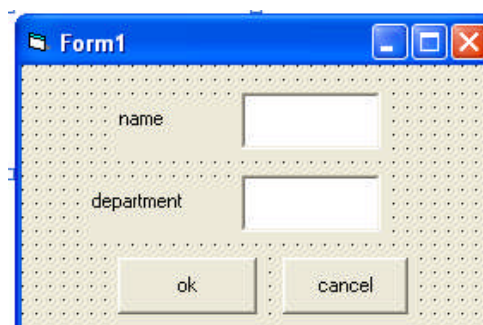


If the user enter by example the text (ABC) in first textbox and click on command (copy) the same text appear on the second textbox but in size 28.



### Exercise:

- 1- Design a form to display your name in specific color and size.
- 2- Write the following design steps with details

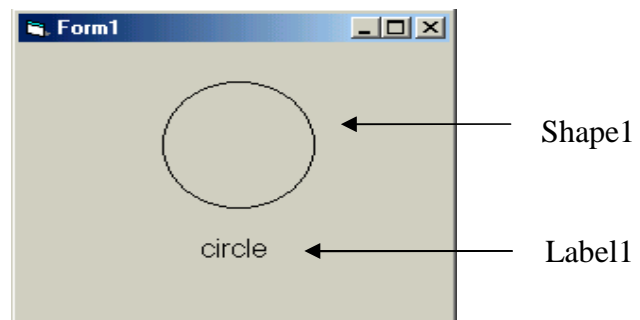


**Shape:** Shape is a tool used to draw geometric shape (circle, rectangle, square ,etc). It has property window. **It has no events like other tools** (such as click, dblclick, etc.).

| Property name | Objective  | Stage of Changing |
|---------------|--|-------------------|
| shape         | To determine a specific shape:<br>0-rectangle<br>1-square<br>2-oval<br>3-circle<br>4-rounded rectangle<br>5-rounded square | Design and run    |
| backstyle     | 0-trancsparence<br>1-opaque  | Design            |
| BackColor     | colored the Background for shape, appear after backstyle changed to value 1-opaque   | Design and run    |
| bordercolor   | Colored the Border of shape  | Design and run    |

**Example:** Design a form contains a specific shape then write the name of this shape on form.

|         |           |
|---------|-----------|
| Label1  |           |
| caption | circle    |
| Shape1  |           |
| shape   | 3- circle |

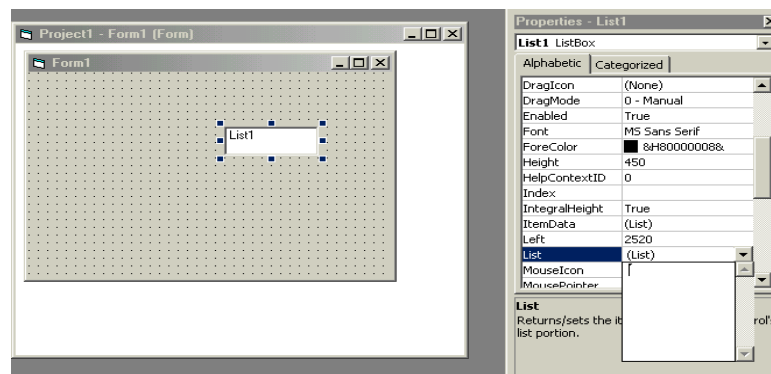


**List box:** The user can't write directly in ListBox . He can add item to the ListBox property or by code in the form.

| Property name | Objective and code   |
|---------------|--|
| sorted        | True , to sort the elements alphabetically<br>False , elements without sort. |
| Style         | To determine the style of list:<br>0-standard<br>1-checkbox                  |
| Clear list    | To clear all elements of the list:<br>Listno.Clear                           |

### Add items to list:

- Change property list from properties window. When click on arrow, write items (elements).



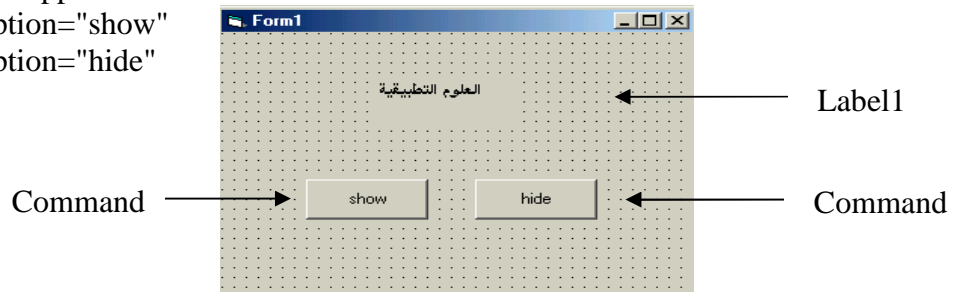
b) Add elements by code using the property additem as follows::

```
List_no.AddItem ("first element ")
List_no.AddItem ("second element ")
.
.
.
List_no.AddItem ("last element")
```

**Example:** Design a form contains label to display your department and two command buttons "show" and "hide" such that when click on command1, form2 appears and when click on command2, form2 disappears. In form2 design a list to contain the name of departments' branches which appears after click on command button "display".

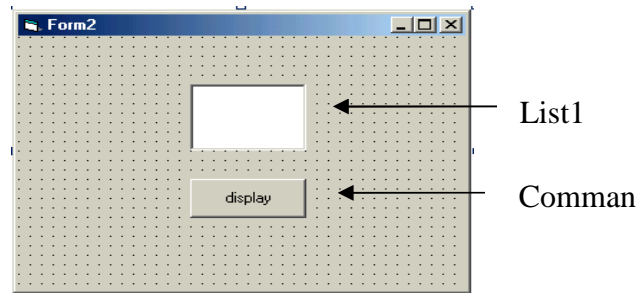
**Form1**

Label1: caption="applied science"  
 Command1: caption="show"  
 Command2: caption="hide"



**Form2**

Command1: caption="display"  
 List1: list= فارغ



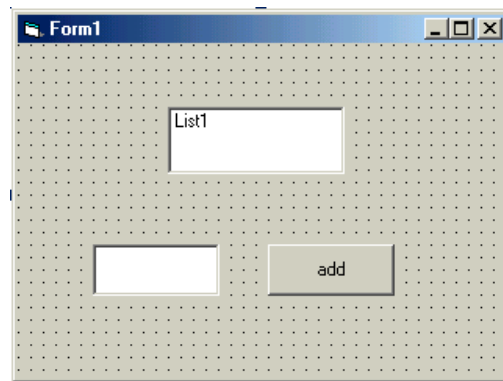
```
Project1 - Form1 [Code]
Command2 Click
Private Sub Command1_Click()
  Form2.Show
End Sub
Private Sub Command2_Click()
  Form2.Hide
End Sub
```

```
Project1 - Form2 [Code]
Command1 Click
Private Sub Command1_Click()
  List1.AddItem "الليزر"
  List1.AddItem "الفيزياء التطبيقية"
  List1.AddItem "الرياضيات"
  List1.AddItem "المواد"
  List1.AddItem "التقنيات الكيميائية الاحيائية"
  List1.AddItem "الكيمياء"
End Sub
```

**Example:** Design a form contains a sorted list alphabetically such that the user can add the item from text to the list after click on command button "add".

Sol:

| List1    |      |
|----------|------|
| list     |      |
| sorted   | true |
| command1 |      |
| caption  | add  |
| Text1    |      |
| text     |      |



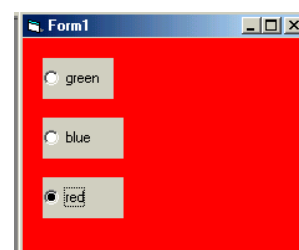
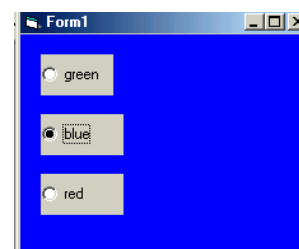
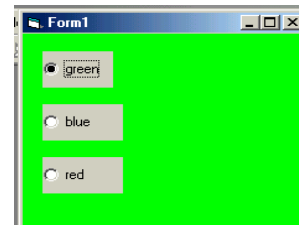
```
Private Sub Command1_Click()
list1.AddItem (Text1.Text)
Text1.Text = " "
End Sub
```

**Option button:** Used only as a group of buttons. When the user selects one of them the others are deselected automatically.

All other properties of this control are similar to those in form and command button where they are fully discussed which are caption, font, enabled, bgcolor and visible beside an important property which is value that takes true or false and it used with if statement. The option button usually takes click event.

**Example:** Design a form with three option buttons " red ", " green " and " blue " such that when we click on options the color of the form colored by red, green and blue respectively.

|                  |       |
|------------------|-------|
| option1:caption  | green |
| option2: caption | blue  |
| option3: caption | red   |



```
Private Sub Option1_Click()
Form1.BackColor = vbGreen
End Sub
```

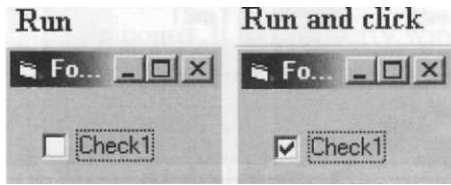
```
Private Sub Option2_Click()
Form1.BackColor = vbBlue
End Sub
```

```
Private Sub Option3_Click()
Form1.BackColor = vbRed
End Sub
```



**Check box:**

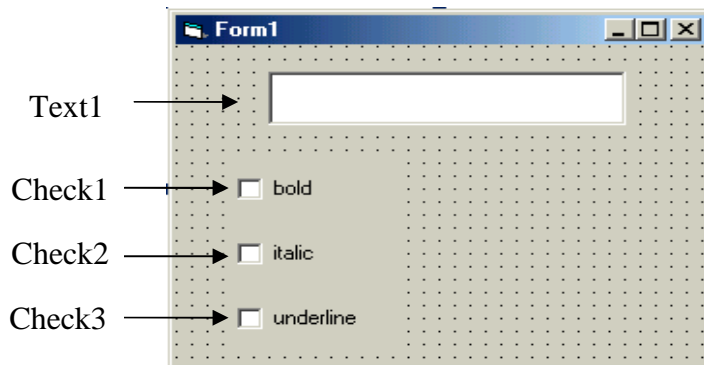
Any number of check boxes can be used on a form. They work independently. Its Property value could be changed in design stage manually, or in running stage by code.



**Example:** Design a form with one text box and three check boxes such that when click on boxes the following is done: change typing to bold, italic, underline.

Sol:

| Text1   |           |
|---------|-----------|
| Text    |           |
| Check1  |           |
| caption | Bold      |
| Check2  |           |
| caption | Italic    |
| Check3  |           |
| caption | underline |

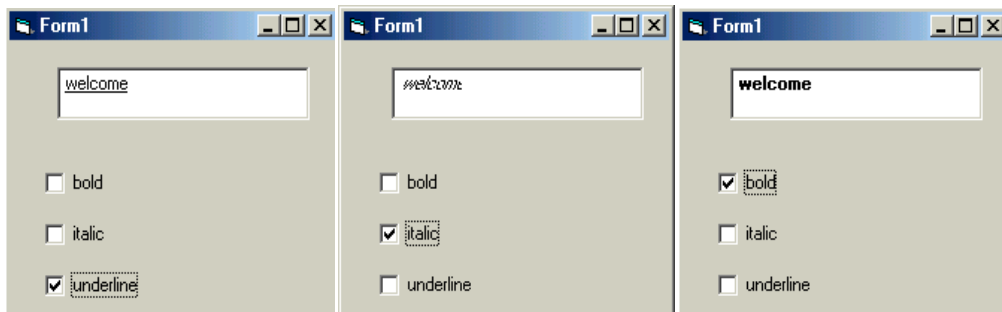


```

Private Sub Check1_Click()
Text1.FontBold = Check1.Value
End Sub
Private Sub Check2_Click()
Text1.FontItalic = Check2.Value
End Sub
Private Sub Check3_Click()
Text1.FontUnderline = Check3.Value
End Sub

```

Run stage:



## Timer

Timer returns the time in millisecond. It may be used to measure execution time of code (program efficiency).

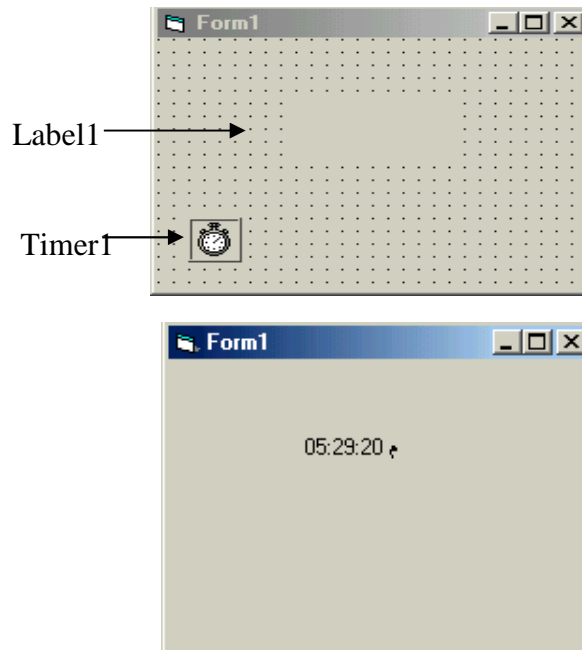
| Property name | Objective and code  |
|---------------|---|
| interval      | To repeat the code according to event. It takes an integer values (0-65535) and measured in millisecond |
| enabled       | timer <sub>no.</sub> . Enabled =true or false   |

Ex: design electronic clock to display the time in seconds.

sol:

| Timer1   |      |
|----------|------|
| interval | 1000 |
| Label1   |      |
| Caption  |      |

```
Private Sub Timer1_Timer()
Label1.Caption = Time
End Sub
```

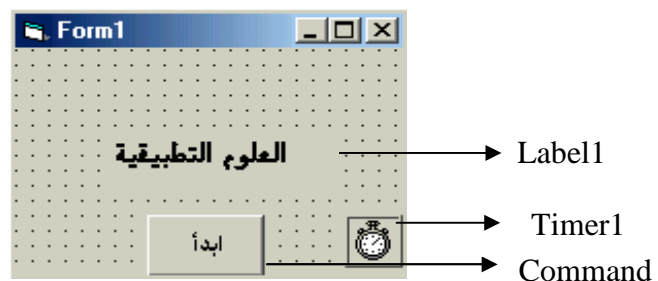


**Example:** Design a form to display "applied science" such that when click on command button "start" the color of "applied science" changed randomly every second.

Sol:

| Timer1   |                  |
|----------|------------------|
| interval | 1000             |
| enabled  | false            |
| Label1   |                  |
| Caption  | العلوم التطبيقية |
| Command1 |                  |
| caption  | ابدأ             |

```
Private Sub Command1_Click()
Timer1.Enabled = True
End Sub
Private Sub Timer1_Timer()
t = Rnd * 15
Label1.ForeColor = QBColor(CInt(t))
```



End Sub

Run stage:

When click on command button ابدأ the color of the font will be changed every second randomly in integer no. (0-15).



Note: the function (Cint) used to convert to integer no.  
And (Rnd) used to generate a random no. in a range (0-1)

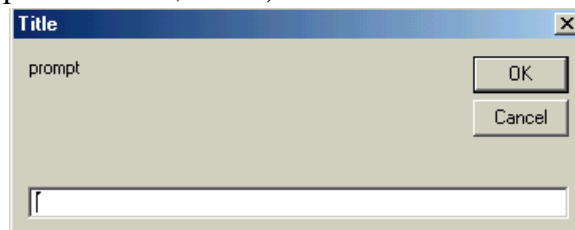
### Input - output boxes

There are two types of dialog boxes which are inputbox and messagebox. The first is used to input variable and the second to output variable or message. Both needs code and appear at run time.

a) Inputbox

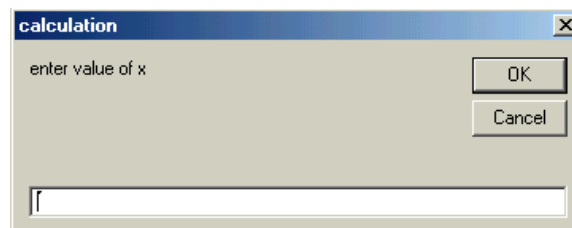
Inputbox used to input value or characters for one variable from keyboard at running stage.

This box needs a code in code sheet and could be written in any event or command  
X=inputbox(" prompt or remark", "title")



**Example:** enter value of x using inputbox

Sol:







```
Private Sub Form_Load()  
X=Inputbox("enter value of x", "calculation")  
End Sub
```

## Message box

It is used to output a message to the user (at running stage) the code needed could be written in code sheet and in any event or command.

The available icons for message box

| structure     | value | icon   |
|---------------|-------|--|
| vbcritical    | 16    |  |
| vbquestion    | 32    |  |
| vbexclamation | 48    |  |
| vbinformation | 64    |  |

The available commands for message box

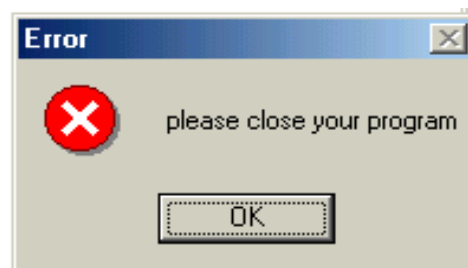
| structure         | value | Commands             |
|-------------------|-------|----------------------|
| Vbokonly          | 0     | Ok                   |
| Vbokcancel        | 1     | Ok, Cancel           |
| vbAbortRetryIgnor | 2     | Abort, Retry, Ignore |
| vbYesNoCancel     | 3     | Yes, No, Cancel      |
| vbYesNo           | 4     | Yes, No              |
| vbRetryCancel     | 5     | Retry, Cancel        |

For example if we write the following statement then a message box will be appear as shown below

```
MsgBox "please close your program", 16, "Error"
```

or

```
MsgBox "please close your program", vbcritical, "Error"
```

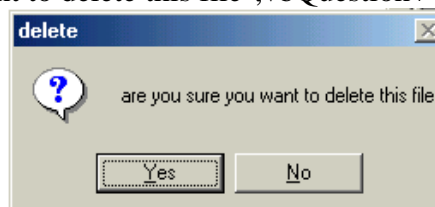


**Example:** show what appear after running the following statement  
`MsgBox "are you sure you want to delete this file", 32 + 4, "delete"`

or

```
MsgBox "are you sure you want to delete this file", vbQuestion+vbYesNo, "delete"
```

Sol:



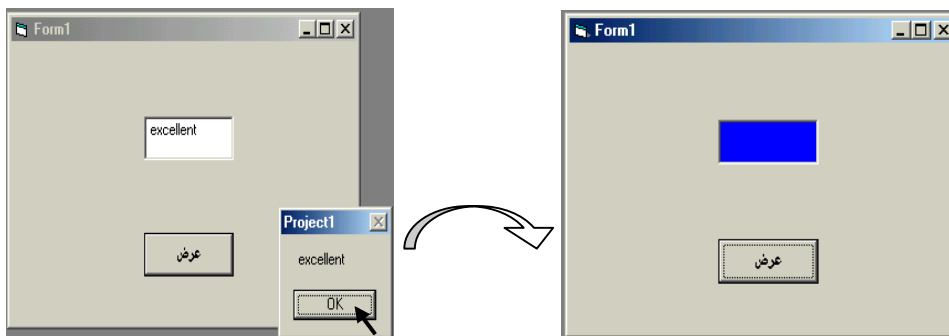
**Example:** write a program to move the text (excellent) from textbox to message box and change the color of the text after click on command button (display).

Sol:

Text1: text="excellent"

Command1: caption="عرض"

```
Private Sub Command1_Click()  
MsgBox (Text1.Text)  
Text1.BackColor = QBColor(9)  
Text1.Text = " "  
End Sub
```



Or we can write the following code:

```
Private Sub Command1_Click()  
X= Text1.Text  
MsgBox (X)  
Text1.BackColor = QBColor(9)  
Text1.Text = " "  
End Sub
```

## **Exercises**

Q1/design a form contains specific title such that when we click on command1 the color of the font will change and we click on command2 the size of the font will be change.

Q2/design a form contains shape and command buttons "what is this" such that when click on the command button the name of this shape appears in message box.

Q3/enter a text in label1 such that this text copied to label2 after click on command button "copy" and delete from label2 after click on command button "delete".

Q4/ design a form contain command button such that when we click on command, form2 will be appear and form1 will be disappear.

Q5/design a form "at run stage" the title of form1 will be change to "visual basic" and the back color of form1 will change too.

Q6/design a form with two shapes, red and blue ,write code to replace the color every between two shapes.

Q7/ design a form contain list box and two command buttons:

- 1- add: to add the element to the list from input box
- 2- delete: to delete the list elements