

Definitions:

The user interface: is the part of the program that users see and with which they interact. This user interface is composed of the screens you design by using Visual Basic's forms and controls.

The processing of information: is done by the set of statements written to add the functionality to the object.

The Storage for Information: is generally any backend Database, which is connected to frontend by any of the standard Data Control or through Designers.

Standard EXE: It is a typical Application.

ActiveX Control: Used to develop your own ActiveX controls. It is a basic element of the user interface. If the ActiveX control that comes with Visual Basic doesn't provide the required functionality then custom ActiveX controls can be building.

Controls: Reusable objects that provide the pieces of the visual interface of a program. Examples of controls are a text box, a label, or a command button.

Event: An action initiated by the user, the operating system, or the program itself. Examples of events are a keystroke, a mouse click, the expiration of a specified amount of time, or the receipt of data from a port.

Methods: Predefined actions that can be performed by an object. For example, a form has a hide method that makes it invisible to the user.

Object: A basic element of a program, which contains properties to define its characteristics, contains methods to define its tasks, and recognizes events to which it can respond. Controls and forms are examples of the objects used in Visual Basic.

Procedures: Segments of code that you write to accomplish a task. Procedures are often written to respond to a specific event. Types of procedures include Sub procedures, which consist of a sequence of statements; and Functions, which return a value.

Properties: The characteristics of an object, such as its size, position, color, or text font.

Properties determine the appearance and sometimes the behavior of an object.

What are methods and properties? (In details)

All the controls in VB except the Pointer are objects in Visual Basic. These objects have associated with properties and methods. Real world objects are loaded with properties. For example, a flower is loaded certain color, shape and fragrance. Similarly programming objects are loaded with properties. A property is a named attribute of a programming object. Properties define the characteristics of an object such as Size, Color etc. or sometimes the way in which it behaves. For example, a TextBox accepts properties such as Enabled, Font, MultiLine, Text, Visible, Width, etc. The properties that are discussed above are design-time properties that can be set at the design time by selecting the Properties Window. But certain properties cannot be set at design time. For example, the CurrentX and CurrentY properties of a Form cannot be set at the design time.

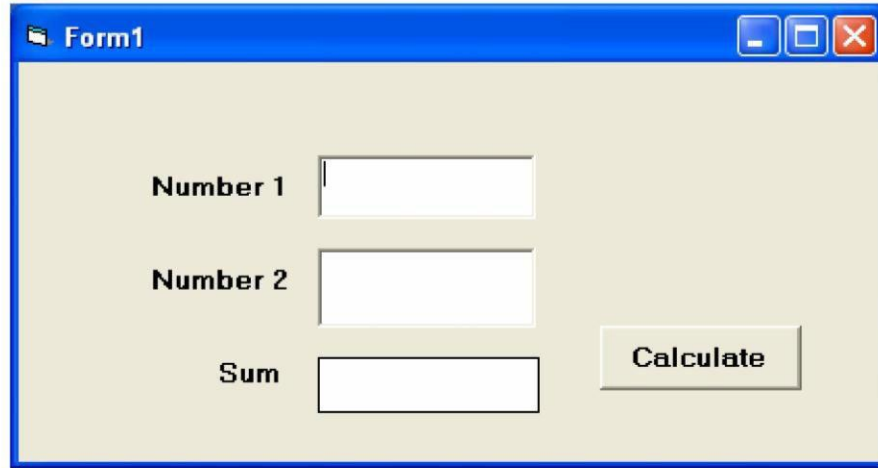
A method is an action that can be performed on objects. For example, a cat is an object. Its properties might include long white hair, blue eyes, 3 pounds weight etc. A complete definition of cat must only encompass on its looks, but should also include a complete itemization of its activities. Therefore, a cat's methods might be move, jump, play, breath etc.

Mathematical Operations:

Operator	Mathematical function	Example
+	Addition	$1+2=3$
--	Subtraction	$4-1=3$
^	Exponential	$2^4=16$
*	Multiplication	$4*3=12, (5*6)2=60$
/	Division	$12/4=3$
Mod	Modulus (return the remainder from an integer division)	$15 \text{ Mod } 4=3 \quad 255 \text{ mod } 10=5$
\	Integer Division (discards the decimal places)	$19\backslash 4=4$

Example1: Numbers Addition

Solution



Object	Property	Settings
Form1	Name	Form1
	Caption	Addition
	Font	Bold and Size 14
Command Button1	Name	Command1
	Caption	Calculate
	Font	Bold and Size 14
TextBox1	Name	Text1
	Text	Blank
TextBox2	Name	Text2
	Text	Blank
TextBox3	Name	Text3
	Text	Blank
	Font	Bold and Size 18

The Code

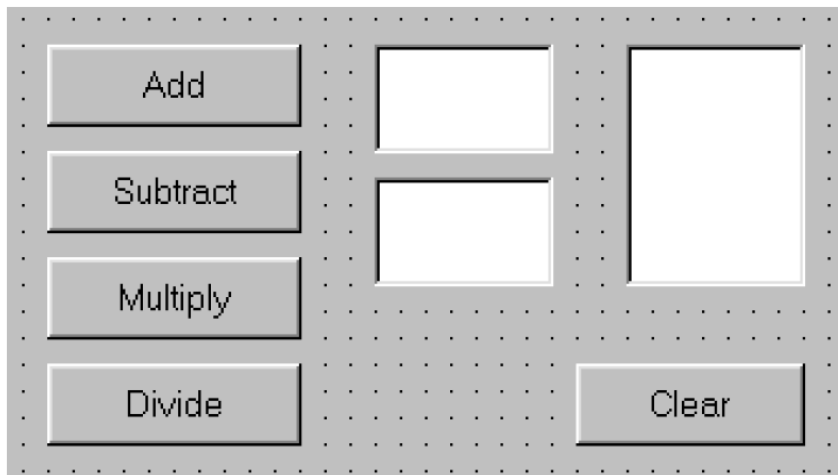
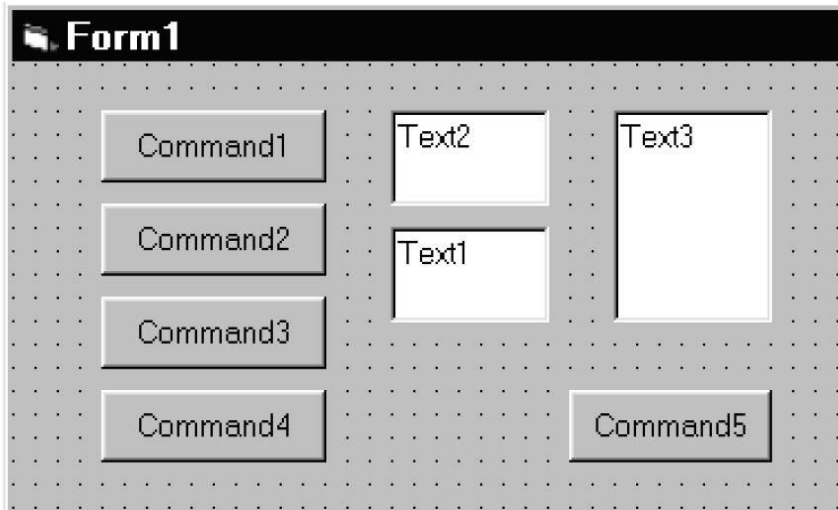
Command Button1:

Private Sub Command1_click ()

Text3.text= Val(Text1.Text) +Val(Text2.Text)

End Sub**Run****Example2:** Construct a simple calculator (+ , - , x , /) using Visual Basic6

Solution:



Object	Property	Settings
Form1	Name	Form1
	Caption	Calculator
	Font	Bold and Size 14
Command Button1	Name	Command1
	Caption	Add
	Font	Bold and Size 14
Command Button2	Name	Command2
	Caption	Subtract
	Font	Bold and Size 14
Command Button3	Name	Command3
	Caption	Multiply
	Font	Bold and Size 14
Command Button4	Name	Command4
	Caption	Divide
	Font	Bold and Size 14
Command Button5	Name	Command5
	Caption	Clear
	Font	Bold and Size 14
TextBox1	Name	Text1
	Text	Blank
TextBox2	Name	Text2
	Text	Blank
TextBox3	Name	Text3
	Text	Blank
	Font	Bold and Size 18

Command Button1:

Private Sub Command1_click ()

Text3.text= Val(Text1.Text) + Val(Text2.Text)

End Sub

Command Button2:

Private Sub Command2_click ()

Text3.text= Val(Text1.Text) - Val(Text2.Text)

End Sub

Command Button3:

Private Sub Command3_click ()

Text3.text= Val(Text1.Text) * Val(Text2.Text)

End Sub

Command Button4:

Private Sub Command4_click ()

Text3.text= Val(Text1.Text) / Val(Text2.Text)

End Sub

Command Button5:

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Private Sub Command5_click ()
```

```
Text1.text=""
```

```
Text2.text=""
```

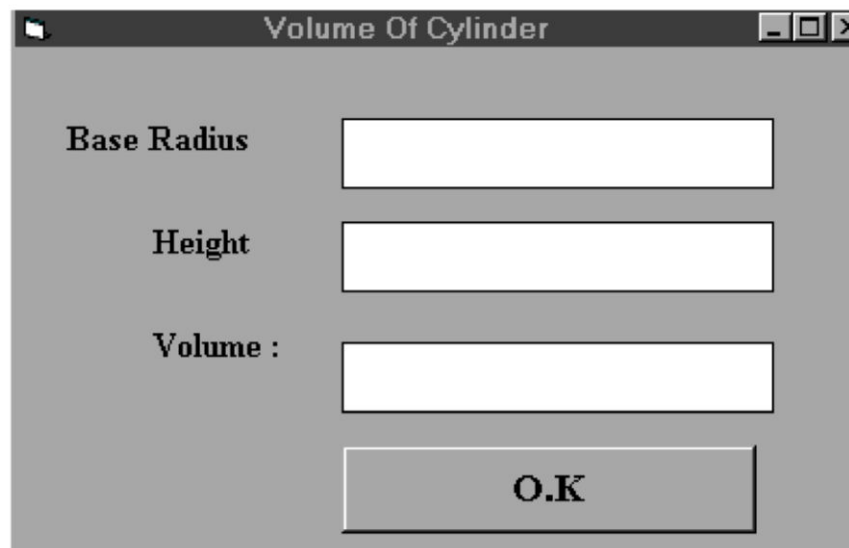
```
Text3.text=""
```

```
End Sub
```

Run

Training:

Example3: Design a form to calculate Volume Of Cylinder, includes Form Object
Command Button Object, Textbox Objects, Label Objects



The screenshot shows a window titled "Volume Of Cylinder" with a standard Windows-style title bar (minimize, maximize, close buttons). The window content is a gray form with three text boxes arranged vertically. The first text box is preceded by the label "Base Radius". The second text box is preceded by the label "Height". The third text box is preceded by the label "Volume :". Below the text boxes is a single button with the text "O.K." centered on it.

Object	Property	Settings
Form1	Name	Form1
	Caption	Volume Of Cylinder
Command Button1	Name	Command1
	Caption	OK
	Font	Bold and Size 14
TextBox1	Name	Text1
	Text	Blank
TextBox2	Name	Text2
	Text	Blank
TextBox3	Name	Text3
	Text	Blank
	Font	Bold and Size 18
Label1	Name	Label1
	Caption	Base Radius
	Font	Bold and Size 18
Label2	Name	Label2
	Caption	Height
	Font	Bold and Size 18
Label3	Name	Label3
	Caption	Volume
	Font	Bold and Size 18

The Code

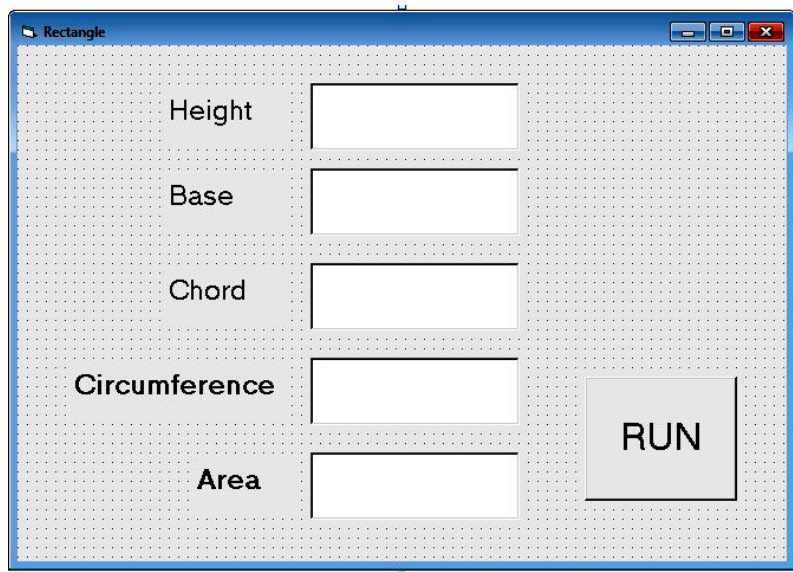
Command Button1:

Private Sub Command1_click ()

Text3.text= Val((Text1.Text)^2) * 3.14 *Val(Text2.Text)

End Sub**Run**

Example4: Create a Visual Basic Project to find the Circumference and Area of any Triangular shape.



Object	Property	Settings
Form1	Name	Form1
	Caption	Rectangle
Command Button1	Name	Command1
	Caption	RUN
	Font	Bold and Size 24
TextBox1	Name	Text1
	Text	Blank
TextBox2	Name	Text2
	Text	Blank
TextBox3	Name	Text3
	Text	Blank
TextBox4	Name	Text4
	Text	Blank
TextBox5	Name	Text5
	Text	Blank

Label1	Name	Label1
	Caption	Height
	Font	Size 18
Label2	Name	Label2
	Caption	Base
	Font	Size 18
Label3	Name	Label3
	Caption	Chord
	Font	Size 18
Label4	Name	Label4
	Caption	Circumference
	Font	Bold and Size 18
Label5	Name	Label5
	Caption	Area
	Font	Bold and Size 18

The Code

Command Button1:

Private Sub Command1_click ()

Text5.text= Val(Text1.Text) + Val(Text2.Text) + Val(Text3.text)

Text4.text= Val((Text2.Text) / 2) * Val(Text1.Text)

End Sub**Run**

Questions:

- 1) Design Visual Basic program to calculate the average value of three numbers.
- 2) Find the square of a real number using Visual Basic.
- 3) Calculate $y=x^2+4\div 2$ by Visual Basic.

H.W

By Visual Basic find:

1.
$$\frac{5y}{x^2 - 4} + x - 1 = z$$
2.
$$\sqrt[4]{16} + 3^3 + 10 - 5 \times 4 \div 3^2 - 2^3 = y$$