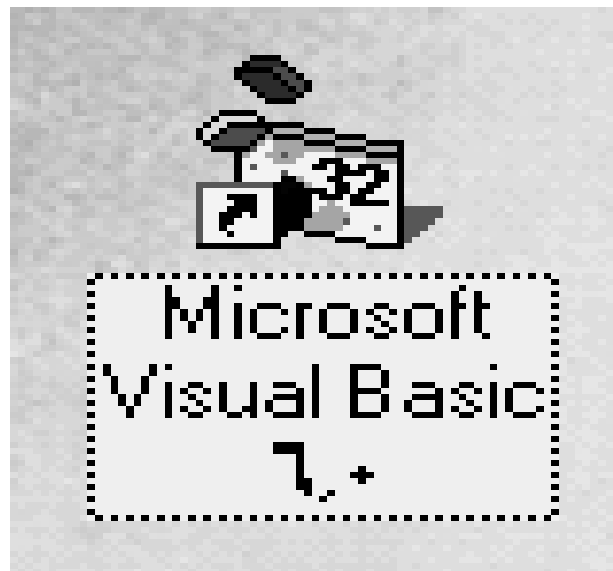كلية المأمون الجامعة

قسم هندسة تقنيات القدرة الكهربائية

المرحلة الثانية

Computer Application and programming

Microsoft
Visual Basic
# 6.0

Applied Science
Second class

1. Introduction

Visual Basic implements graphical user interface that allows the use of graphics for different applications. It provides visual interactive windows with user, like Dialogue box for (color, font ...), Input box, and Output box. Also it is able to create menu to simplify user application.

To run this program on user computer:
Start>programs>Microsoft Visual Studio 6.0>Microsoft Visual Basic 6.0.

It will appear on the computer screen as in the following picture.
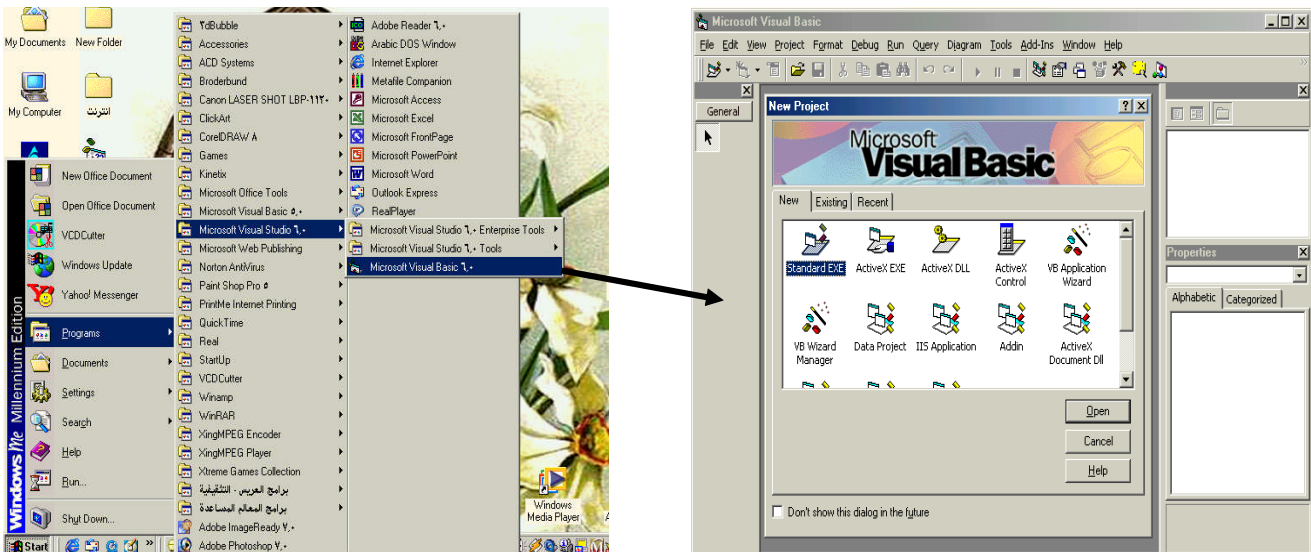
To exit from Visual Basic and return to Windows is like exit from most Windows applications. There are three ways to close the Visual Basic as stated below.
1- Click on close button icon that appears in the upper-left corner of the screen.
2- Press Alt+F4
3- Select File >Exit

1.2-The Importance of Visual Basic Program

Languages like Basic and Pascal depend on variables and procedures to build the applications .This is why it is called procedural languages. The new approach is called object programming for visual programs like Visual Basic and Visual C++ and others. In this programming approach every thing (form, command buttons, controls) is an object.

The reasons for of implementing Visual Basic program are listed as follows:
1- It uses integrated development environment (IDE) which is easier for the user to minimize code writing.

2- All visual programs follow the same concepts, therefore the user will become more familiar with visual approach for other visual languages.

3- It provides Input box and Output box as an interactive windows with user.

4- It is able to connect to Internet, and to call Explorer.

1.3- Elements of the Integrated Development Environment (IDE)

The IDE environment consists of many elements. Some elements are displayed when Visual Basic is started (By default) as in the following figure. Other elements are displayed if the user requires them. We will list some of these elements.
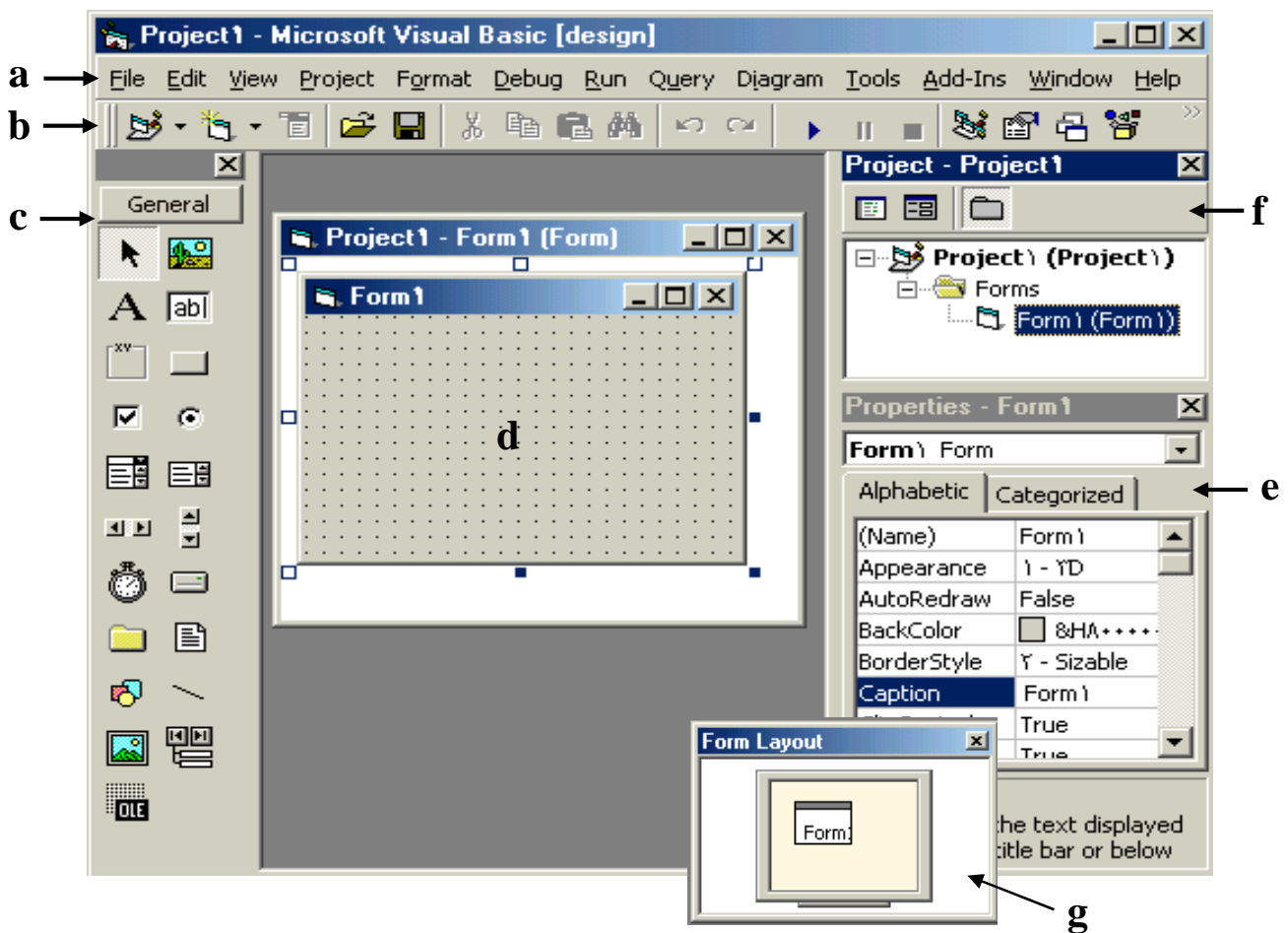
a- Menu Bar: It contains a standard command like: File, Edit, View, Window, Help menus, and specific command such as: Project, Format, or Debug menus.

b- Toolbar: it contains the most commonly used commands (button), if clicked an action represented by that button is carried out.

c- ToolBox: it contains a collection of tools that are needed for project design.

d- form Designer: it is a window for each form to customize the designed interface of the application. Using the form designer, the user can add controls, graphics, and text to create the desired form appearance.

e- Properties Window: it is a List of properties settings for a selected form or a control. These properties are characteristics (such as size, visible, or color) of the selected object it provides an easy way to set properties.

f- Project Explorer Window: it is a list of the forms and modules for the current projects. lt is a hierarchical tree- branch structure, where the project at top of tree and other parts like forms ,modules) descend from this tree.

g- Form Layout Window: The Form Layout window is a small screen. Which is used to reposition the form of the application so that it appears in proper place when project is run.

h- Code Editor Window: Code Editor Window is used to write a VB code for an application. For each form there is a separate code editor window. It is displayed when user clicks on form or object in form.
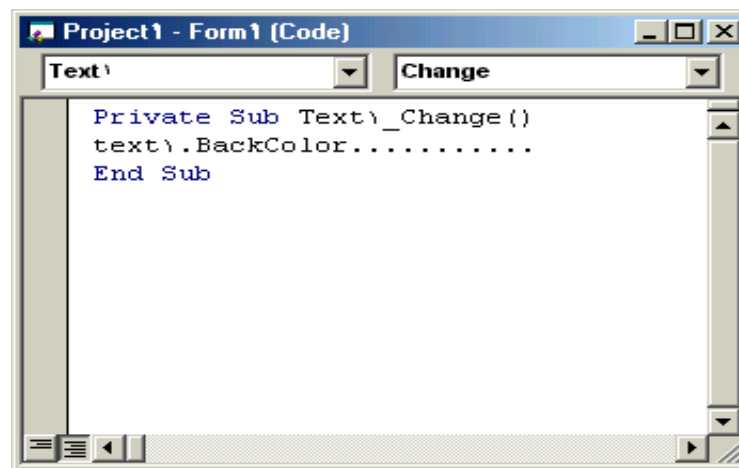
To Create an Application

The title of program includes the name of project, and when the user first starts the program it takes a defaulted value (projectl).It also includes resize

icons. The following steps are required to create an application in Visual Basic 6.0:

1- Select type of project New or Exciting. A form automatically appears in the form design .The basis for any application's interface is the form that user should create. User can add other forms to the project (to add another form select project menu>add form).

2. To add objects (controls) to the form use the ToolBox.

3. Set the properties for the objects through properties window.

4. Write code. The Visual Basic Code consists of statements, and declarations.

   The code for an application can be written on the Code Editor window. In this window user can view and edit quickly any of the code.

5. Run the Application. To run the application, click the Start button on the toolbar, or press F5.

6. Stop. To stop running the application and return to visual basic program click on stop button in tool bar.

7. Check if there is an error, return to step 3 ,otherwise continue.

8. Save project.

9. Exit.

Exercises

1-Define the following parameters:

a-Toolbar.

b-ToolBox.

 c-Form designer,

d-form layout.

 e-project window,

f-properties window.

i- code editor window,.

2- Explain the advantage of the Visual Basic program.

Project

Project is a program designed to user application that may be simple (like calculator program) or complex (like word program). Visual basic program can create many types of projects. The most important or usual project is the standard project (for window applications) and the DHTML project (for internet).
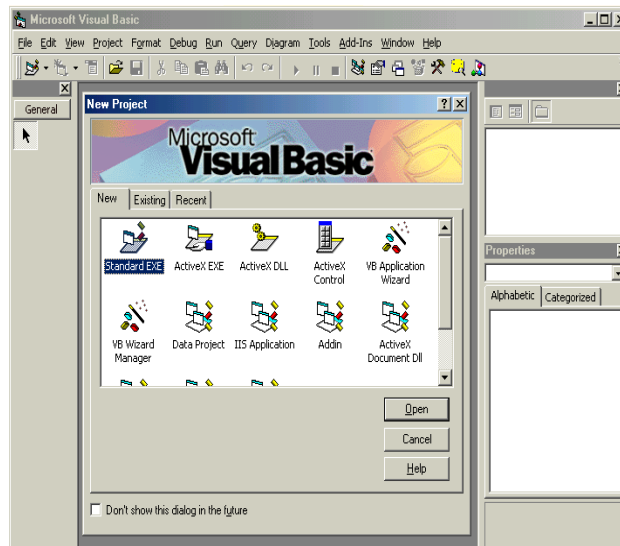
Working with Standard Projects:

The following working steps (create, save, add, open and delete) could be done:

a) To create project:

When program starts, project box appears-select Standard EXE > Project window appears.
OR: File> New project> Box (select Standard EXE)> Project window appears

b) To add project: Any number can be added.
Project icon> Select Standard EXE> Project window appears.

Note: Usually first project runs first, but user can change that by:
Selecting project from project window > mouse list > Set as startup.

c) To open an existing project:
It is previously designed and saved on disc in a folder.
File> Open project> Box (select existing and look for the project) > Project window

d) To delete a project:
Select project in Project window > Mouse list > Remove project.

e) To save project:
The visual basic can save the project on disc in two ways, as an executable type or a non- executable type.

I- for project in non execution stage:
There are many types of files summarized as follows:

1- Project file: it consists of all files which are related to specific project, also some other information with it. This could be saved with extension (.VBP)

2- The form Files: this contains form description and any Object or program related to it .This is saved with extension (.frm).

To save project for first time:
File>Save project (group) as>Box (project name)> forms saved then projects group saved.

To resave project: to save previously saved project in same place
File>save project (group)

Note: If a form is modified it should be saved. To save a form:
Select a form from Project window>File>Save project form1 as > Save box (select form name). OR: File>Save project forml.

II- project for execution: This is the final stage so that it could be opened and run by Windows and no need for Visual Basic program. File> Make project.exe.

| Item		Action steps	Remarks
Create project	New	File>New project	The user can open any number of projects.
	Exist	File>Open project	Project was already designed and saved.
	Recent	File>Open project	Project was recently designed and saved.
Save project		File>Save project group as	Visual Basic can deal with it (open and modify).
		File>Make projectl.exe	For execution by window.
Delete project		File> Remove project	Select project before remove.

Forms
1) Introduction to form
The form is the most important visible object,without it no control can be displayed. It is a window that can be designed and modified to fit user applications. In the standard project the form Designer creates and modifies visual forms .When user starts visual Basic program a form is automatically displayed in Designer window. The designer can add any number of forms to the project of his application by pressing: add form from project menu.
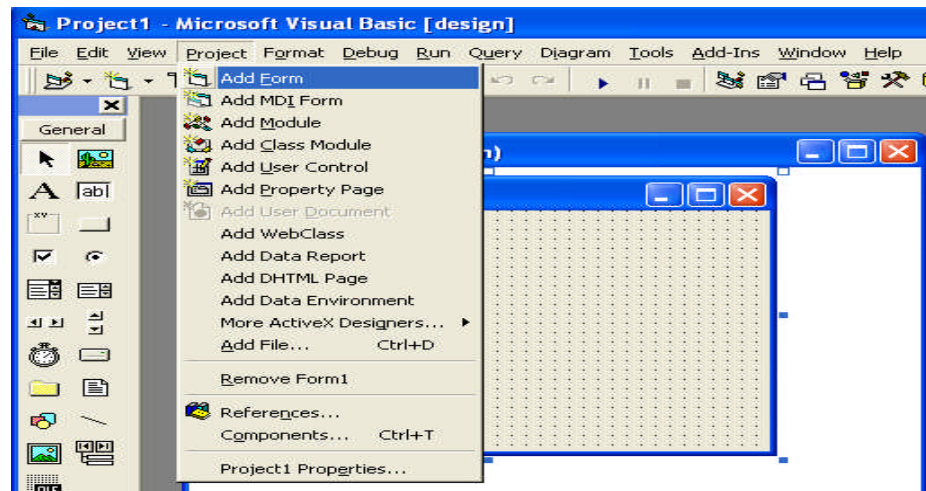
There are two modes: design mode and running mode. User can interchange between them, by pressing on start icon or stop icon on tool bar.
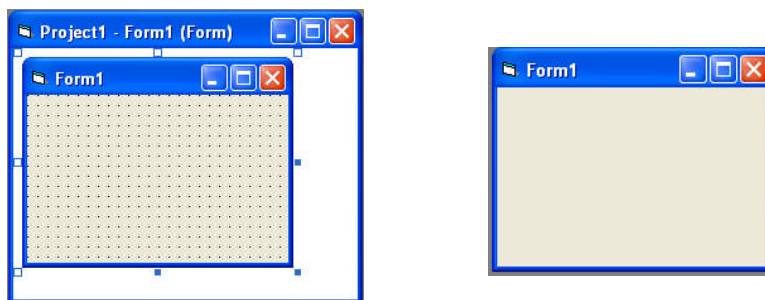
The forms also have properties and events.

2) Form properties
Properties list has a predefined value (numeric or string) and could be changed, some properties could be rewritten like caption, and some could be selected from option list by pressing on down arrow on the side.

Others could be rewritten or by browsing the computer files when the user clicks on the dotted button on the right side a dialogue box

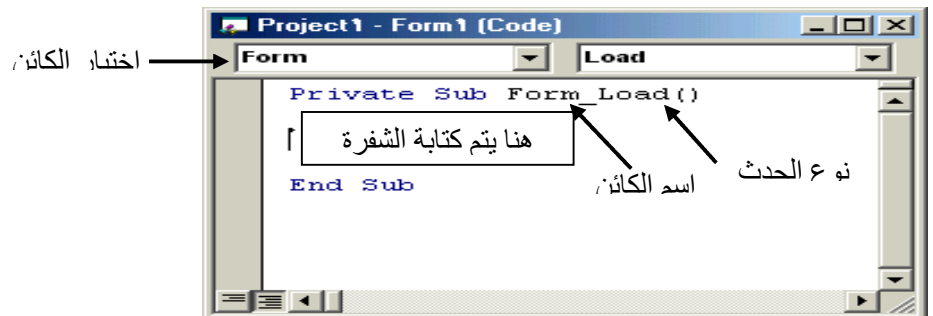appears. The browsing button appears when the user clicks inside the box.

The most important properties of the form are listed in the following table:

Property name	Objective	code	Stage of Changing
Name	Used to represent name of form in code		Design
Caption	String appear in title of form	$Form_{no.}$.caption= "any name"	Design and run
Backcolor	Background color for form.	$Form_{no.}$.Backcolor=Qbcolor(no.)	Design and run
Forecolor	Color of text written on form.	$Form_{no.}$.forecolor=Qbcolor(no.)	Design and run
Font	Font style, type and size.	Size: $Form_{no.}$.fontsize= no. Style: $font \begin{cases} italic \\ bold \\ underline \end{cases}$ Type: Form1.FontName = "arial"	Design and run
borderstyle	0-None borderless and captionless 1-Fixed Single a nonresizable form 2-Sizable (default), creates a resizable window, 3-Fixed Dialog: nonresizable form without Minimize and Maximize buttons 4-Fixed Tool window for a floating toolbox like form, 5-Sizable Tool window		Design
Enabled	The tools enable or disable.	$Form_{no.}$. Enabled =true or false	Design and run
Min button Max button	=true. The Minimize and Maximize buttons are enabled. =false. The Minimize and Maximize button are disabled.	Form1.MaxButton = True or $\qquad$ = false Form1.MinButton = True or $\qquad$ = false	Run
Start up position	0- Manual ,use form layer window to position Form 1- Center owner 2- at Center Screen 3- Windowdefault.		Design
movable	True or false to make form movable or unmovable		Design
Hide	To hide the form	$Form_{no.}$.hide	Run
show	To show the form	$Form_{no.}$.Show	Run
icon	Change the icon on title bar of form (the icon must have the extension ico or cur)		

3) Code form

The code is written in code Form and it will be edited quickly by code editor .The codes are of two categories:

1- Declaration is written before any procedure in the code

2- Statements. The user selects the required event then code statements are written inside these event procedures.

اختيار الكائن ⟶

```
Project1 - Form1 [Code]
Form                    Load
    Private Sub Form_Load()
        هنا يتم كتابة الشفرة
    End Sub
```

نو ع الحدث   اسم الكائن

5) Events:

Events are like electrical switches. The electrical switches are of many types, so are the events.

The forms and controls support events (generation, interaction with mouse and keyboard). The most important events for the form are described in the following table.

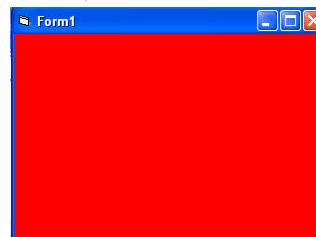| Event	Action taken when
Click	Single click on object.
DbClick	Double click on object.
load	Loading the object

Examples:

1- Design a form such that: in event load, when project runs, the form backcolor property changed (chose any color).
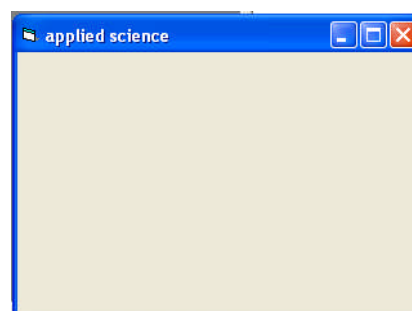
sol:

code:

```
Private Sub Form_Load()
Form1.BackColor = QBColor(12)
End Sub
```

2- Design a form such that: in event click on form, when project runs, the title of the form changed to applied science.

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Exercises:

Q1/ Design a standard project has three forms with backcolors red, blue and green.

Q2/ design a standard project that has one form change the name from form1 to "students"

Q3/ Create a standard project with one form the name of the project "market seals" and the name of the form "stock markets" and save project on desktop with name marketing .exe

Q4/ Design a standard project with four forms when running project all forms appear on screen Note :use this code in form1 (form1.show, form2.show, form3.show, form4.show)