



First Term

Chapter 1

problem Solving

What is problem?

The problem is defined as the objective or the specific output that we want to attain; through a sequence of steps and activities and, specific input.

Ex: Baking a cake

Input: Ingredients (eggs, flour, milk,.....etc)

Procedures: Mixer

Output: The cake.

How to solve problems?

1. Problem Definition.
2. Perform Algorithm.
3. Program design.
4. Program Testing.
5. Program documentation.

- **Problem definition**

Means identification of inputs, outputs and operations.

- **Algorithm**

is defined as group of logically arranged procedures to be executed to attain a goal.(Flow Chart)

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- **Program Design**

Converting flow chart or algorithm into programming language.

- **Program testing**

Detecting errors and correct them.

- **Program documentation**

Write every thing about the program input, output, steps to solve this problem, people who this program dates of update.




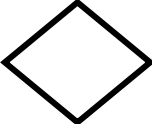
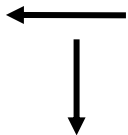


Flowchart

What is Flowchart?

Flowchart is a diagram that uses standard graphical symbol to make the steps required to solve problem.

Flowcharts are usually drawn using some standard symbols which are frequently, required for flowcharting many computer programs are below:

Shapes					
Shapes' name	Terminal	Input / output Read / Print	Process	Decision	Flow line
Function	Start & End	Used to input & output	Input the arithmetic process	Choose events & condition of answer Yes & No	Communication lines of the flowchart

Advantages of flowchart

- 1- Simplifying the explanation of solution steps to others.
- 2- Effective analysis for equation.
- 3- Proper documentation to the program.
- 4- Help in writing program in efficient method.
- 5- Help in finding out errors.
- 6- Efficient maintenance.

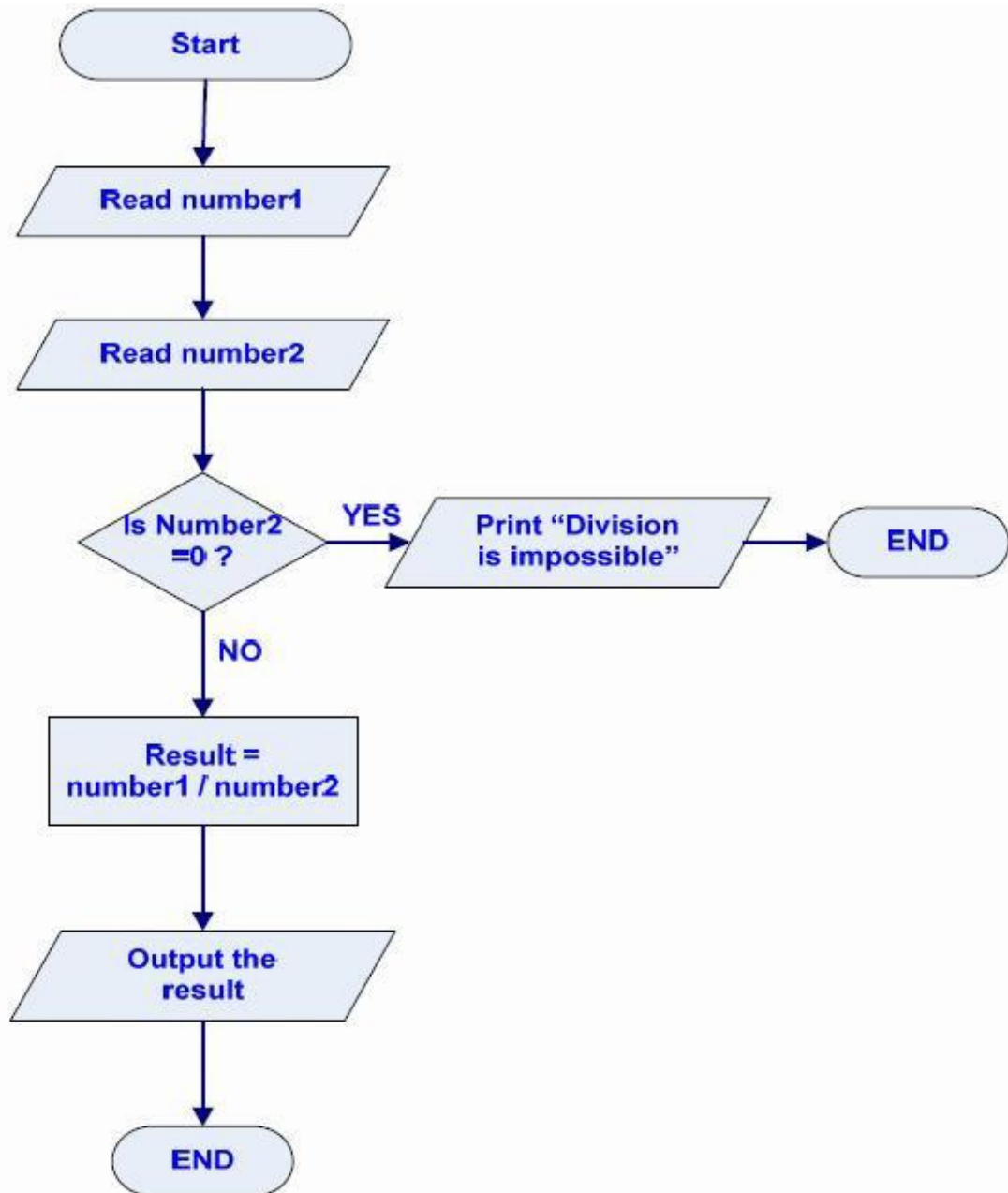
Disadvantages of flowchart :

- 1- Complex logic.
- 2- Modifying the program required re-drawing.
- 3- More details.



Ex-1

Draw flowchart to represent the process of reading two numbers, dividing them, and then displaying the result.



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Important Notes:


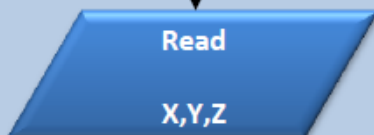
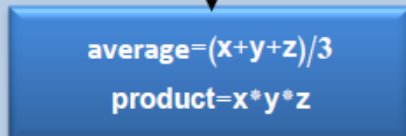
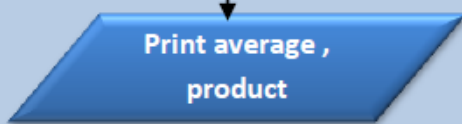
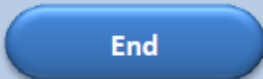
Flowchart should start with .

Input and output should be written inside .

Processing should be written inside .

Conditions should be written inside .

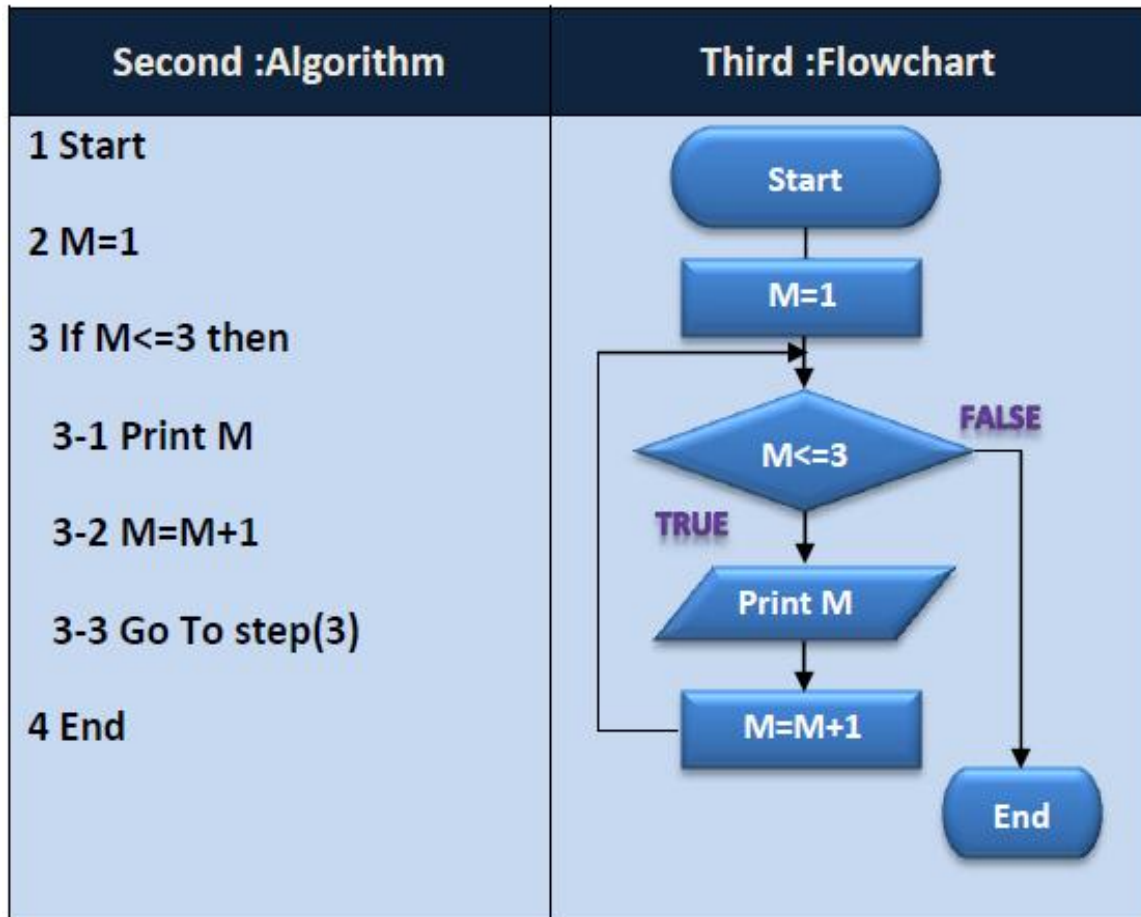
EX2: Algorithm and Flowchart to compute the average and Product of three numbers

Second :Algorithm	Third :Flowchart
1 Start	
2 Read the values of X,Y,Z	
3 Average $= (X+Y+Z)/3$ and Product $= X*Y*Z$	
4 Print the Average and the Product	
5 End	



The use of Loop in Flowchart:

EX3: Algorithm and Flowchart to print the numbers from 1 to 3



Remember that:

Significance	symbol
(Terminal)	
(Input/Output)	
(Process)	
(Decision)	
(Flow Lines)	



Chapter 2

Introduction to Visual Basic.Net

What is Visual Basic.Net?

Visual Basic is one of the languages that develop windows and web applications.

What is Programming Languages?

is a set of rules symbols and special words you can use to write instructions to make a computer program.

Note

Programming language is converted into machine language. Computer executes only commands written in machine languages.



What is .Net Framework?

is like the central nervous system to all Visual Basic.Net applications, it's a platform.

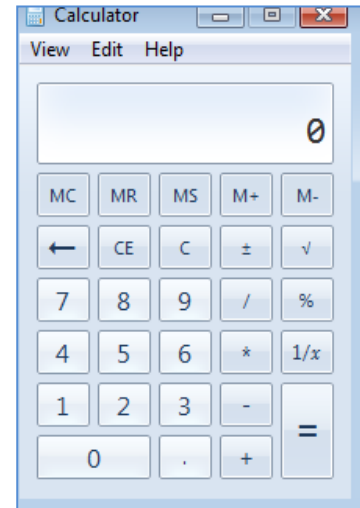
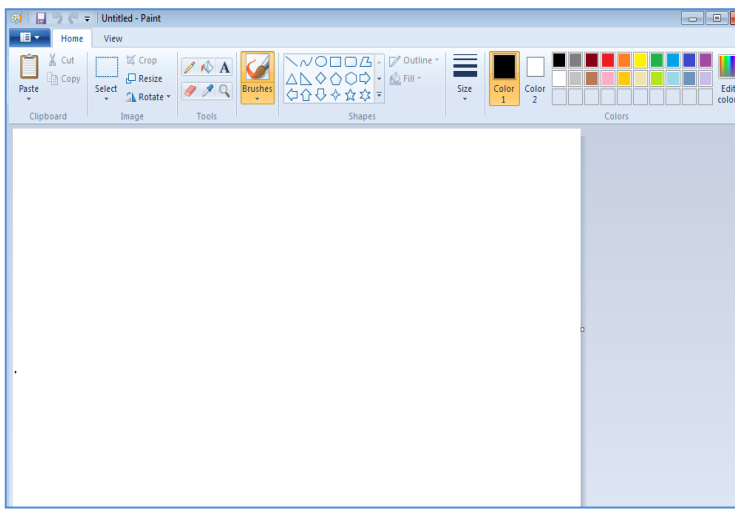
What can .Net Framework enable us to do?

Develop windows, web and mobile application.
Provide a development environment for running these applications.



What can we do with Visual Basic.Net?

VB.Net is used to create windows applications which have (GUI)
like paint, Calculator and internet browser.



What does "Windows application are event driven " mean?

it means that when you do an action a task will be executed.
like calculator program.

What does "Visual basic.Net is an object oriented programming" mean?

visual basic .Net depends on objects like (button, comboBox)

What is an object?

An object is the basic element in object oriented programming;
it is created from a defined class.

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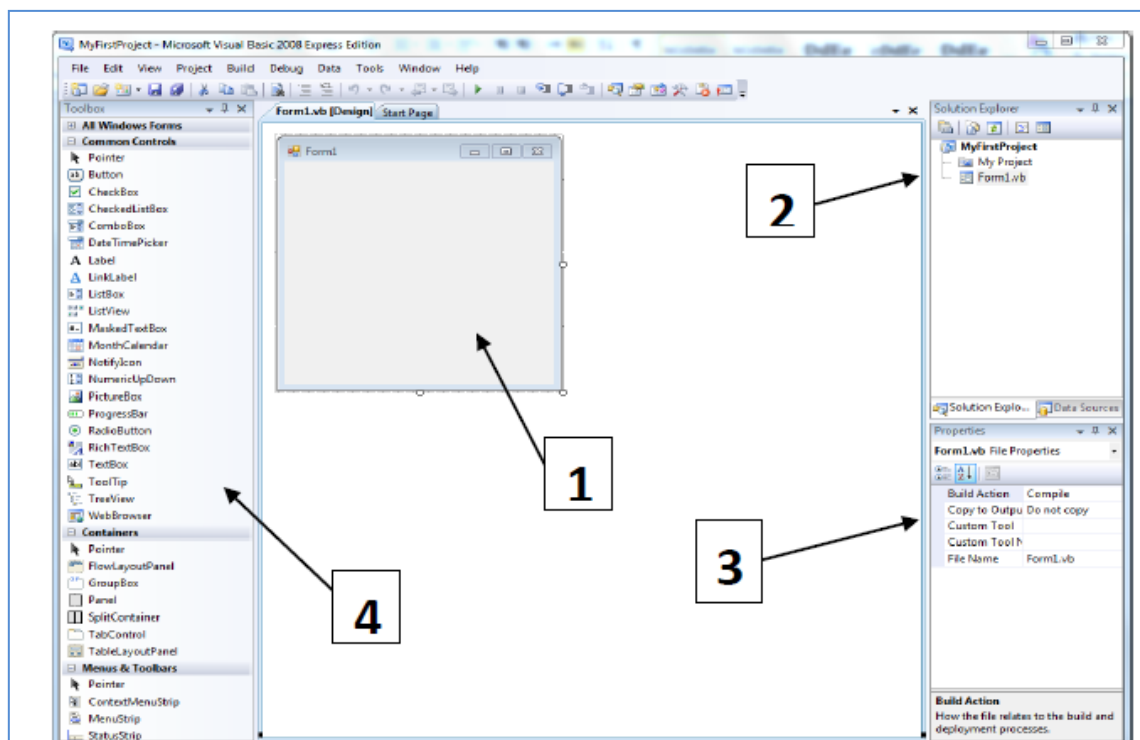
What is Class?

is a template that describes the details which any object takes.

What is IDE?

IDE is "integrated development environment" where we can make windows application, Mobile application and web application.

IDE Consists of:

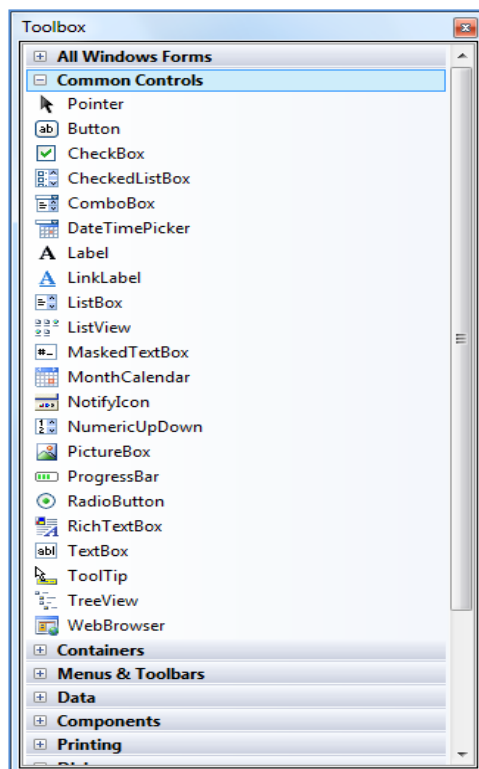


IDE Window

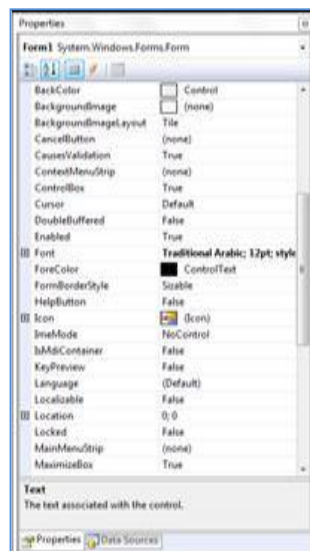
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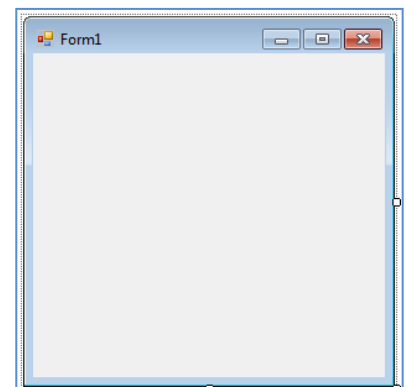
1. Form.
2. Solution Explorer.
3. Properties Window.
4. Tool Box.



**Tool
Box**



**property
window**



Form



How can we create a new Project?

1. File
2. New project
3. Windows Form Application

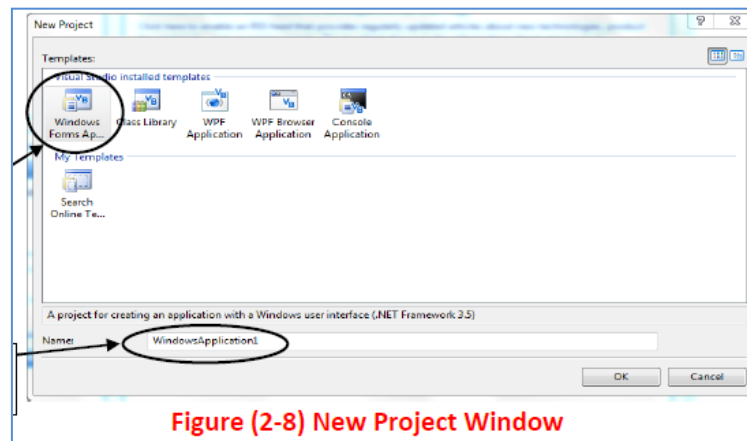


Figure (2-8) New Project Window

How can we add a new form?

1. Project
2. Add windows Form
3. Select Windows Form

How can we save a Project?

1. File
2. Save all
3. Press save



Chapter 3

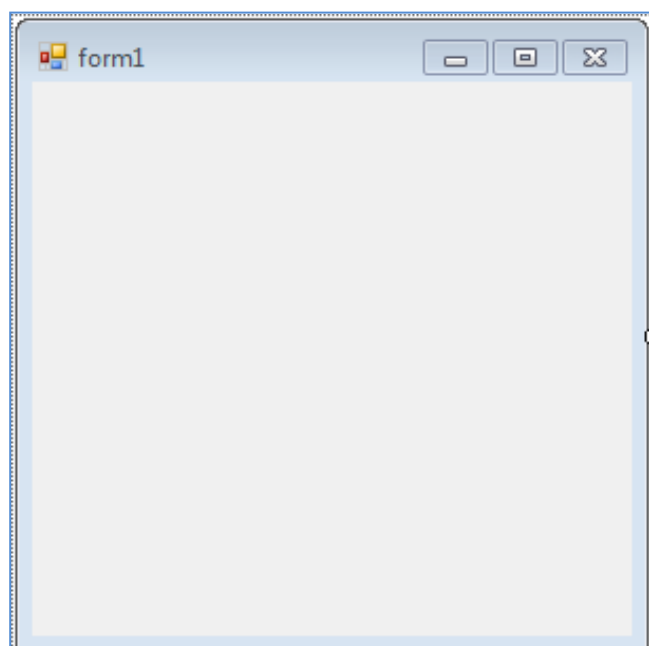
Controls

Important notes:

1. Some properties (such as: Text – Name – Forecolor – BackColor – RightToLeft.....etc.) are common to most controls.
1. Some properties will not be applied to controls placed on a form; unless we set other properties to these controls like (RightToLeft) and (RightToLeftLayout).
2. Controls placed on a form will have, by default, some of the properties as the form. We can say that controls inherit some of the form's properties e.g. (Font) and (ForeColor).

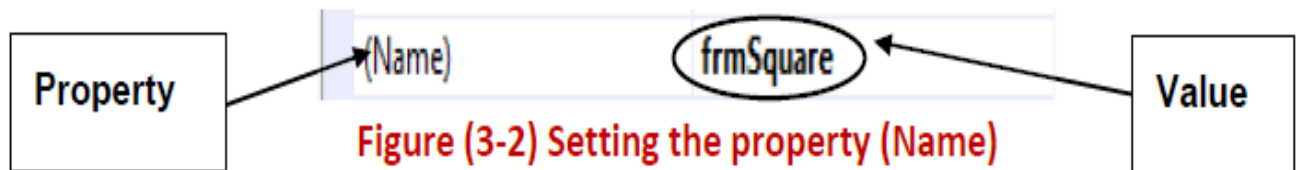
Controls and properties:

1. Form



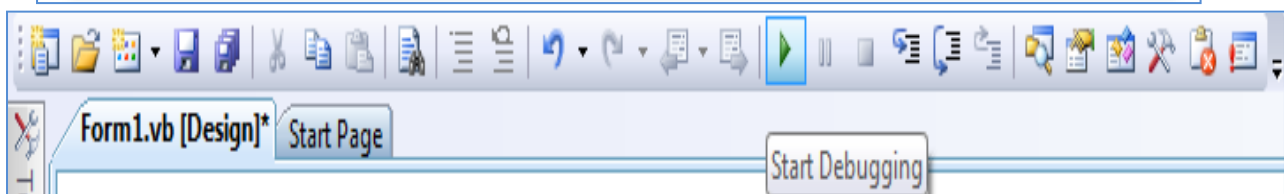


1. The column to the left is the properties list, such as Property (Text).
2. The column to the right is the setting list, which provides the current value assigned to the property; such as (Form1).



• Notice That:

- The Property (FormBorderStyle) takes many values .The value (Sizable) makes it possible to control the Form' size; through its borders.
- When you adjust any Property of the properties stated before; its effect is shown on the Form immediately.
- There are some properties, where their effects on the Form or on other controls will be active, only if you start running the program (Run mode) or at the (Start Debugging mode).
- You can initiate the (Start Debugging mode) by clicking on the (Start Debugging) icon on the Standard Toolbar **as shown in figure (3-17).**





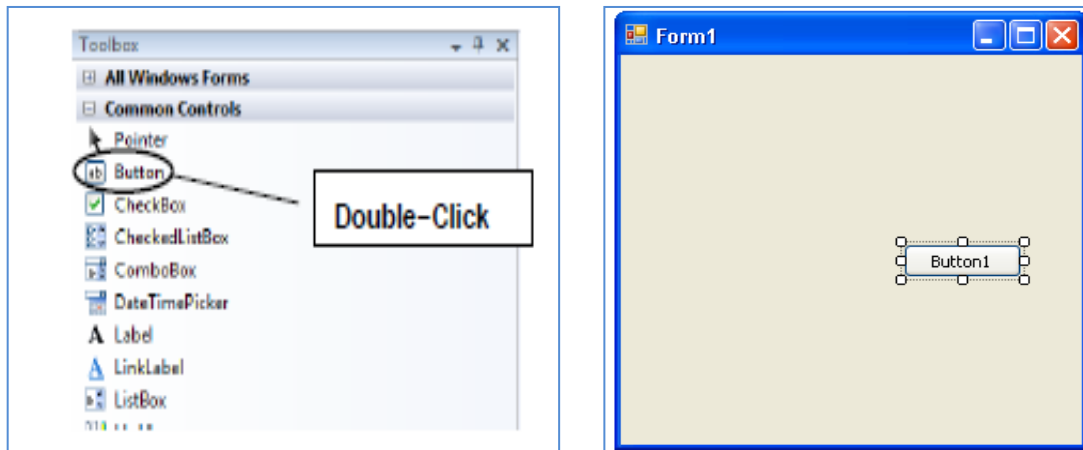
- **Properties displayed after debugging like:**
 1. ShowInTaskbar
 2. StartPosition
 3. WindowState
- **Form properties and their Functions:**

No.	Property	Function
1	Name	Name of the Form used in the code.
2	Text	Text appearing on the title bar of the Form.
3	FormBorderStyle	The Border outline of the Form's window.
4	BackColor	The background color of the Form's window.
5	WindowState	Determine the size of the window on the screen, whether maximized or minimized or normal.
6	ControlBox	Enable or disable (hide) the Control box appearance in the window.
7	MinimizeBox	Enable or disable (hide) the appearance of the Minimize Button in the window.
8	MaximizeBox	Enable or disable (hide) the appearance of the Maximize Button in the window.
9	ShowInTaskbar	Enable or disable (hide) the appearance of the Form icon on the (TaskBar).
10	StartPosition	Locate the Form's window on the screen.
11	RightToLeftLayout	Determine whether the Layout direction of (Controls) on the (Form) is from right to left.
12	RightToLeft	Determine whether the writing direction of (Controls) on the (Form) is from right to left ;such as the text direction in the (TextBox) .



2. Button:

A Button is one of the (Controls) that can be drawn on the (Form) .A user will use a button by clicking on it to perform a specific task.



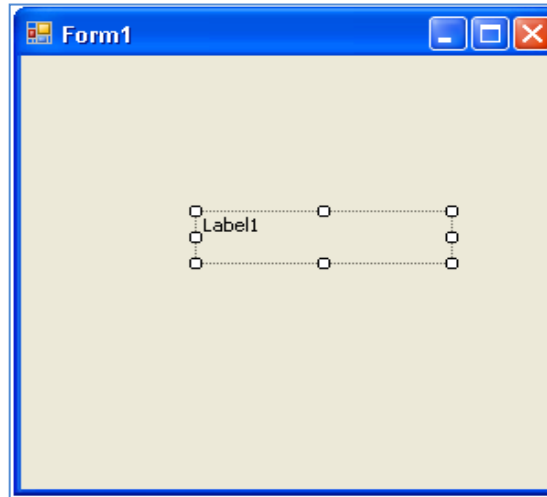
• Button properties and their Functions:

No.	Property	Function
1	Text	The text on the (Button).
2	ForeColor	The foreground color for the text on the (Button) or its (Font color).
3	BackColor	The background color for the (Button);(background color).
4	Font	The text's (Font, Size and Style) on the (Button).
5	Location	The location of the (Button) on the Form's window.
6	Size	The height and width of the (Button) on the Form's window.



3. Label

A Label is a control used to provide the user with information.



NOTICE

- If the AutoSize property is set to False, you can manually adjust the size of the label.
- If the AutoSize property is set to True, the label size is automatically adjusted to fit the text displayed on the label.

Label properties and their Functions:

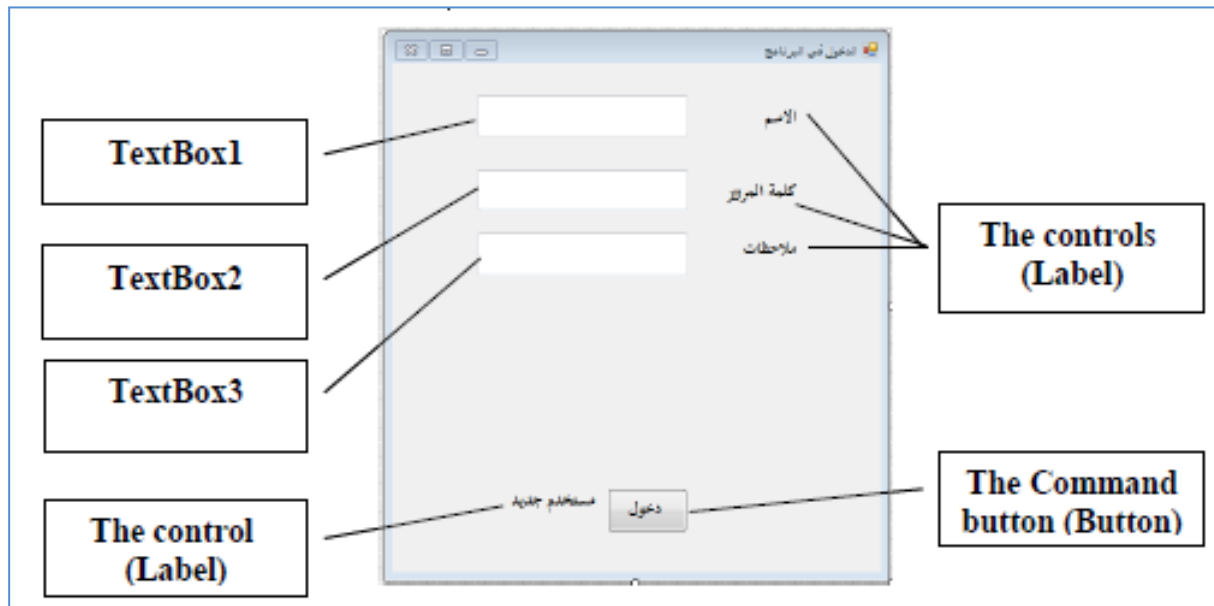
No.	Property	Function
1	AutoSize	Specifies whether the size of the control (Label) is automatically adjusted by text written
2	BorderStyle	Specifies the border style of the control (Label)

Property	Value
Name	lblResult
Text	"النتيجة:"
ForeColor	Choose your favorite color
BackColor	Choose your favorite color
Font	Choose the font's type, style, and size you prefer.
AutoSize	False
BorderStyle	FixedSingle

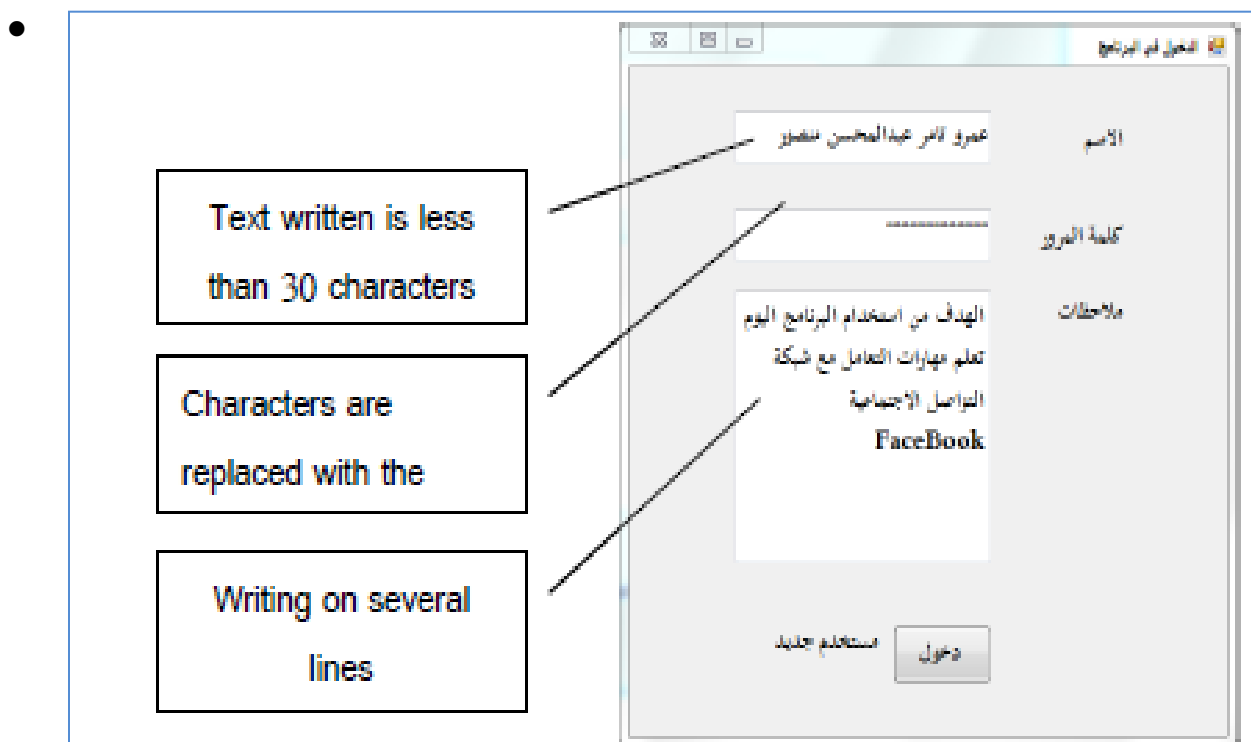


4. TextBox

A TextBox control can be used for both entering data and displaying results.



Example:





TextBox properties and their Functions:

Property	value
MultiLine	True

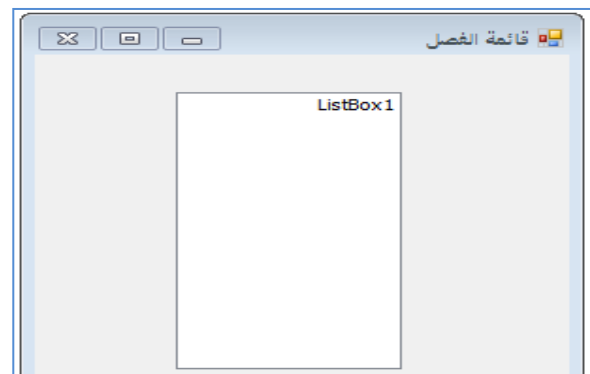
Property	value
MaxLength	30

Property	value
PasswordChar	*

No.	Property	Function
1	MaxLength	Specifies the maximum number of characters that user can write in the (TextBox) .
2	PasswordChar	Specifies the symbol that will be displayed instead of the text written; as example: creating a Password.
3	MultiLine	Determines whether the (TextBox) control allows multiple lines.

4. ListBox

A Listbox control is used for displaying a list of items.



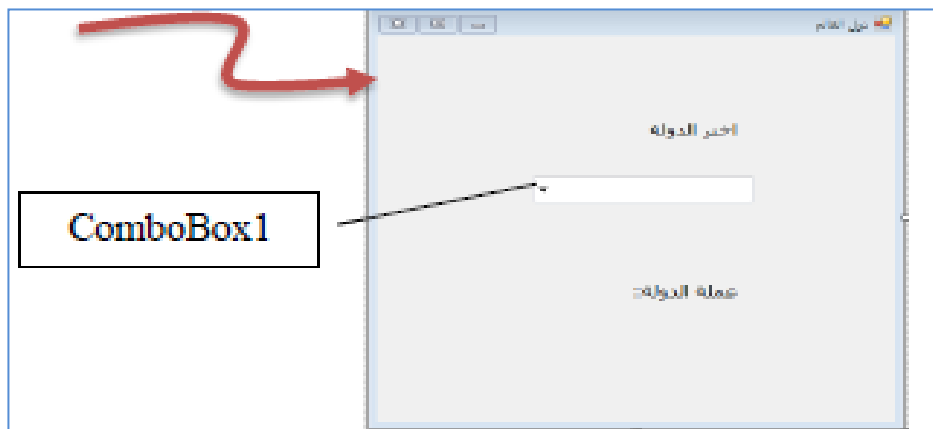


• ListBox properties and their Functions:

No.	Property	Function
1	Items	Presents a set of items displayed in the (ListBox)
2	Sorted	Specify whether the items are arranged or not
3	SelectionMode	Determine whether it is possible to select one or more item displayed in the (ListBox).

5.ComboBox

A ComboBox control displays a drop-down list from which one item can be selected.



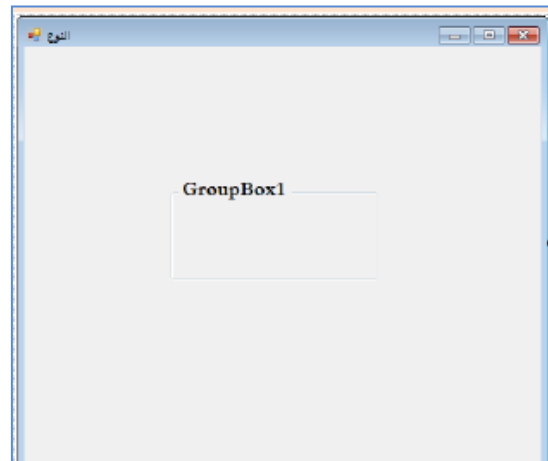
• ComboBox properties and their Functions

No.	Property	Function
1	Items	Presents the items in the (ComboBox)
2	AutoCompleteSource	The maintained source of items used for automatic completion of input string.
3	AutoCompleteMode	The input string or (prefix being entered) that will be compared to the prefixes of all strings in a maintained source; upon which the automatic completion will be done.



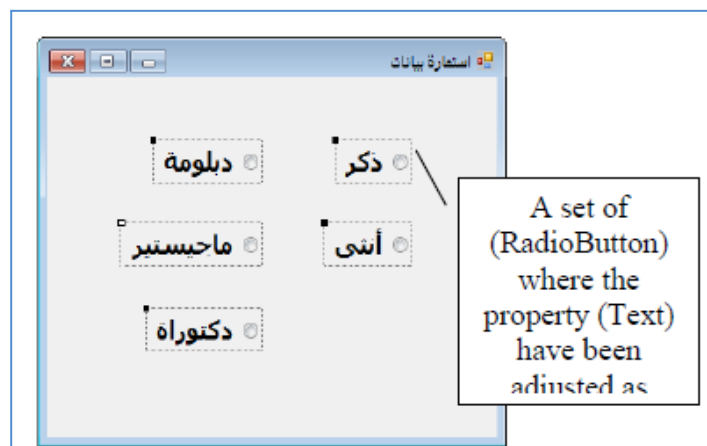
5.GroupBox

A (GroupBox) control is used to group other controls of same function together on the Form window.



5.RadioButton

A (RadioButton) is used to select one option from a group of mutually exclusive options.



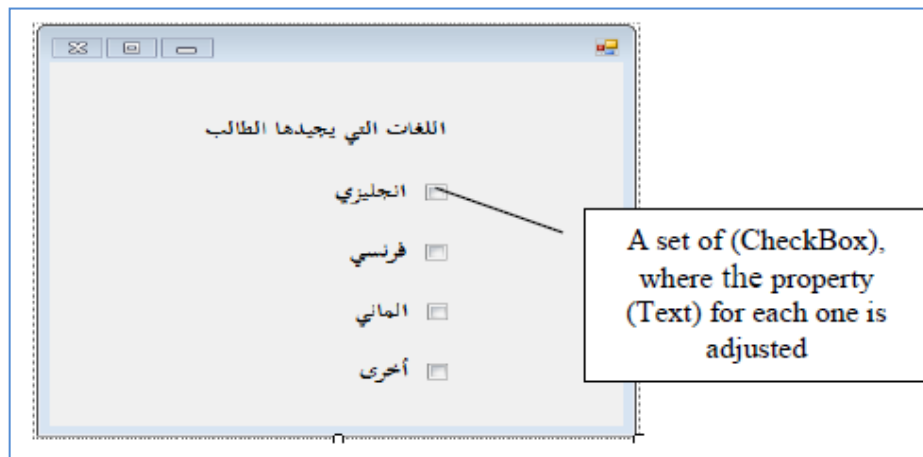


• RadioButton properties and their Functions

No.	Property	Function
1	Checked	Indicates if the (RadioButton) has been selected or not
2	Text	The text displayed on the (RadioButton)

5.CheckBox

A (CheckBox) control is used to select one or more options.





Chapter 4

Code Window

Through the Code window; we can write instructions and codes using (Visual Basic .Net) language "Language under study".

To open the (Code Window) of (Form1) perform the following:

1. Make sure that the window Form is active
2. From the keyboard press (F7)

Or

1. Double Click on form1

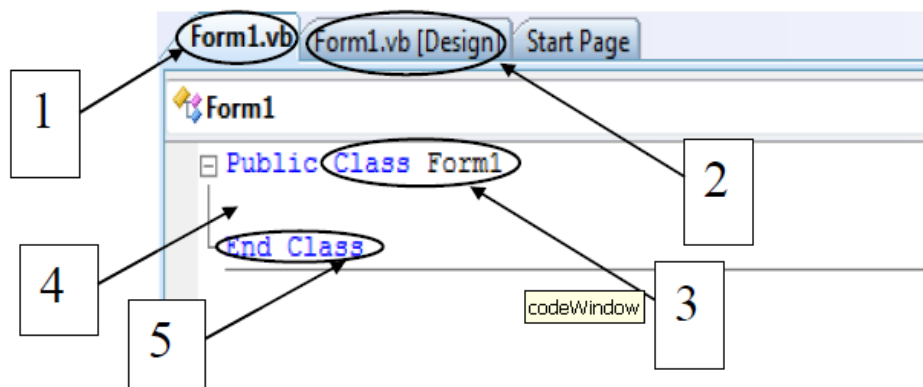


Figure (4-1) (Code Window)

The numbers shown in figure (4-1) indicate:

- (1) Name of the file where codes are saved.
- (2) Name of the file where the Form window is saved.
- (3) The declaration of Class; its name is (Form1).
- (4) Space between two lines; to type codes for the Class (Form1).
- (5) The end of the Class.



Setting the (Properties) programmatically

CONTROLNAME . PROPERTY = VALUE

The control or the
object name

The property

The value

The values assigned to properties may have several types:

1. The abstract value; e.g. Property (Text).
2. The logical value; e.g. Property (Visible).
3. The value selected from a list; e.g. Property (ForeColor).
4. The value formed from creating an (Object); e.g. Property (Font).
5. The value of the result of arithmetic expression (will be studied later).
6. The value of a Variable or Property.

Thank You




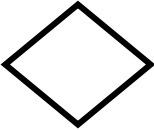
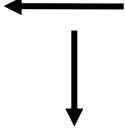


Questions

What is the definition of a problem?

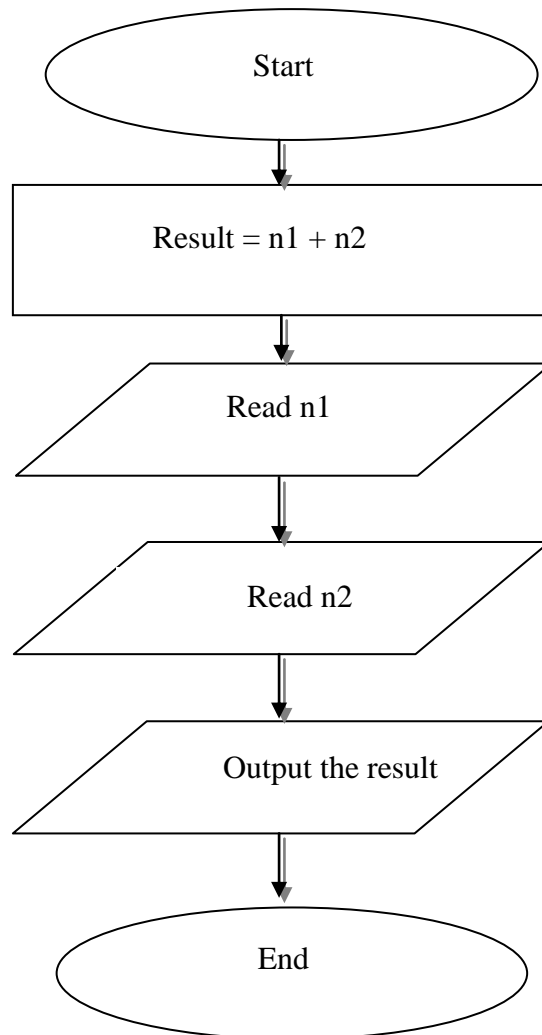
1. How to solve problems?
2. What is meant by Algorithm?
3. What is a Program testing?
4. What is Flowchart?

2. Complete:

Shapes					
Shapes' name	Process	Flow line
Function	Start & End	Used to input & output	Choose events & condition of answer Yes & No



3. Correct the flowchart which represents adding two numbers:





- The figure show chart for calculating the area and circumference for a circle given the radius of the circle R:

$$A = 3.14 * R * R$$

$$C = 2 * 3.14 * R$$

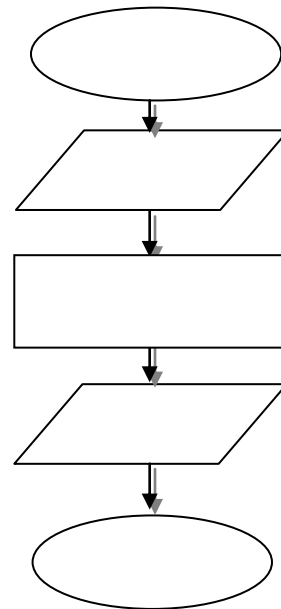
START

END

OUTPUT A

OUTPUT C

READ R



- The figure show chart for calculating the interest value for balance with fixed interest rate.

$$\text{Interest} = \text{balance} * \text{rate}$$

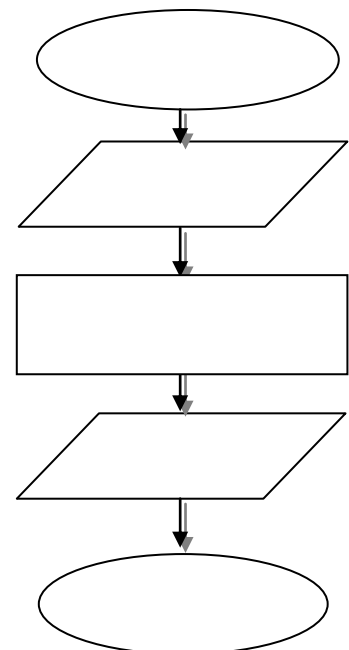
END

Read name, balance, rate

Output


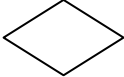
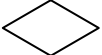
Name, balance, interest

Start

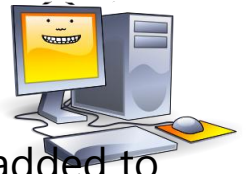




3. State whether the following statements are true (□) or false (X)

1. Flowcharts use symbols and lines with arrows to represent an Algorithm ()
2. You can use any Geometric shape to represent Algorithms when () drawing flowcharts ()
4. Flowcharts can be drawn using software only and can't be drawn on paper ()
5. The symbol  is used to represent both the start and the end ()
6. The rectangle symbol represents only on processing operation ()
7. The flow of steps will always be from top to bottom or from left to right. ()
8. The symbol  is used when a question has more than one Alternative ()
9. Two paths (lines) should come out from the diamond  ()
10. The line with an arrow (flow line) should be from left to right or from top to bottom ()
11. The (Algorithm) is the first stage of Problem Solving ()
12. Some (Properties) are not effective unless other (Properties) are adjusted first ()

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13. When you create a new (Project) a (Form) window is added to work with. ()
14. There are no common (Properties) between one (Control) and another. ()
15. A value should be assigned to any (Property). ()
16. You can modify the value of a property assigned to a (Control) through the (Toolbox) ()
17. The value of the (Property) Size is 98;108 means that the width is 108 and, the height is 98. ()
18. Radio Buttons are used when the user has the possibility to choose more than one alternative. ()
19. User can not choose any item in the control (CheckBox). ()

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4. Choose the correct answer:

1. To provide the possibility to choose one and only one item use the control:

A.RadioButton

B-Checkbox

C - GroupBox

D-ListBox

2. To allow the selection of one or more items choose the control:

A.RadioButton

B-Checkbox

C-GroupBox

D- ComboBox

3. You can choose more than one item if you use:

A-ListBox

B- ComboBox

C-GroupBox

D-RadioButton

4. The Solution Explorer window contains:

A-(Properties)

B (Controls)

C-Projects

D-All of the above

5. The project can run in test mode by pressing (.....) From the keyboard

A-F2

B-F4

C-F8

D-F5



5. Type the names of the Controls displayed on the shown Form window:

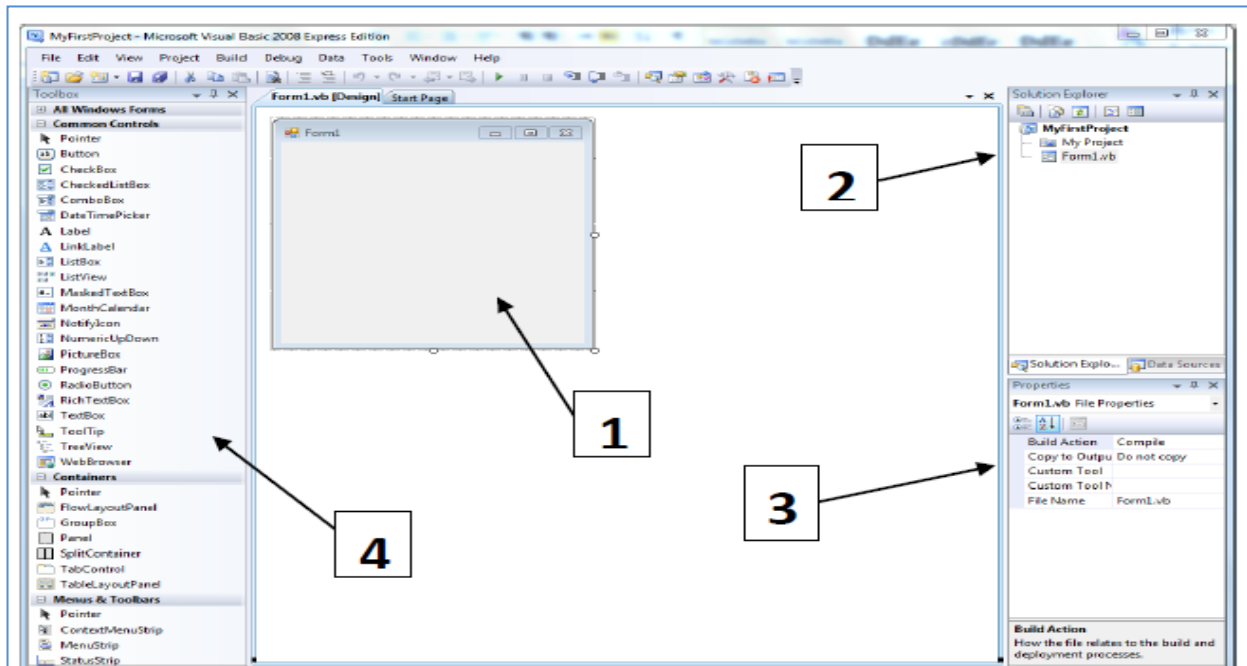
No.	(Control)
1	
2	
3	
4	
5	
6	

6. In the shown figure what the following numbers indicate?

Number	Indicate
1
2
3
4	



Write in the table below what the following numbers indicate



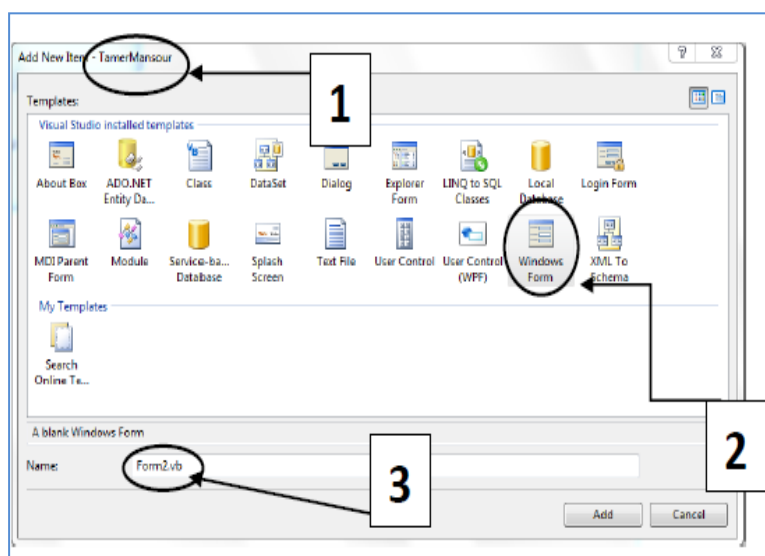
1.....

2.....

3.....

4.....

7. In the following (Add New Item) window, what the following numbers indicate?



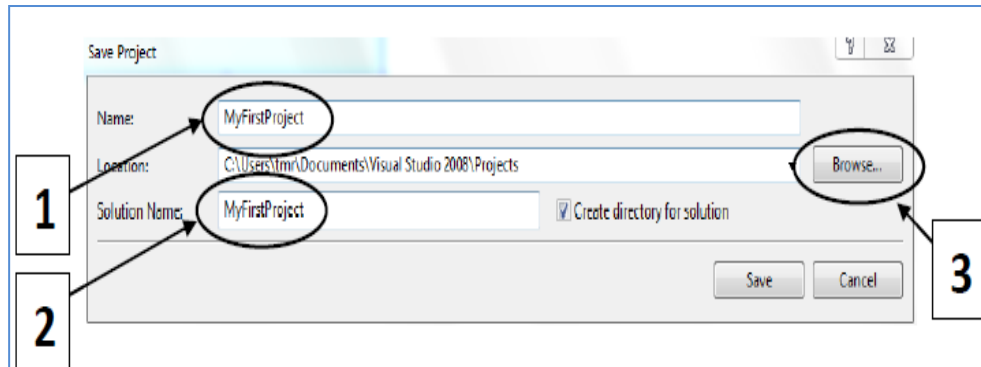
1.....

2.....

3.....



8. Refer to the following figure then, explain the following numbers indicate?



1.....

2.....

3.....

9. Complete the sentences with the following:

Object - Class –Visual Studio – .NET framework – Programming language Form

- 1- is used in the development, and design of (Desktop application) – (Web application) – (Mobile application).
- 2- Through, Instructions, and commands are written according to certain rules; and then translated to machine language.
- 3-provides an environment , that enables developers to design and execute (.NET applications).
- 4-is defined as: The basic constructive element in Object Oriented Programming; it is created from a defined class.
- 5- The blueprint, from which the individual objects are created; is called.....



Answers

1. What is the definition of a problem?

The problem is defined as the objective or the specific output that we want to attain; through a sequence of steps and activities and, specific input.

2. How to solve problems?

- Problem Definition.
- Perform Algorithm.
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- Program documentation.

3. What is meant by Algorithm?

is defined as group of logically arranged procedures to be executed to attain a goal.(Flow Chart)

4. What is a Program testing?

Detecting errors and correct them.




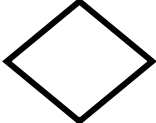
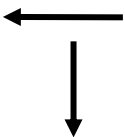
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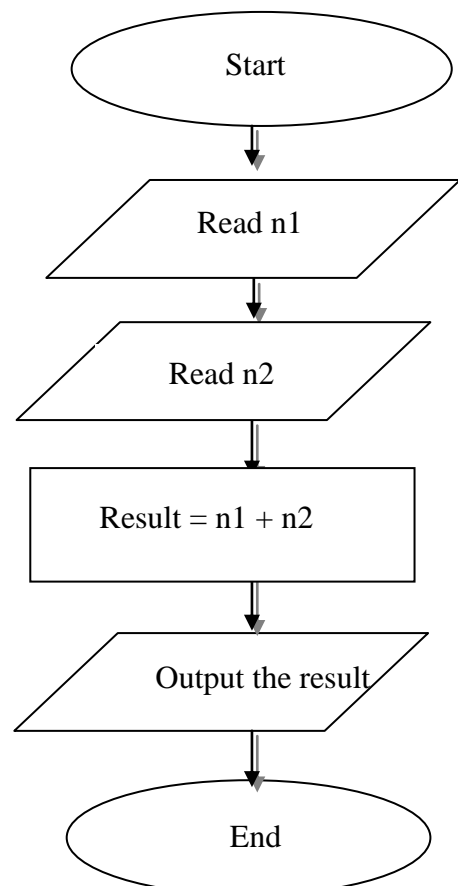
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6. Complete:

Shapes					
Shapes' name	Terminal	Input / output Read / Print	Process	Decision	Flow line
Function	Start & End	Used to input & output	Input the arithmetic process	Choose events & condition of answer Yes & No	Communica tion lines of the flowchart

7. Correct the flowchart which represents adding two numbers:





10. The figure show chart for calculating the area and circumference for a circle given the radius of the circle R:

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$$C = 2 * 3.14 * R$$

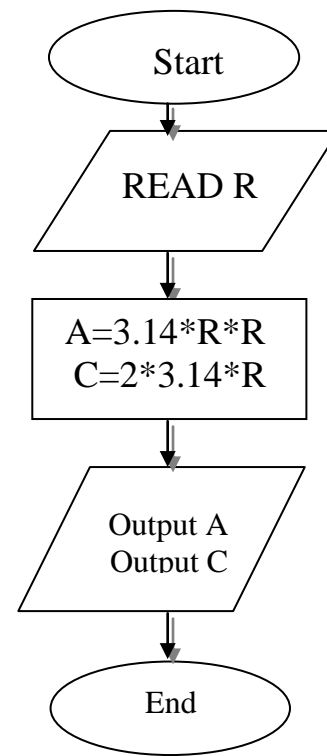
START

END

OUTPUT A

OUTPUT C

READ R



11. The figure show chart for calculating the interest value for balance with fixed interest rate.

$$\text{Interest} = \text{balance} * \text{rate}$$

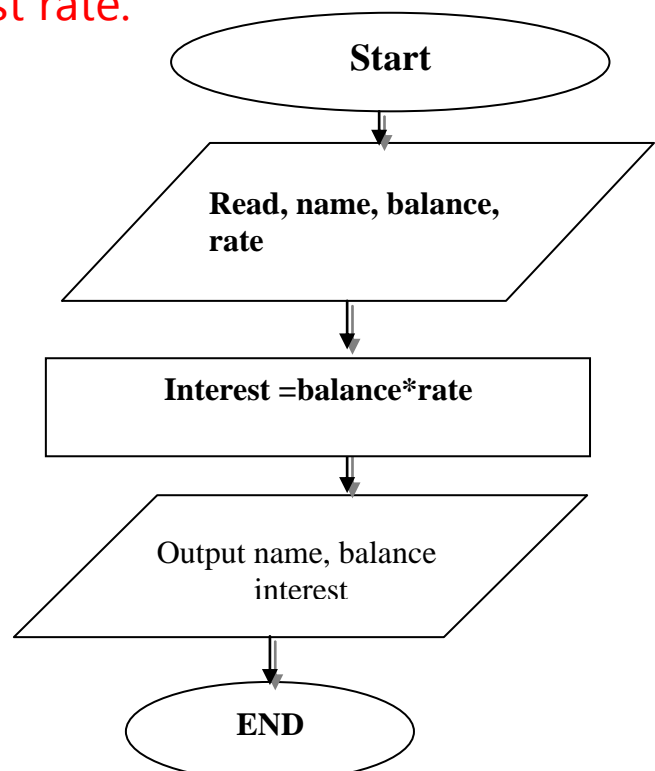
END

Read name, balance, rate

Output

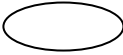
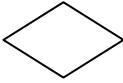
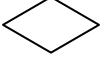
Name, balance, interest

Start





11. State whether the following statements are true (✓) or false (X)

1. Flowcharts use symbols and lines with arrows to represent an Algorithm (✓)
2. You can use any Geometric shape to represent Algorithms when drawing flowcharts (X)
1. Flowcharts can be drawn using software only and can't be drawn on paper (X)
2. The symbol  is used to represent both the start and the end (✓)
3. The rectangle symbol represents only on processing operation (X)
4. The flow of steps will always be from top to bottom or from left to right. (✓)
5. The symbol  is used when a question has more than one Alternative (✓)
6. Two paths (lines) should come out from the diamond  (✓)
7. The line with an arrow (flow line) should be from left to right or from top to bottom (X)
8. The (Algorithm) is the first stage of Problem Solving (X)
9. Some (Properties) are not effective unless other (Properties) are adjusted first. (✓)

Computer Net Revision



10. When you create a new (Project) a (Form) window is added to work with. (✓)
11. There are no common (Properties) between one (Control) and another. (X)
12. A value should be assigned to any (Property). (✓)
13. You can modify the value of a property assigned to a (Control) through the (Toolbox) (X)
14. The value of the (Property) Size is 98;108 means that the width is 108 and, the height is 98. (X)
15. Radio Buttons are used when the user has the possibility to choose more than one alternative. (X)
16. User can not choose any item in the control (CheckBox). (✓)
17. Some (Properties) are not effective unless other (Properties) are adjusted first (✓)

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12. Choose the correct answer:

1. 1. To provide the possibility to choose one and only one item use the control:

A. RadioButton

B-Checkbox

C - GroupBox

D-ListBox

2. 2. To allow the selection of one or more items choose the control:

A. RadioButton

B- Checkbox

C-GroupBox

D- ComboBox

3. 3. You can choose more than one item if you use:

A-ListBox

B- Checkbox

C-GroupBox

D-RadioButton

4. 4. The Solution Explorer window contains:

A-(Properties)

B (Controls)

C- Projects

D-All of the above

5. 5. The project can run in test mode by pressing (.....) From the keyboard

A-F2

B-F4

C-F8

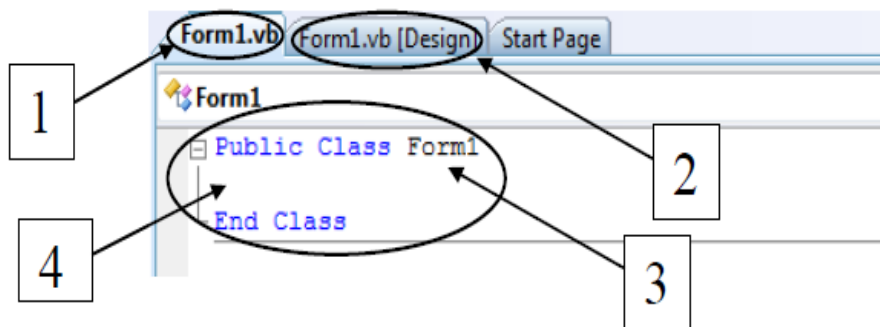
D- F5



13. Type the names of the Controls displayed on the shown Form window:

No.	(Control)
1	label
2	TextBox
3	Label
4	TextBox
5	Button
6	Label

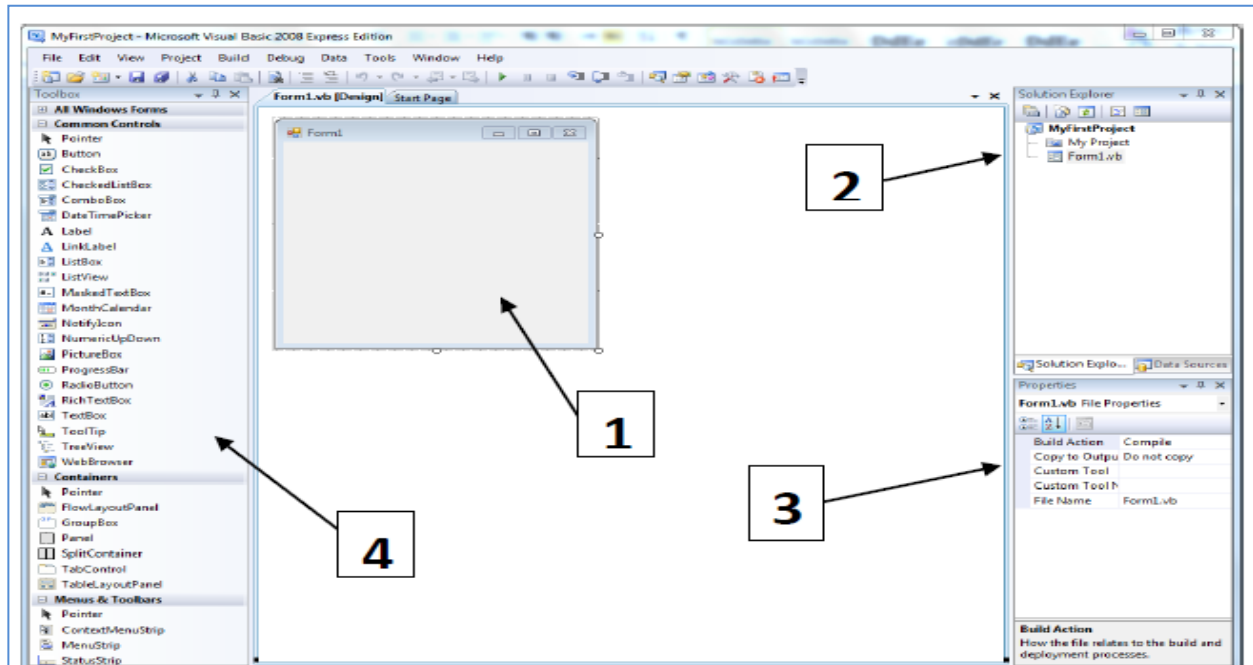
14. In the shown figure what the following numbers indicate?



- (1) Name of the file where codes are saved.
- (2) Name of the file where the Form window is saved.
- (3) The declaration of Class; its name is (Form1).
- (4) Space between two lines; to type codes for the Class (Form1).
- (5) The end of the Class.



18. Write in the table below what the following numbers indicate



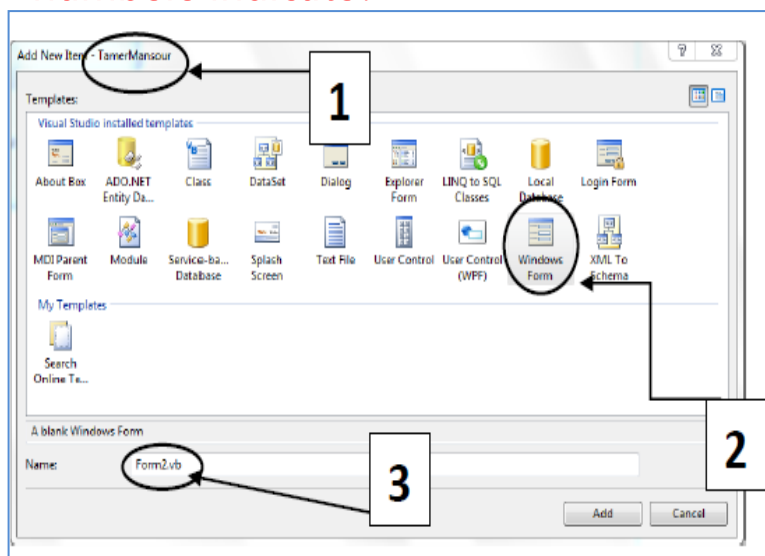
1. Form

2. Solution Explorer

3. Properties Window

4. Toolbox

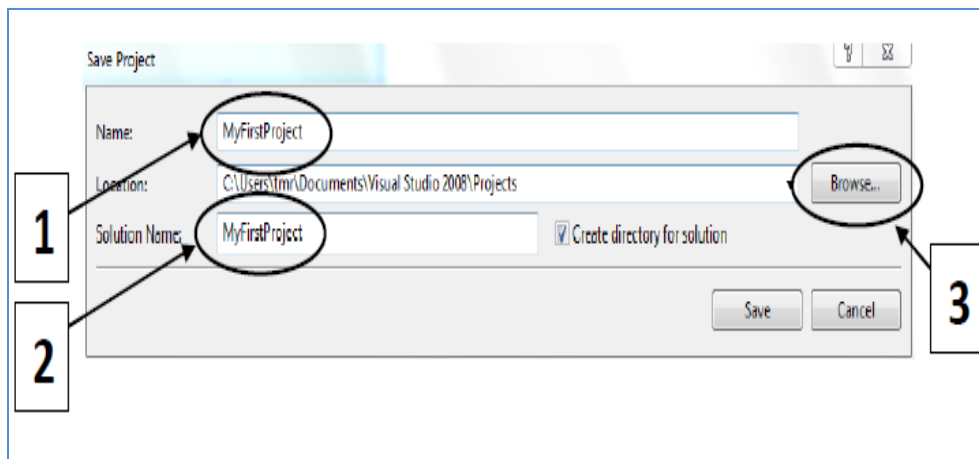
15. In the following (Add New Item) window, what the following numbers indicate?





- (1) The Project name given to the project; to which the new (Form) will be added.
- (2) The template used to create the (Form).
- (3) The suggested file name othe (Form) (tht you can change if you wish

Refer to the following figure then, explain the following numbers indicate?



- (1) The Project name given to the project when created
- (2) The Solution name that will include; the Project you want to save
- 3) The Browse button; to explore storage devices available on your computer.

Complete the sentences with the following:

- 1– **Visual basic.Net** is used in the development, and design of
(Desktop application) – (Web application) – (Mobile application).
- 2– Through **Programming Language** , Instructions, and commands are
written according to certain rules; and then translated to machine language.

Computer Net Revision



3- **IDE** provides an environment that enables developers to design and execute (.NET applications).

4- **Object** is defined as: The basic constructive element in Object Oriented Programming; it is created from a defined class.

6- The blueprint, from which the individual objects are created; is called **Class**

Thank You
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Second Term

Chapter 1 Data

Data Type

1. Numerical Data Types; that can be used to store numerical data and are divided into:
 - a- Integral Numeric Types (such as: Byte- Long – Integer – Short).
 - b- Nonintegral Numeric Types (namely: Double- Single – Decimal).
2. Character Data Types (namely: String – Char).
3. Miscellaneous Data Types are those data that; do not fall under the Numeric or the Character types (namely: Object – Date – Boolean).

NOTICE

Each Data Type has:

1. A storage space in the memory: for the data type (Integer); when used, it occupies (4 bytes).
2. A range of values (the values that can be represented by this type); the range of values for the data type (Byte) starts with '0' and ends with '255'.

Knowing the Data Type:

The property (Text) of type (String)	<pre>Label1.Text = "جمهورية مصر العربية"</pre> <pre>Public Overrides Property Text() As String</pre>
The property (AutoSize) of type (Boolean)	<pre>Label1.AutoSize = False</pre> <pre>Public Overrides Property AutoSize() As Boolean</pre>
The property (Width) of type (Integer)	<pre>Label1.Width = 120</pre> <pre>Public Property Width() As Integer</pre>



1- Variables

Variables are reserved memory locations to store values temporarily. These values can be changed during the execution of program instructions and commands.

Declaration of Variables

Use the (**Dim**) keyword in combination with the variable name and data type; write (**Dim**) then the name of the **Variable** then the word (**As**) followed by the **Data Type** as shown:

Dim	Variable	As	Data Type
-----	----------	----	-----------

Dim V_Name As String

Naming Variables

Dear student, when naming Variables, you must note the following:

1. Variable names must begin with a letter or underscore (_).
2. Variable names Should not contain symbols or special characters (e.g.: $?, *, ^, -, +, .$) and others.
3. Variable names consist of letters, numbers, and underscores (_).
4. Do not use reserved words (Visual Basic.NET Language Keywords) such as (single, Dim, As).
5. It is preferable that the Variable name reflects its content.



2- Assignment Statement

Left side	Assignment operator	Right side
(Variable) or (Property)	=	Abstract value or Value from a (Variable) or (Property) or Value from an (Expression)

EX:

Dim Number As Integer
Number = 5

NOTICE

1. You can make assignment for (Variables) during the declaration or at a later stage.
2. Reassignment of variables can be made many times, so the term "Variable" thus-called because of the variation of its values; at any time during the execution of the program.
3. The values assigned to variables can be (abstract values, variables, property and, expression).
4. The assignment operator (=) doesn't indicate the arithmetic equality, it means "is replaced by" i.e. $(x=x+1)$, where (x) in the left side represents the variable or storage, and (x) in the right side represents the value. If we assume that the value of (x) equal (5), after this assignment operation (x) becomes $(5+1)$ the result is 6.



3- Constant

They are places reserved in the (RAM) and, have data types; this is done during the declaration: declaring constants then assigning values depending on their data types. These values cannot be changed during program execution.

Declaring Constants

Use the (**Const**) keyword and, write the name of the **Constant** then, the word (**As**) and constant's **Data Type** then the (=) sign followed by the value of the constant as shown:

Const	Constant name	As	Data Type	= Value
-------	---------------	----	-----------	---------

Const C_Name as String = "جمهورية مصر العربية"

Examples

- Const C_Name As String = "جمهورية مصر العربية"

Where the constant (C_Name) was declared, of data type (String) and, its text value "جمهورية مصر العربية" is assigned during the declaration.

- Const pi As Single = 22 / 7

NOTICE

The apostrophes " " are used while writing text.

The hashes # # are used while writing date or time.



4- The Errors

Errors Type:

1- Syntax Error :

happens when writing code incorrectly as illustrated in the following example

Example

- **Din** X **As** Single

The variable (X) was declared but there is a mistake in writing the word (Dim)

2- Logic Error:

it leads to incorrect results when executing the program; and happens if the expressions used in the assignment statement are built improperly.

Example

When calculating the Area of a circle we used the following code:

```
Dim Radius As Single
```

```
Const X As Single = 22/7
```

```
Radius = TextBox1.Text
```

```
Label2.Text = x + Radius ^ 2
```

3- Runtime Error that appears during the execution

This type of error is found in lines of code, where the Assignment Statement is written. For example when you assign a value greater than the Data Type used or, assign a value that is not equivalent to the variable's Data Type or constant's Data Type, and so the Compiler of the language cannot convert this Data Type.



Visual Basic .Net provides the possibility of handling errors that likely occur through the Try...Catch...End Try structure, written as follows.

Try

Catch ex As Exception

EndTry

5- The priority rules for arithmetic operations

EX: Label2.Text = x * Radius * 2

The operations are executed upon the following order of evaluation:

1. Parentheses starting from inside out.
2. Exponentials.
3. Multiplications and divisions from left to right.
4. Additions and subtractions from left to right.



Chapter 2

Branching

Branching Statement using *IfThen*

The syntax of *(If...Then)* statement

If conditional Expression *Then*

code

End if

Branching Statement using *IfThen.....Else*

The syntax of *(If...Then...Else)* statement

If Conditional Expression *Then*

code



The code in case of True

Else

code



The code in case of False

End if



Branching Statement using IfThen.....Elseif

The syntax of *(If...Then...Elseif)* statement

If Conditional Expression **Then**

code

Elseif Conditional Expression **Then**

code

Elseif Conditional Expression **Then**

code

.

Else

code

End if



Questions

First: In the following Form window, if it is required to store entries from the user in variables. Define the corresponding Data Type for each input.

1.
2.
3.
4.



Second: In the following code, get the variable names and constants and their Data Types.

```
Private Sub Button1_Click(ByVal sender As Object, ByVal e As EventArgs) Handles Button1.Click
    Dim Radius As Single
    Const x As Single = 22 / 7
    Radius = TextBox1.Text
    Label2.Text = x * Radius ^ 2
End Sub
```

.....

.....

.....

.....

Third: In the following code, determine the cause of the displayed error

تخصيص مدخلات المستخدم لكل متغير

```
arabic = TextBox1.Text
computer = TextBox2.Text
```

يتم ناتج مجموع المتغيرين

```
Label3.Text = arabic + computer
```

InvalidCastException was unhandled
Conversion from string "خمس عشرة درجة" to type 'Byte' is not valid.

The cause of errors :

.....

.....

تخصيص مدخلات المستخدم لكل متغير

```
arabic = TextBox1.Text
computer = TextBox2.Text
```

يتم ناتج مجموع المتغيرين

```
Label3.Text = arabic + computer
```

OverflowException was unhandled
Arithmetic operation resulted in an overflow.

The cause of errors :

.....

.....



Forth: In the following, determine the code to be written as indicated by the arrows.

Try



Catch ex As Exception



EndTry

Fifth: Determine the type of error in the following, and then perform the required error handling.

Code	error type	error handling
Din x As Single		
Const x As Single		

Sixth: When writing code the user needs to add specific comment that will not be executed, so the code must be preceded by:

1.
- OR
2.



Eight: Write the order of execution of Arithmetic operations that follow:

Order	Operation
()	Multiplications and divisions from left to right.
()	Parentheses starting from the inside out
()	Additions and subtractions from left to right
()	Exponentials.

Tenth: State whether the following statements are true (✓) or false (X)

1- One of the Rules for naming variables or constants in the program is: variable names must begin with a letter or a number.	()
2- Declaring variables is done using the Dim statement.	()
3- The variable of type Double takes the value True or False.	()
4- Variables of types (Integer & Long & Double) are used to store integers only.	()
5- User input is received through several controls including TextBox	()

Computer Net Revision



4. Less number of bytes means more computer's memory size and capacity for storing data. ()
5. Declaring variables means naming the bytes which have constant values in the computer memory and selecting their type. ()
6. When naming the variables , the variable name should begin with three character to show its type. ()
7. The variables types (Integer – Long - Short) are used for storing the numbers containing decimals. ()
8. Not following the naming rules of constants and variables doesn't make any errors in the rules. ()
9. It isn't allowed to use spaces in the variable name. ()
10. There is no difference between the arithmetic operations and the assignment statement. ()
11. "Dim" is used for declaring the constants and variables. ()
12. The variables types (Decimal – Single – double) is used for storing the integer only.
13. When naming the variables I V. B .Net the variable name should express its content. ()
14. The data type (Boolean) is used for storing the data in the "data" form.()
15. When writing the variable value in its declaration and skipping (=) , a default value is given to the variable which is (Zero) in the case of the numeric variables and an empty string value "" in the case of the string value. ()

Computer Net Revision



16. The conditional expression value may be "True " or " False" and that depend on the validity of the conditional relation. ()
17. The number of possible branches when using (If ...Then..Else) statement is 2. ()
18. If the value of variable (X) is 5 and value of variable (Y) is 7, then the result of the conditional expression (X>=5 And Y <=7) is false. ()
- 19.The data type (Char) is of integers. ()
- 20.(vbcr1f) statement is used for typing comments in the code window. ()
- 21.The variable Double is used for storing the text data. ()
- 22.Dim H AS Boolean =True. ()
- 23.Tha variable (Bytes) takes the value (0:255). ()
- 24.Dim Single As integer ="70". ()
25. Dim Dim AS integer. ()



Answer

First: In the following Form window, if it is required to store entries from the user in variables. Define the corresponding Data Type for each input.



1. Text
2. Date
3. Boolean
4. Text



Second: In the following code, get the variable names and constants and their Data Types.

```
Private Sub Button1_Click(ByVal sender As Object, ByVal e As EventArgs) Handles Button1.Click
    Dim Radius As Single
    Const x As Single = 22 / 7
    Radius = TextBox1.Text
    Label2.Text = x * Radius ^ 2
End Sub
```

Variables: - Radius its data type is single

Constants: - x its data type is single

Third: In the following code, determine the cause of the displayed error

```
'تخصيم مدخلات المستخدم لكل متغير'
arabic = TextBox1.Text
computer = TextBox2.Text
'يتم ناتج مجموع المتغيرين'
Label3.Text = arabic + computer
```

InvalidCastException was unhandled
Conversion from string "خمس عشرة درجة" to type 'Byte' is not valid.

The cause of errors :

Runtime Error: The user enter letters instead of numbers

```
'تخصيم مدخلات المستخدم لكل متغير'
arabic = TextBox1.Text
computer = TextBox2.Text
'تخصيم ناتج مجموع المتغيرين'
Label3.Text = arabic + computer
```

OverflowException was unhandled
Arithmetic operation resulted in an overflow.

The cause of errors :

Runtime Error: The user enter a value more than the limit values for the variable



Forth: In the following, determine the code to be written as indicated by the arrows.

Try



The Code that my a problem.

Catch ex As Exception



The Code which handle the error.

EndTry

Fifth: Determine the type of error in the following, and then perform the required error handling.

Code	error type	error handling
Din x As Single	Syntax	Dim
Const x As Single	Logical Error	Give A value

Sixth: When writing code the user needs to add specific comment that will not be executed, so the code must be preceded by:

1. ... Rem

OR

2. ... ,



Eight: Write the order of execution of Arithmetic operations that follow:

Order	Operation
(٣)	Multiplications and divisions from left to right.
(١)	Parentheses starting from the inside out
(4)	Additions and subtractions from left to right
(٢)	Exponentials.

Tenth: State whether the following statements are true (✓) or false (X)

1- One of the Rules for naming variables or constants in the program is: variable names must begin with a letter or a number.

(X)

2- Declaring variables is done using the Dim statement.

(✓)

3- The variable of type Double takes the value True or False.

(X)

4- Variables of types (Integer & Long & Double) are used to store integers only.

(X)

5- User input is received through several controls including TextBox

(✓)

Computer Net Revision



1. Less number of bytes means more computer's memory size and capacity for storing data. (☒)
2. Declaring variables means naming the bytes which have constant values in the computer memory and selecting their type. (☒)
3. When naming the variables , the variable name should begin with three character to show its type. (☒)
4. The variables types (Integer – Long - Short) are used for storing the numbers containing decimals. (☒)
5. Not following the naming rules of constants and variables doesn't make any errors in the rules. (☒)
6. It isn't allowed to use spaces in the variable name. (☒)
7. There is no difference between the arithmetic operations and the assignment statement. (☒)
8. "Dim" is used for declaring the constants and variables. (☒)
9. The variables types (Decimal – Single – double) is used for storing the integer only. (☒)
10. When naming the variables V. B .Net the variable name should express its content. (☒)
11. The data type (Boolean) is used for storing the data in the "data" form. (☒)

Computer Net Revision



12. When writing the variable value in its declaration and skipping (=), a default value is given to the variable which is (Zero) in the case of the numeric variables and an empty string value "" in the case of the string value.
(√)
13. The conditional expression value may be "True " or " False" and that depend on the validity of the conditional relation. (√)
14. The number of possible branches when using (If ...Then..Else) statement is 2. (√)
15. If the value of variable (X) is 5 and value of variable (Y) is 7, then the result of the conditional expression (X>=5 And Y <=7) is false. (√)
16. The data type (Char) is of integers. (×)
17. (vbcr1f) statement is used for typing comments in the code window (×)
18. The variable Double is used for storing the text data. (×)
19. Dim H AS Boolean =True. (√)
20. Tha variable (Bytes) takes the value (0:255). (√)
21. Dim Single As integer ="70". (×)
22. Dim Dim AS integer. (×)