

1.What do you understand by event driven programming? List and explain about some of the events supported by Visual Basic Objects.

Event Driven Programming :-

In conventional programming, the sequence of operations for an application is determined by a central controlling program (e.g., a main procedure). In **event-driven** programming, the sequence of operations for an application is determined by the user's interaction with the application's interface (forms, menus, buttons,etc.).

In an event -driven application , the code doesn't follow a predetermined path rather it executes different code sections in response to events . Events can be triggered by the user's actions ,by messages from the system or other applications, or even from the application itself. The sequence of these events determines the sequence in which the code executes , thus the path through the application's code or the sequence of execution differs each time the program runs.

Events common to most VB controls are described in the table below.

<i>Event</i>	<i>Occurs When ...</i>
Change	The user modifies text in a combo box or text box.
Click	The user clicks the primary mouse button on an object.
DbClick	The user double-clicks the primary mouse button on an object.
DragDrop	The user drags an object to another location.
DragOver	The user drags an object over another control.
GotFocus	An object receives focus.
KeyDown	The user presses a keyboard key while an object has focus.
KeyPress	The user presses and releases a keyboard key while an object has focus.
KeyUp	The user releases a keyboard key while an object has focus.
LostFocus	An object loses focus.
MouseDown	The user presses any mouse button while the mouse pointer is over an object.
MouseMove	The user moves the mouse pointer over an object.
MouseUp	The user releases any mouse button while the mouse pointer is over an object.

2.What are the different data types supported by Visual Basic ? How they can be declared ? Also mention their uses

Visual Basic Data Types

Visual Basic classifies the data types in two major categories:-

1). Numeric Data Types and 2).Non-Numeric data types.

1. Numeric Data Types

Numeric data types are types of data that consist of numbers, which can be computed mathematically with various standard operators such as add, minus, multiply, divide and more. Examples of numeric data types are examination marks, height, weight, the number of students in a class, share values, price of goods, monthly bills, fees and others. In Visual Basic, numeric data are divided into 7 types, depending on the range of values they can store. Calculations that only involve round figures or data that does not need precision can use Integer or Long integer in the computation. Programs that require high precision calculation need to use Single and Double decision data types, they are also called floating point numbers. For currency calculation , you can use the currency data types. Lastly, if even more precision is required to perform calculations that involve a many decimal points, we can use the decimal data types. These data types summarized in Table given below:-

Numeric Data Types

Type	Storage	Range of Values
Byte	1 byte	0 to 255
Integer	2 bytes	-32,768 to 32,767
Long	4 bytes	-2,147,483,648 to 2,147,483,648
Single	4 bytes	-3.402823E+38 to -1.401298E-45 for negative values 1.401298E-45 to 3.402823E+38 for positive values.
Double	8 bytes	-1.79769313486232e+308 to -4.94065645841247E-324 for negative values 4.94065645841247E-324 to 1.79769313486232e+308 for positive values.
Currency	8 bytes	-922,337,203,685,477.5808 to 922,337,203,685,477.5807
Decimal	12 bytes	+/- 79,228,162,514,264,337,593,543,950,335 if no decimal is use +/- 7.9228162514264337593543950335 (28 decimal places).

2. Non-numeric Data Types

Nonnumeric data types are data that cannot be manipulated mathematically using standard arithmetic operators. The non-numeric data comprises text or string data types, the Date data types, the Boolean data types that store only two values (true or false), Object data type and Variant data type .They are summarized in Table given below:-

Non-Numeric Data Types

Data Type	Storage	Range
String(fixed length)	Length of string	1 to 65,400 characters
String(variable length)	Length + 10 bytes	0 to 2 billion characters
Date	8 bytes	January 1, 100 to December 31, 9999
Boolean	2 bytes	True or False
Object	4 bytes	Any embedded object
Variant(numeric)	16 bytes	Any value as large as Double
Variant(text)	Length+22 bytes	Same as variable-length string

3.Give difference between arrays and dynamic arrays. How they can be created in Visual Basic ? Give Syntax

Arrays :-

An array is a collection of values of the same data type. The values in an array are called array elements. Array elements are accessed using a single name and an index number representing the position of the element within the array.

Arrays are used in a database application to handle data for processing.

Declaring Arrays

Unlike simple variables, arrays must be declared with the Dim (or Public, or Private) statement followed by the name of the array and the index of the last element in the array in parentheses for example:

Dim Ages(19) As Integer

Ages is the name of an array that holds 20 values (the ages of the 20 employees), with indices ranging from 0 to 19. Ages(0) is the first person's age, Ages(1) the second person's age, and so on. All we have to do is remember who corresponds to each age, but even this data can be handled by another array. To do this, we declare another array of 19 elements as follows:

Dim Names(19) As String

and then assign values to the elements of both arrays:

```
Names(0)= "John"  
Ages(0) =34  
Names(1)= "Sam"  
Ages(1) =38  
Names(19)= "Hedric"  
Ages (19) =45
```

Dynamic Arrays

Sometimes we will not know how large an array to create. The earlier approach was to make it large enough to hold the maximum number of data. This will result in on an average, most of the array will be empty. To avoid this we can declare a dynamic array. The size of a dynamic array can vary during the execution of the software program.

With a dynamic array, we can discard the data and return the resources it occupied to the system.

To create a dynamic array, declare it as usual with the Dim statement, Public or Private but don't specify its dimensions:

Dim DynArray As Integer

Later in the program, when we know how many elements we want to store in the array, use the ReDim statement to redimension the array, this time to its actual size. In the following example, UserCount is a user-entered value:

ReDim DynArray(UserCount)

The ReDim statement can appear only in a procedure. Unlike the Dim statement, ReDim is executable, it forces the application to carry out an action at runtime. Dim statements aren't

executable, and they can appear outside procedures.

A dynamic array also can be redimensioned to multiple dimensions. Declare it with the Dim statement outside any procedure as follows

```
Dim Matrix() As Double
```

and then use the ReDim statement in a procedure to declare a three-dimensional array:

```
ReDim Matrix(9,9 , 9)
```

Note that the ReDim statement can't change the type of the array that's why the As clause is missing from the ReDim statement. Moreover, subsequent ReDim statements can change the bounds of the array Matrix but not the number of its dimensions. For example, we can't use the statement ReDim Matrix(99, 99) later in your code. Once an array has been redimensioned once, its number of dimensions can't change. In the preceding example, the Matrix array will remain three-dimensional through the course of the application.

The ReDim statement can be issued only from within a procedure. In addition, the array to be redimensioned must be visible from within the procedure that calls the ReDim statement.

Sr No.	Arrays	Dynamic Arrays
1.	An array is a collection of values of the same data type. The values in an array are called array elements. Array elements are accessed using a single name and an index number representing the position of the element within the array.	Sometimes we will not know how large an array to create. The earlier approach was to make it large enough to hold the maximum number of data. This will result in on an average, most of the array will be empty. To avoid this we can declare a dynamic array. The size of a dynamic array can vary during the execution of the software program. With a dynamic array, we can discard the data and return the resources it occupied to the system.
2.	The size of an array can't vary during the execution of the program.	The size of a dynamic array can vary during the execution of the software program
3.	Arrays must be declared with the Dim (or Public, or Private) statement followed by the name of the array and the index of the last element in the array in parentheses for example: Dim Ages(19) As Integer.	Dynamic array is also declared with the Dim statement, Public or Private but don't specify its dimensions: Dim DynArray As Integer Later in the program, when we know how many elements we want to store in the array, use the ReDim statement to redimension the array, this time to its actual size. In the following example, UserCount is a user-entered value: ReDim DynArray(UserCount)

5. Write a program with a good interface in visual Basic to print first 20 Fibonacci numbers.

```

Private Sub Command1_Click()
Dim x, g, n, i, sum As Integer
n = 20
x = 0
y = 1
Print x
Print y
For i = 3 To n
sum = x + y
Print sum
x = y
y = sum
y = sum
Next i
End Sub

```

6. a)

Sr No.	List Box	Combo Box
1.	Occupies more space but shows more than one value.	Occupies less space but shows only one value for visibility .
2.	We can select multiple items.	Multiple select is not possible
3.	we can use checkboxes with in the list box.	can't use checkboxes within combo boxes
4.		

b) Diffence between picture box and image box :-

1. A Picture Box can act as a container , An image control can't.
2. An Image control has Stretch property, a Picture Box control does not.
3. Picture Box control has an AutoSize property, an Image control does not.
4. A Picture Box control is a container control, an Image control is not.
5. A Picture Box control also has a whole bunch of properties that an Image Control does not - BackColor, FillColor, FillStyle, etc.

c) Diffence between Check Box and Option Button :-

1.

Option Button	Checkbox
It is an element of a form	It is also an element of a form
It is used for selecting options	It is also used for selecting options
It is a graphical user interface widget	It is also a graphical user interface widget
Only one option can be selected	One or more options can be selected
Example:Selecting of Gender	Example:Selecting the games known
Select your Highest Educational qualification:	Select the games you can play:

☐ B.Sc	☐ Hockey
☐ M.Sc	☐ Cricket
☐ B.Tech	☐ Baksket Ball

(d) Difference Between Pop Up and Dynamic Menu (do yourself)