VBSCRIPT

scripting language

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About the Tutorial

Microsoft VBScript (Visual Basic Script) is a general-purpose, lightweight and active scripting language developed by Microsoft that is modelled on Visual Basic. Nowadays, VBScript is the primary scripting language for Quick Test Professional (QTP), which is a test automation tool. This tutorial will teach you how to use VBScript in your day-to-day life of any Web-based or automation project development.

Audience

This tutorial has been prepared for beginners to help them understand the basic-to-advanced functionality of VBScript. After completing this tutorial, you will find yourself at a moderate level of expertise in using Microsoft VBScript from where you can take yourself to the next levels.

Prerequisites

You need to have a good understanding of any computer programming language in order to make the most of this tutorial. If you have done programming in any client-side languages like Javascript, then it will be quite easy for you to learn the ropes of VBScript.

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Part 1: VBScript Basics

1. OVERVIEW

VBScript stands for **V**isual **B**asic Scripting that forms a subset of Visual Basic for Applications (VBA). VBA is a product of Microsoft which is included NOT only in other Microsoft products such as MS Project and MS Office but also in Third Party tools such as AUTO CAD.

Features of VBScript

- VBScript is a lightweight scripting language, which has a lightning fast interpreter.
- VBScript, for the most part, is case insensitive. It has a very simple syntax, easy to learn and to implement.
- Unlike C++ or Java, VBScript is an object-based scripting language and NOT an Object-Oriented Programming language.
- It uses Component Object Model **(COM)** in order to access the elements of the environment in which it is executing.
- Successful execution of VBScript can happen only if it is executed in Host Environment such as Internet Explorer **(IE)**, Internet Information Services **(IIS)** and Windows Scripting Host **(WSH)**

VBScript – Version History and Uses

VBScript was introduced by Microsoft way back in 1996 and its first version was 1.0. The current stable version of VBScript is 5.8, which is available as part of IE8 or Windows 7. The VBScript usage areas are aplenty and not restricted to the below list.

- VBScript is used as a scripting language in one of the popular Automation testing tools – Quick Test Professional abbreviated as **QTP**.
- Windows Scripting Host, which is used mostly by Windows System administrators for automating the Windows Desktop.
- Active Server Pages **(ASP)**, a server side scripting environment for creating dynamic webpages which uses VBScript or Java Script.
- VBScript is used for Client side scripting in Microsoft Internet Explorer.
- Microsoft Outlook Forms usually runs on VBScript; however, the application level programming relies on VBA (Outlook 2000 onwards).

Disadvantages

- VBScript is used only by IE Browsers. Other browsers such as Chrome, Firefox DONOT Support VBScript. Hence, JavaScript is preferred over VBScript.

- VBScript has a Limited command line support.
- Since there is no development environment available by default, debugging is difficult.

Where VBScript is Today?

The current version of VBScript is 5.8, and with the recent development of .NET framework, Microsoft has decided to provide future support of VBScript within ASP.NET for web development. Hence, there will NOT be any more new versions of VBScript engine but the entire defect fixes and security issues are being addressed by the Microsoft sustaining Engineering Team. However, VBScript engine would be shipped as part of all Microsoft Windows and IIS by default.

2. SYNTAX

Your First VBScript

Let us write a VBScript to print out "Hello World".

```
<html>
<body>
<script language="vbscript" type="text/vbscript">
   document.write("Hello World!")
</script>
</body>
</html>
```

In the above example, we called a function *document.write*, which writes a string into the HTML document. This function can be used to write text, HTML, or both. So, the above code will display the following result:

```
Hello World!
```

Whitespace and Line Breaks

VBScript ignores spaces, tabs, and newlines that appear within VBScript programs. One can use spaces, tabs, and newlines freely within the program, so you are free to format and indent your programs in a neat and consistent way that makes the code easy to read and understand.

Formatting

VBScript is based on Microsoft's Visual Basic. Unlike JavaScript, no statement terminators such as semicolon is used to terminate a particular statement.

Single Line Syntax

Colons are used when two or more lines of VBScript ought to be written in a single line. Hence, in VBScript, Colons act as a line separator.

```
<script language="vbscript" type="text/vbscript">
  var1 = 10 : var2 = 20
</script>
```

Multiple Line Syntax

When a statement in VBScript is lengthy and if user wishes to break it into multiple lines, then the user has to use underscore "_". This improves the readability of the code. The following example illustrates how to work with multiple lines.

```
<script language="vbscript" type="text/vbscript">
  var1 = 10
  var2 = 20
  Sum = var1 + var2
  document.write("The Sum of two numbers"&_
  "var1 and var2 is " & Sum)
</script>
```

Reserved Words

The following list shows the reserved words in VBScript. These reserved words SHOULD NOT be used as a constant or variable or any other identifier names.

Loop	LSet	Me
Mod	New	Next
Not	Nothing	Null
On	Option	Optional
Or	ParamArray	Preserve
Private	Public	RaiseEvent
ReDim	Rem	Resume
RSet	Select	Set
Shared	Single	Static
Stop	Sub	Then
To	True	Type

And	As	Boolean
ByRef	Byte	ByVal
Call	Case	Class
Const	Currency	Debug
Dim	Do	Double
Each	Else	ElseIf
Empty	End	EndIf
Enum	Eqv	Event
Exit	False	For
Function	Get	GoTo
If	Imp	Implements
In	Integer	Is
Let	Like	Long
TypeOf	Until	Variant
Wend	While	With
Xor	Eval	Execute
Msgbox	Erase	ExecuteGlobal
Option Explicit	Randomize	SendKeys

Case Sensitivity

VBScript is a **case-insensitive language.** This means that language keywords, variables, function names and any other identifiers need NOT be typed with a consistent capitalization of letters. So identifiers int_counter, INT_Counter and INT_COUNTER have the same meaning within VBScript.

Comments in VBScript

Comments are used to document the program logic and the user information with which other programmers can seamlessly work on the same code in future. It can include information such as developed by, modified by and it can also include incorporated logic. Comments are ignored by the interpreter while execution. Comments in VBScript are denoted by two methods.

Any statement that starts with a Single Quote (‘) is treated as comment. Following is the example:

```
<script language="vbscript" type="text/vbscript">
<!—
  ' This Script is invoked after successful login
  ' Written by : TutorialsPoint
  ' Return Value : True / False
//- >
</script>
```

Any statement that starts with the keyword “REM”. Following is the example:

```
<script language="vbscript" type="text/vbscript">
<!—
  REM This Script is written to Validate the Entered Input
  REM Modified by  : Tutorials point/user2
//- >
</script>
```

3. ENABLING VBSCRIPT IN BROWSERS

Not all the modern browsers support VBScript. VBScript is supported just by Microsoft's Internet Explorer while other browsers (Firefox and Chrome) support just JavaScript. Hence, developers normally prefer JavaScript over VBScript.

Though Internet Explorer (IE) supports VBScript, you may need to enable or disable this feature manually. This tutorial will make you aware of the procedure of enabling and disabling VBScript support in Internet Explorer.

VBScript in Internet Explorer

Here are simple steps to turn on or turn off VBScript in your Internet Explorer:

- Follow Tools -> Internet Options from the menu
- Select Security tab from the dialog box
- Click the Custom Level button
- Scroll down till you find Scripting option
- Select *Enable* radio button under Active scripting
- Finally click OK and come out

To disable VBScript support in your Internet Explorer, you need to select *Disable* radio button under **Active scripting**.

4. PLACEMENTS

VBScript Placement in HTML File

There is a flexibility given to include VBScript code anywhere in an HTML document. But the most preferred way to include VBScript in your HTML file is as follows:

- Script in <head>...</head> section.
- Script in <body>...</body> section.
- Script in <body>...</body> and <head>...</head> sections.
- Script in an external file and then include in <head>...</head> section.

In the following section, we will see how we can put VBScript in different ways:

VBScript in <head>...</head> section

If you want to have a script run on some event, such as when a user clicks somewhere, then you will place that script in the head as follows:

```
<html>
<head>
<script type="text/Vbscript">
<!--
Function sayHello()
   Msgbox("Hello World")
End Function
//-->
</script>
</head>
<body>
<input type="button" onclick="sayHello()" value="Say Hello" />
</body>
</html>
```

It will produce the following result: A button with the name SayHello. Upon clicking on the Button, the message box is displayed to the user with the message "Hello World".

VBScript in <body>...</body> section

If you need a script to run as the page loads so that the script generates content in the page, the script goes in the <body> portion of the document. In this case, you would not have any function defined using VBScript:

```
<html>
<head>
</head>
<body>
<script type="text/vbscript">
<!--
    document.write("Hello World")
//-->
</script>
<p>This is web page body </p>
</body>
</html>
```

It will produce the following result:

```
Hello World
This is web page body
```

VBScript in <body> and <head> Sections

You can put your VBScript code in <head> and <body> section altogether as follows:

```
<html>
<head>
<script type="text/vbscript">
<!--
Function sayHello()
   msgbox("Hello World")
End Function
//-->
</script>
</head>
<body>
<script type="text/vbscript">
```

```
<!--
document.write("Hello World")
//-->
</script>
<input type="button" onclick="sayHello()" value="Say Hello" />
</body>
</html>
```

It will produce the following result: Hello World message with a 'Say Hello' button. Upon Clicking on the button a message box with a message "Hello World" is displayed to the user.

VBScript in External File

As you begin to work more extensively with VBScript, you will likely find that there are cases, where you are reusing identical VBScript code on multiple pages of a site. You are not restricted to be maintaining identical code in multiple HTML files.

The *script* tag provides a mechanism to allow you to store VBScript in an external file and then include it into your HTML files. Here is an example to show how you can include an external VBScript file in your HTML code using *script* tag and its *src* attribute:

```
<html>
<head>
<script type="text/vbscript" src="filename.vbs" ></script>
</head>
<body>
.......
</body>
</html>
```

To use VBScript from an external file source, you need to write your all VBScript source code in a simple text file with extension ".vbs" and then include that file as shown above. For example, you can keep the following content in filename.vbs file and then you can use *sayHello* function in your HTML file after including filename.vbs file.

```
Function sayHello()
   Msgbox "Hello World"
End Function
```

VBScript Placement in QTP

VBScript is placed in QTP (Quick Test Professional) tool but it is NOT enclosed within HTML Tags. The Script File is saved with the extension .vbs and it is executed by Quick Test Professional execution engine.

5. VARIABLES

VBScript Variables

A variable is a named memory location used to hold a value that can be changed during the script execution. VBScript has only **ONE** fundamental data type, **Variant**.

Rules for Declaring Variables:

- Variable Name must begin with an alphabet.
- Variable names cannot exceed 255 characters.
- Variables Should NOT contain a period (.)
- Variable Names should be unique in the declared context.

Declaring Variables

Variables are declared using "dim" keyword. Since there is only ONE fundamental data type, all the declared variables are variant by default. Hence, a user **NEED NOT** mention the type of data during declaration.

Example 1: In this Example, IntValue can be used as a String, Integer or even arrays.

```
Dim Var
```

Example 2: Two or more declarations are separated by comma(,)

```
Dim Variable1,Variable2
```

Assigning Values to the Variables

Values are assigned similar to an algebraic expression. The variable name on the left hand side followed by an equal to (=) symbol and then its value on the right hand side.

Rules

- The numeric values should be declared without double quotes.
- The String values should be enclosed within double quotes(")
- Date and Time variables should be enclosed within hash symbol(#)

Examples

```
' Below Example, The value 25 is assigned to the variable.
Value1 = 25

' A String Value ‘VBScript’ is assigned to the variable StrValue.
StrValue = “VBScript”

' The date 01/01/2020 is assigned to the variable DToday.
Date1 = #01/01/2020#

' A Specific Time Stamp is assigned to a variable in the below example.
Time1 = #12:30:44 PM#
```

Scope of the Variables

Variables can be declared using the following statements that determines the scope of the variable. The scope of the variable plays a crucial role when used within a procedure or classes.

- Dim
- Public
- Private

Dim

Variables declared using “Dim” keyword at a Procedure level are available only within the same procedure. Variables declared using “Dim” Keyword at script level are available to all the procedures within the same script.

Example: In the below example, the value of Var1 and Var2 are declared at script level while Var3 is declared at procedure level.

Note: The scope of this chapter is to understand Variables. Functions would be dealt in detail in the upcoming chapters.

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

Dim Var1
Dim Var2
```

```

Call add()
Function add()
   Var1 = 10
   Var2 = 15
   Dim Var3
   Var3 = Var1+Var2
   Msgbox Var3 'Displays 25, the sum of two values.
End Function

Msgbox Var1   ' Displays 10 as Var1 is declared at Script level
Msgbox Var2   ' Displays 15 as Var2 is declared at Script level
Msgbox Var3   ' Var3 has No Scope outside the procedure. Prints Empty

</script>
</body>
</html>
```

Public

Variables declared using "Public" Keyword are available to all the procedures across all the associated scripts. When declaring a variable of type "public", Dim keyword is replaced by "Public".

Example: In the following example, Var1 and Var2 are available at script level while Var3 is available across the associated scripts and procedures as it is declared as Public.

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">
Dim Var1
Dim Var2
Public Var3

Call add()

Function add()
   Var1 = 10
   Var2 = 15
   Var3 = Var1+Var2
   Msgbox Var3 'Displays 25, the sum of two values.
End Function

Msgbox Var1   ' Displays 10 as Var1 is declared at Script level
Msgbox Var2   ' Displays 15 as Var2 is declared at Script level
Msgbox Var3   ' Displays 25 as Var3 is declared as Public

</script>
</body>
</html>
```

Private

Variables that are declared as "Private" have scope only within that script in which they are declared. When declaring a variable of type "Private", Dim keyword is replaced by "Private".

Example: In the following example, Var1 and Var2 are available at Script Level. Var3 is declared as Private and it is available only for this particular script. Use of "Private" Variables is more pronounced within the Class.

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">
Dim Var1
Dim Var2
Private Var3

Call add()
Function add()
   Var1 = 10
   Var2 = 15
   Var3 = Var1+Var2
   Msgbox Var3 'Displays the sum of two values.
End Function
```

```
Msgbox Var1   ' Displays 10 as Var1 is declared at Script level
Msgbox Var2   ' Displays 15 as Var2 is declared at Script level
Msgbox Var3   ' Displays 25 but Var3 is available only for this script.
</script>
</body>
</html>
```

6. CONSTANTS

Constant is a named memory location used to hold a value that CANNOT be changed during the script execution. If a user tries to change a Constant Value, the Script execution ends up with an error. Constants are declared the same way the variables are declared.

Declaring Constants

Syntax

```
[Public | Private] Const Constant_Name = Value
```

The Constant can be of type Public or Private. The Use of Public or Private is Optional. The Public constants are available for all the scripts and procedures while the Private Constants are available within the procedure or Class. One can assign any value such as number, String or Date to the declared Constant.

Example 1

In this example, the value of pi is 3.4 and it displays the area of the circle in a message box.

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

  Dim intRadius
  intRadius = 20
  const pi=3.14
  Area = pi*intRadius*intRadius
  Msgbox Area

</script>
</body>
</html>
```

Example 2

The following example illustrates how to assign a String and Date Value to a Constant.

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

  Const myString = "VBScript"
  Const myDate = #01/01/2050#
  Msgbox myString
  Msgbox myDate
</script>
</body>
</html>
```

Example 3

In the following example, the user tries to change the Constant Value; hence, it will end up with an **Execution Error.**

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">
   Dim intRadius
   intRadius = 20
   const pi=3.14
   pi = pi*pi      'pi VALUE CANNOT BE CHANGED.THROWS ERROR'
   Area = pi*intRadius*intRadius
   Msgbox Area
   </script>
</body>
</html>
```

7. OPERATORS

What is an Operator?

Let’s take an expression *4 + 5 is equal to 9*. Here, 4 and 5 are called **operands** and + is called the **operator**. VBScript language supports following types of operators:

- Arithmetic Operators
- Comparison Operators
- Logical (or Relational) Operators
- Concatenation Operators

The Arithmetic Operators

VBScript supports the following arithmetic operators:

Assume variable A holds 5 and variable B holds 10, then:

Operator	Description	Example
+	Adds two operands	A + B will give 15
-	Subtracts second operand from the first	A - B will give -5
*	Multiply both operands	A * B will give 50
/	Divide numerator by denominator	B / A will give 2
%	Modulus Operator and remainder of after an integer division	B MOD A will give 0
^	Exponentiation Operator	B ^ A will give 100000

Example

Try the following example to understand all the arithmetic operators available in VBScript:

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">
   Dim a : a = 5
   Dim b : b = 10
   Dim c

   c = a+b
   Document.write ("Addition Result is " &c)
   Document.write ("<br></br>")    'Inserting a Line Break for readability
   c = a-b
   Document.write ("Subtraction Result is " &c)
   Document.write ("<br></br>")   'Inserting a Line Break for readability
   c = a*b
   Document.write ("Multiplication Result is " &c)
   Document.write ("<br></br>")
   c = b/a
   Document.write ("Division Result is " &c)
   Document.write ("<br></br>")
   c = b MOD a
   Document.write ("Modulus Result is " &c)
   Document.write ("<br></br>")
   c = b^a
   Document.write ("Exponentiation Result is " &c)
   Document.write ("<br></br>")
</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Addition Result is 15

Subtraction Result is -5
```

```
Multiplication Result is 50
Division Result is 2
Modulus Result is 0
Exponentiation Result is 100000
```

The Comparison Operators

VBScript supports the following comparison operators:

Assume variable A holds 10 and variable B holds 20, then:

Operator	Description	Example
==	Checks if the value of two operands are equal or not, if yes then condition becomes true.	(A == B) is False.
<>	Checks if the value of two operands are equal or not, if values are not equal then condition becomes true.	(A <> B) is True.
>	Checks if the value of left operand is greater than the value of right operand, if yes then condition becomes true.	(A > B) is False.
<	Checks if the value of left operand is less than the value of right operand, if yes then condition becomes true.	(A < B) is True.
>=	Checks if the value of left operand is greater than or equal to the value of right operand, if yes then condition becomes true.	(A >= B) is False.
<=	Checks if the value of left operand is less than or equal to the value of right operand, if yes then condition becomes true.	(A <= B) is True.

Example

Try the following example to understand all the Comparison operators available in VBScript:

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">
  Dim a : a = 10
  Dim b : b = 20
  Dim c

  If a=b Then
     Document.write ("Operator Line 1 : True")
     Document.write ("<br></br>")  'Inserting a Line Break for readability
  Else
     Document.write ("Operator Line 1 : False")
     Document.write ("<br></br>")  'Inserting a Line Break for readability
  End If

  If a<>b Then
     Document.write ("Operator Line 2 : True")
     Document.write ("<br></br>")
  Else
     Document.write ("Operator Line 2 : False")
     Document.write ("<br></br>")
  End If

  If a>b Then
     Document.write ("Operator Line 3 : True")
     Document.write ("<br></br>")
  Else
     Document.write ("Operator Line 3 : False")
     Document.write ("<br></br>")
  End If

  If a<b Then
     Document.write ("Operator Line 4 : True")
     Document.write ("<br></br>")
  Else
     Document.write ("Operator Line 4 : False")
     Document.write ("<br></br>")
  End If

  If a>=b Then
```

```
      Document.write ("Operator Line 5 : True")
      Document.write ("<br></br>")
   Else
      Document.write ("Operator Line 5 : False")
      Document.write ("<br></br>")
   End If

   If a<=b Then
      Document.write ("Operator Line 6 : True")
      Document.write ("<br></br>")
   Else
      Document.write ("Operator Line 6 : False")
      Document.write ("<br></br>")
   End If

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Operator Line 1 : False

Operator Line 2 : True

Operator Line 3 : False

Operator Line 4 : True

Operator Line 5 : False

Operator Line 6 : True
```

The Logical Operators

VBScript supports the following logical operators:

Assume variable A holds 10 and variable B holds 0, then:

Operator	Description	Example
AND	Called Logical AND operator. If both the conditions are True then Expression becomes true.	a<>0 AND b<>0 is False.
OR	Called Logical OR Operator. If any of the two conditions are True then condition becomes true.	a<>0 OR b<>0 is true.
NOT	Called Logical NOT Operator. Use to reverses the logical state of its operand. If a condition is true then Logical NOT operator will make false.	NOT(a<>0 OR b<>0) is false.
XOR	Called Logical Exclusion. It is the combination of NOT and OR Operator. If one, and only one, of the expressions evaluates to True, result is True.	(a<>0 XOR b<>0) is false.

Example

Try the following example to understand all the Logical operators available in VBScript:

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">
  Dim a : a = 10
  Dim b : b = 0
  Dim c

  If a<>0 AND b<>0 Then
     Document.write ("AND Operator Result is : True")
     Document.write ("<br></br>")  'Inserting a Line Break for readability
  Else
     Document.write ("AND Operator Result is : False")
     Document.write ("<br></br>")  'Inserting a Line Break for readability
  End If
  If a<>0 OR b<>0 Then
     Document.write ("OR Operator Result is : True")
     Document.write ("<br></br>")
  Else
     Document.write ("OR Operator Result is : False")
     Document.write ("<br></br>")
  End If

  If NOT(a<>0 OR b<>0) Then
     Document.write ("NOT Operator Result is : True")
     Document.write ("<br></br>")
  Else
     Document.write ("NOT Operator Result is : False")
     Document.write ("<br></br>")
  End If

  If (a<>0 XOR b<>0) Then
     Document.write ("XOR Operator Result is : True")
     Document.write ("<br></br>")
  Else
     Document.write ("XOR Operator Result is : False")
     Document.write ("<br></br>")
  End If
</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
AND Operator Result is : False

OR Operator Result is : True

NOT Operator Result is : False

XOR Operator Result is : True
```

The Concatenation Operators

VBScript supports the following Concatenation operators:

Assume variable A holds 5 and variable B holds 10 then:

Operator	Description	Example
+	Adds two Values as Variable Values are Numeric	A + B will give 15
&	Concatenates two Values	A & B will give 510

Example

Try the following example to understand the Concatenation operator available in VBScript:

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">
  Dim a : a = 5
  Dim b : b = 10
  Dim c

  c=a+b
  Document.write ("Concatenated value:1 is " &c) 'Numeric addition
  Document.write ("<br></br>")  'Inserting a Line Break for readability
  c=a&b
  Document.write ("Concatenated value:2 is " &c) 'Concatenate two numbers
  Document.write ("<br></br>")  'Inserting a Line Break for readability
</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Concatenated value:1 is 15
Concatenated value:2 is 510
```

Concatenation can also be used for concatenating two strings. Assume variable A="Microsoft" and variable B="VBScript" then:

Operator	Description	Example
+	Concatenates two Values	A + B will give MicrosoftVBScript
&	Concatenates two Values	A & B will give MicrosoftVBScript

Example

Try the following example to understand the Concatenation operator available in VBScript:

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">
  Dim a : a = "Microsoft"
  Dim b : b = "VBScript"
  Dim c

  c=a+b
  Document.write ("Concatenated value:1 is " &c) 'Numeric addition
  Document.write ("<br></br>")  'Inserting a Line Break for readability
  c=a&b
  Document.write ("Concatenated value:2 is " &c) 'Concatenate two numbers
  Document.write ("<br></br>")  'Inserting a Line Break for readability
</script>
</body>
</html>
```

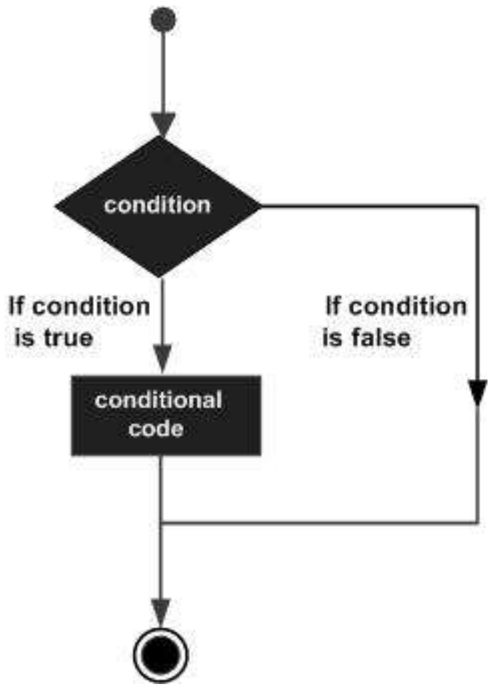
When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Concatenated value:1 is MicrosoftVBScript
Concatenated value:2 is MicrosoftVBScript
```

8. DECISION MAKING

Decision making allows programmers to control the execution flow of a script or one of its sections. The execution is governed by one or more conditional statements.

Following is the general form of a typical decision making structure found in most of the programming languages:



VBScript provides the following types of decision making statements.

Statement	Description
if statement	An **if** statement consists of a Boolean expression followed by one or more statements.
if..else statement	An **if** else statement consists of a Boolean expression followed by one or more statements. If the condition is True, the statements under the **If** statements are executed. If the condition is false, then the **Else** part of the script is Executed
if...elseif..else statement	An **if** statement followed by one or more **ElseIf** Statements, that consists of Boolean expressions and then followed by an optional else statement, which executes when all the condition becomes false.

nested if statements	An **if** or **elseif** statement inside another if or **elseif** statement(s).
switch statement	A switch statement allows a variable to be tested for equality against a list of values.

If Statements

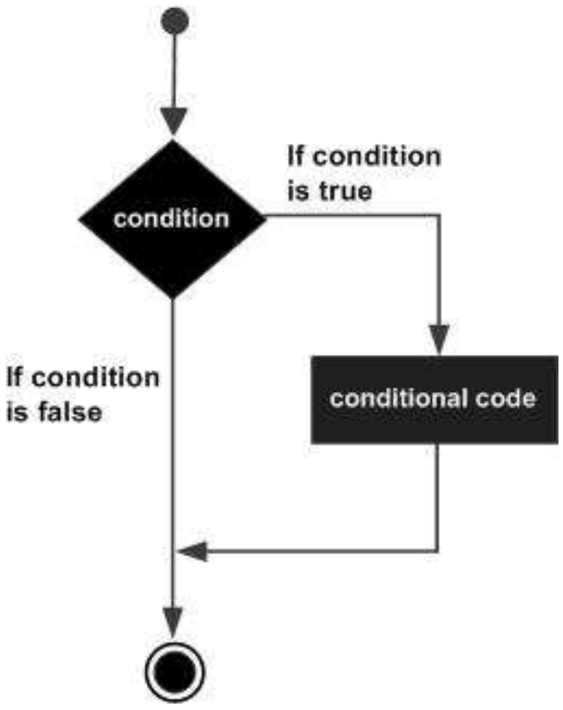
An **If** statement consists of a Boolean expression followed by one or more statements. If the condition is said to be True, the statements under **If** condition(s) are Executed. If the Condition is said to be False, the statements after the **If** loop are executed.

Syntax

The syntax of an **If** statement in VBScript is:

```
If(boolean_expression) Then

   Statement 1

     .....

     .....

   Statement n

End If
```

Flow Diagram



Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">
Dim a : a = 20
Dim b : b = 10

If a > b Then
   Document.write "a is Greater than b"
End If

</script>
</body>
</html>
```

When the above code is executed, it produces the following result:

```
a is Greater than b
```

If…Else Statements

An **If** statement consists of a Boolean expression followed by one or more statements. If the condition is said to be True, the statements under **If** condition(s) are Executed. If the Condition is said to be False, the statements under **Else** Part would be executed.

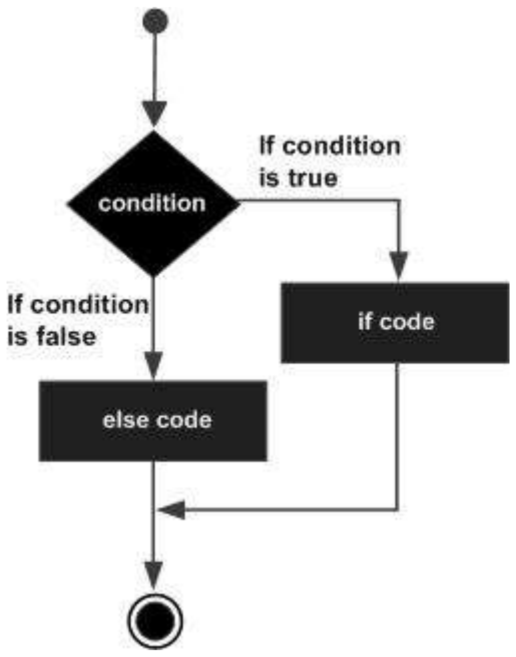
Syntax

The syntax of an **if**…**else** statement in VBScript is:

```
If(boolean_expression) Then
   Statement 1
     .....
     .....
   Statement n
Else
   Statement 1
     .....
     ....
   Statement n
```

```
End If
```

Flow Diagram



Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">
Dim a : a = 5
Dim b : b = 25

If a > b Then
   Document.write "a is Greater"
Else
   Document.write "b is Greater"
End If

</script>
</body>
</html>
```

When the above code is executed, it produces the following result:

```
b is Greater
```

If..ElseIf..Else Statements

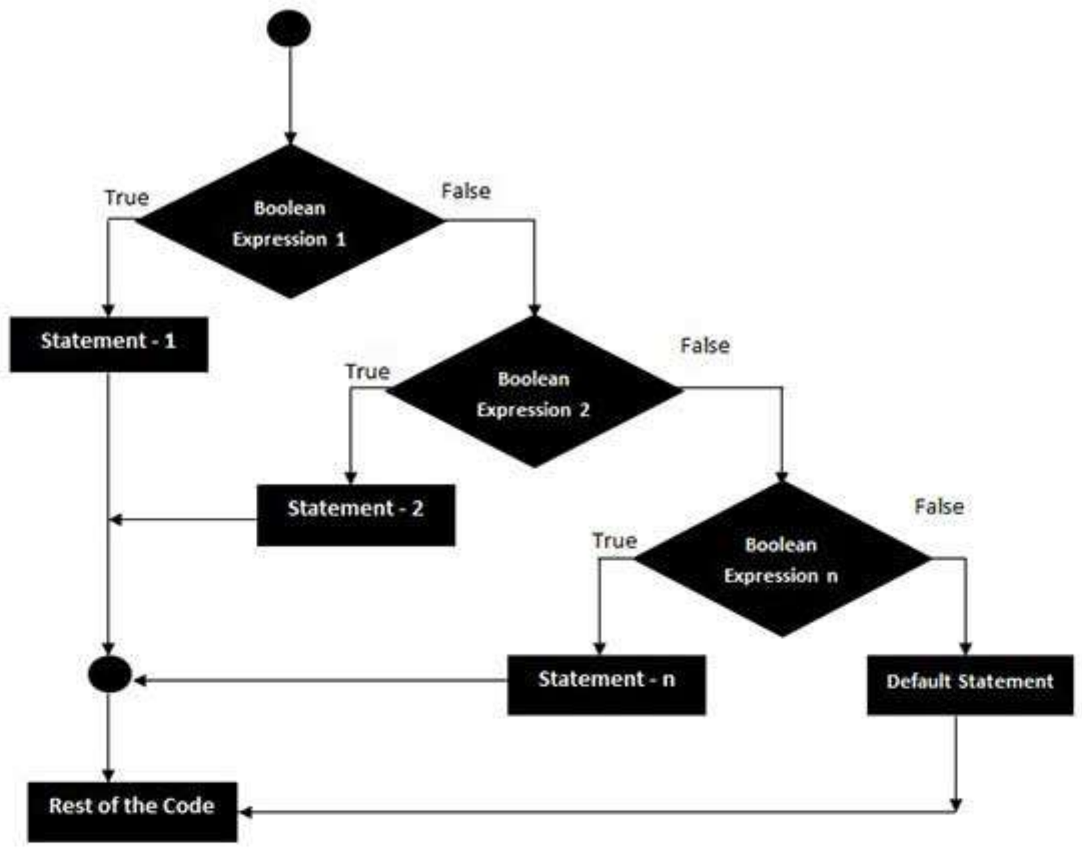
An **If** statement followed by one or more **ElseIf** Statements that consists of boolean expressions and then followed by a default **else** statement, which executes when all the condition becomes false.

Syntax

The syntax of an **If-ElseIf-Else** statement in VBScript is:

```
If(boolean_expression) Then
   Statement 1
      .....
      .....
   Statement n
ElseIf (boolean_expression) Then
   Statement 1
      .....
      ....
   Statement n
ElseIf (boolean_expression) Then
   Statement 1
      .....
      ....
   Statement n
Else
   Statement 1
      .....
      ....
   Statement n
End If
```

Flow Diagram



Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">
Dim a
a = -5

If a > 0 Then
   Document.write "a is a POSITIVE Number"
ElseIf a < 0 Then
   Document.write "a is a NEGATIVE Number"
Else
   Document.write "a is EQUAL than ZERO"
End If
</script>
```

```
</body>
</html>
```

When the above code is executed, it produces the following result:

```
a is a NEGATIVE Number
```

Nested If Statement

An **If** or **ElseIf** statement inside another **If** or **ElseIf** statement(s). The Inner **If** statements are executed based on the Outermost **If** statements. This enables VBScript to handle complex conditions with ease.

Syntax

The syntax of a Nested if statement in VBScript is:

```
If(boolean_expression) Then
   Statement 1
     .....
     .....
   Statement n
   If(boolean_expression) Then
      Statement 1
            .....
            .....
       Statement n
   ElseIf (boolean_expression) Then
      Statement 1
            .....
            ....
      Statement n
   Else
        Statement 1
            .....
            ....
        Statement n
   End If
Else
   Statement 1
```

```
      .....
      ....
   Statement n
End If
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">
Dim a
a = 23

If a > 0 Then
   Document.write "The Number is a POSITIVE Number"
   If a = 1 Then
      Document.write "The Number is Neither Prime NOR Composite"
   Elseif a = 2 Then
      Document.write "The Number is the Only Even Prime Number"
   Elseif a = 3 Then
      Document.write "The Number is the Least Odd Prime Number"
   Else
      Document.write "The Number is NOT 0,1,2 or 3"
   End If
ElseIf  a < 0 Then
   Document.write "The Number is a NEGATIVE Number"
Else
   Document.write "The Number is ZERO"
End If
</script>
</body>
</html>
```

When the above code is executed, it produces the following result:

```
The Number is a POSITIVE Number
The Number is NOT 0,1,2 or 3
```

Switch Statements

When a user wants to execute a group of statements depending upon a value of an expression, then he can use Switch Case statements. Each value is called a **Case**, and the variable being switched **ON** based on each case. **Case Else** statement is executed if test expression doesn't match any of the Case specified by the user.

Case Else is an optional statement within Select Case, however, it is a good programming practice to always have a Case Else statement.

Syntax

The syntax of a Switch Statement in VBScript is:

```
Select Case expression
   Case expressionlist1
      statement1
      statement2
      ....
      ....
      statement1n
   Case expressionlist2
      statement1
      statement2
      ....
      ....
   Case expressionlistn
      statement1
      statement2
      ....
      ....
  Case Else
      elsestatement1
      elsestatement2
      ....
      ....
End Select
```

Example

```
<!DOCTYPE html>
<html>
```

```
<body>
<script language="vbscript" type="text/vbscript">
Dim MyVar
MyVar = 1

Select case MyVar
   case 1
      Document.write "The Number is the Least Composite Number"
   case 2
      Document.write "The Number is the only Even Prime Number"
   case 3
      Document.write "The Number is the Least Odd Prime Number"
   case else
      Document.write "Unknown Number"
End select
</script>
</body>
</html>
```

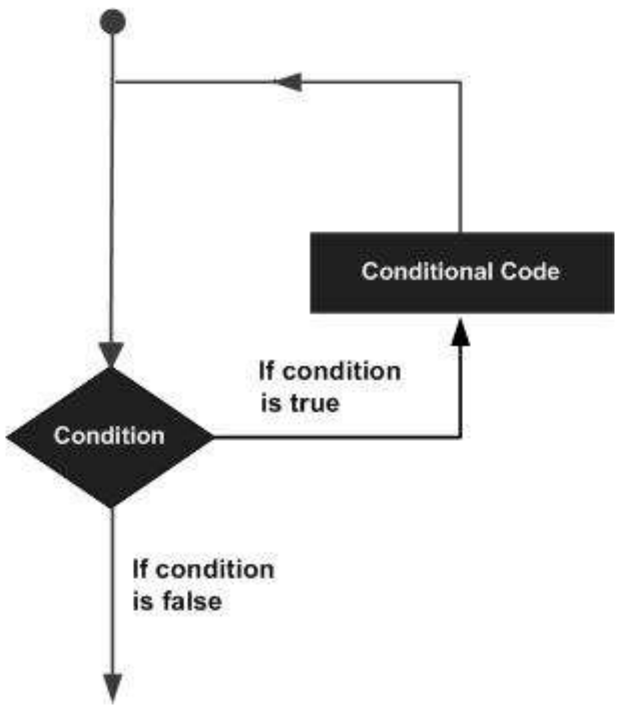
In the above example, the value of MyVar is 1. Hence, Case 1 would be executed.

```
The Number is the Least Composite Number
```

9. LOOPS

There may be a situation when you need to execute a block of code several number of times. In general, statements are executed sequentially: The first statement in a function is executed first, followed by the second, and so on.

Programming languages provide various control structures that allow more complicated execution paths. A loop statement allows us to execute a statement or group of statements multiple times and following is the general from of a loop statement in VBScript.



VBScript provides the following types of loops to handle looping requirements. Click the following links to check their detail.

Loop Type	Description
for loop	Executes a sequence of statements multiple times and abbreviates the code that manages the loop variable.
for ..each loop	It is executed if there is at least one element in group and reiterated for each element in a group.
while..wend loop	It tests the condition before executing the loop body.

do..while loops	The do..While statements will be executed as long as condition is True.(i.e.,) The Loop should be repeated till the condition is False.
do..until loops	The do..Until statements will be executed as long as condition is False.(i.e.,) The Loop should be repeated till the condition is True.

For Loops

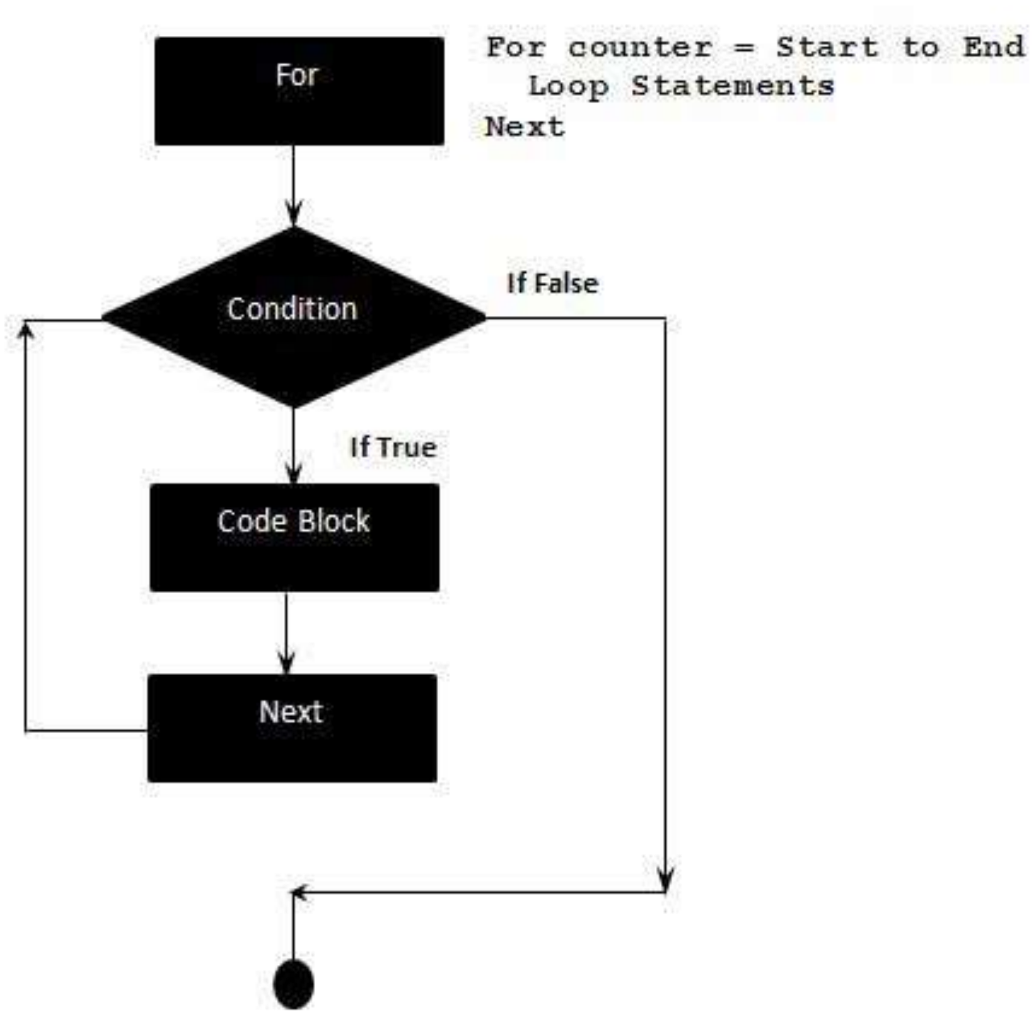
A **for** loop is a repetition control structure that allows a developer to efficiently write a loop that needs to execute a specific number of times.

Syntax

The syntax of a **for** loop in VBScript is:

```
For counter = start To end [Step stepcount]
  [statement 1]
  [statement 2]
  ....
  [statement n]
  [Exit For]
  [statement 11]
  [statement 22]
  ....
  [statement n]
Next
```

Flow Diagram



Here is the flow of control in a For Loop:

- The **For** step is executed first. This step allows you to initialize any loop control variables and increment the step counter variable.

- Secondly, the **condition** is evaluated. If it is true, the body of the loop is executed. If it is false, the body of the loop does not execute and flow of control jumps to the next statement just after the For Loop.

- After the body of the for loop executes, the flow of control jumps to the **Next** statement. This statement allows you to update any loop control variables. It is updated based on the step counter value.

- The condition is now evaluated again. If it is true, the loop executes and the process repeats itself (body of loop, then increment step, and then again condition). After the condition becomes false, the For Loop terminates.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

   Dim a : a=10
   For i=0 to a Step 2 'i is the counter variable and it is incremented by 2
     document.write("The value is i is : " & i)
     document.write("<br></br>")
   Next

</script>
</body>
</html>
```

When the above code is compiled and executed, it produces the following result:

```
The value is i is : 0


The value is i is : 2


The value is i is : 4


The value is i is : 6


The value is i is : 8


The value is i is : 10
```

For...Each Loops

A **For Each** loop is used when we want to execute a statement or a group of statements for each element in an array or collection.

A **For Each** loop is similar to For Loop; however, the loop is executed for each element in an array or group. Hence, the step counter won't exist in this type of loop and it is mostly used with arrays or used in context of File system objects in order to operate recursively.

Syntax

The syntax of a **For Each** loop in VBScript is:

```
For Each element In Group
  [statement 1]
  [statement 2]
  ....
  [statement n]
  [Exit For]
  [statement 11]
  [statement 22]
Next
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

 'fruits is an array
 fruits=Array("apple","orange","cherries")
 Dim fruitnames

 'iterating using For each loop.
 For each item in fruits
    fruitnames=fruitnames&item&vbnewline
 Next

 msgbox fruitnames

</script>
</body>
</html>
```

When the above code is executed, it prints all the fruitnames with one item in each line.

```
apple
```

```
orange

cherries
```

While...Wend Loop

In a **While..Wend** loop, if the condition is True, all statements are executed until**Wend** keyword is encountered.

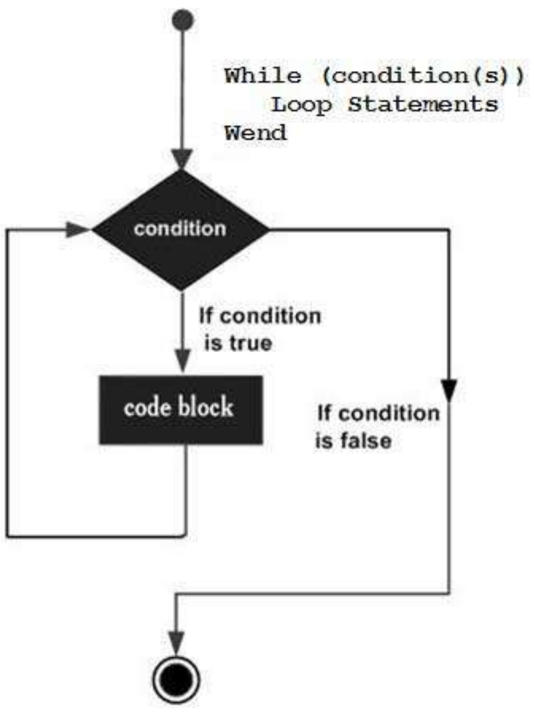
If the condition is false, the loop is exited and the control jumps to very next statement after **Wend** keyword.

Syntax

The syntax of a **While..Wend** loop in VBScript is:

```
While condition(s)

   [statements 1]

   [statements 2]

   ...

   [statements n]

Wend
```

Flow Diagram



Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

  Dim Counter :  Counter = 10
  While Counter < 15     ' Test value of Counter.
    Counter = Counter + 1   ' Increment Counter.
    document.write("The Current Value of the Counter is : " & Counter)
     document.write("<br></br>")
  Wend   ' While loop exits if Counter Value becomes 15.

</script>
</body>
</html>
```

When the above code is executed, it prints the following output on the console.

```
The Current Value of the Counter is : 11

The Current Value of the Counter is : 12

The Current Value of the Counter is : 13

The Current Value of the Counter is : 14

The Current Value of the Counter is : 15
```

Do..While statement

A **Do..While** loop is used when we want to repeat a set of statements as long as the condition is true. The Condition may be checked at the beginning of the loop or at the end of the loop.

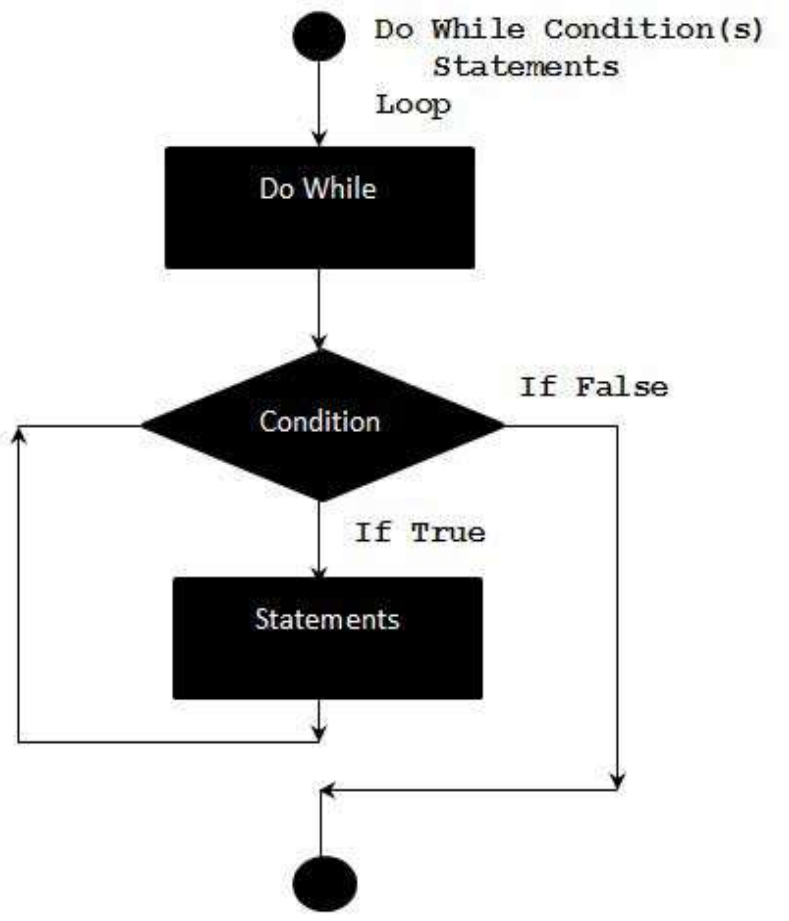
Syntax

The syntax of a **Do..While** loop in VBScript is:

```
Do While condition
   [statement 1]
```

```
    [statement 2]
    ...
    [statement n]
    [Exit Do]
    [statement 1]
    [statement 2]
    ...
    [statement n]
Loop
```

Flow Diagram



Example

The below example uses **Do..while** loop to check the condition at the beginning of the loop. The statements inside the loop are executed only if the condition becomes True.

```
<!DOCTYPE html>
```

```
<html>
<body>
<script language="vbscript" type="text/vbscript">

  Do While i < 5
    i = i + 1
    Document.write("The value of i is : " & i)
    Document.write("<br></br>")
  Loop

</script>
</body>
</html>
```

When the above code is executed, it prints the following output on the console.

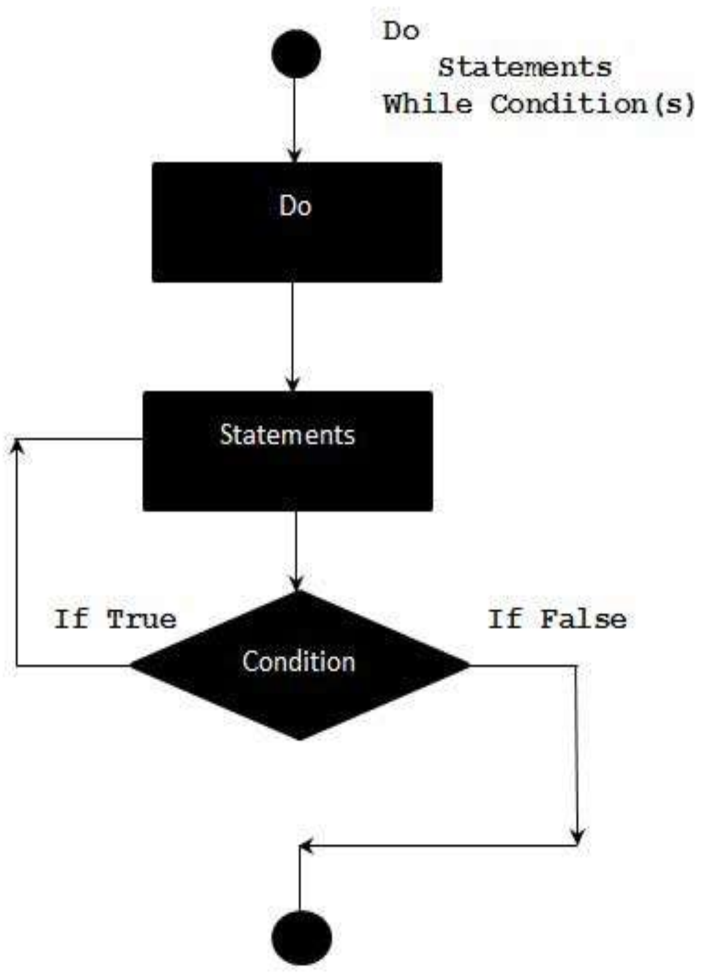
```
The value of i is : 1

The value of i is : 2

The value of i is : 3

The value of i is : 4

The value of i is : 5
```

Alternate Syntax

There is an alternate Syntax for **Do..while** loop which checks the condition at the end of the loop. The Major difference between these two syntax is explained below with an example.

```
Do
   [statement 1]
   [statement 2]
   ...
   [statement n]
   [Exit Do]
   [statement 1]
   [statement 2]
   ...
   [statement n]
Loop While condition
```

Flow Diagram



Example

The below example uses **Do..while** loop to check the condition at the end of the loop. The Statements inside the loop are executed at least once even if the condition is False.

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">


  i=10
  Do
    i = i + 1
    Document.write("The value of i is : " & i)
    Document.write("<br></br>")
  Loop While i<3 'Condition is false.Hence loop is executed once.

</script>
</body>
</html>
```

When the above code is executed, it prints the following output on the console.

```
The value of i is : 11
```

Do..Until Loops

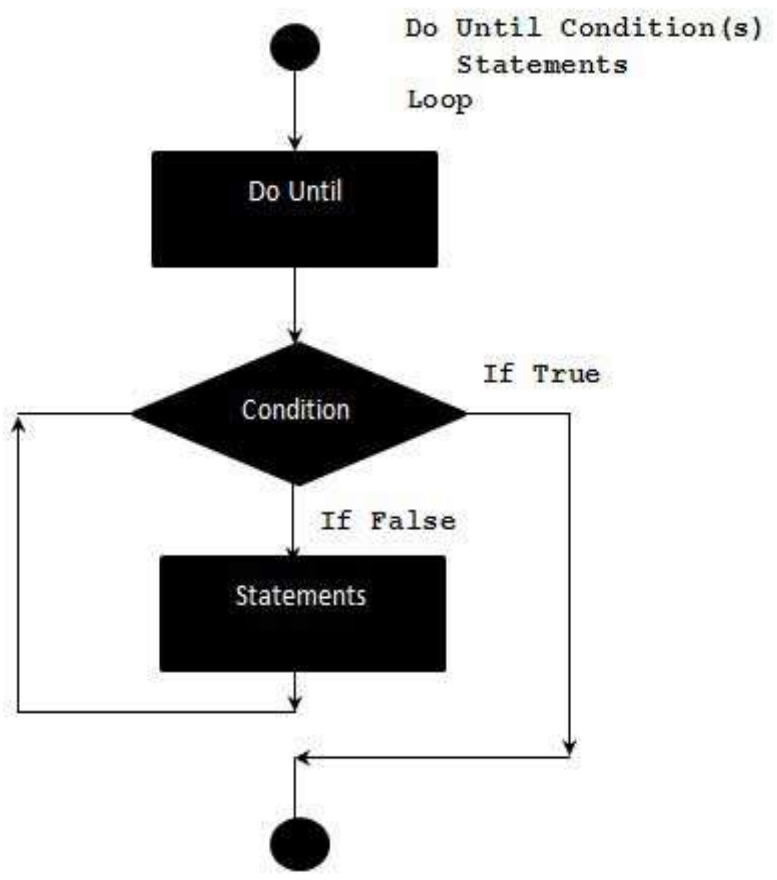
A **Do..Until** loop is used when we want to repeat a set of statements as long as the condition is false. The Condition may be checked at the beginning of the loop or at the end of loop.

Syntax

The syntax of a **Do..Until** loop in VBScript is:

```
Do Until condition
   [statement 1]
   [statement 2]
   ...
   [statement n]
   [Exit Do]
   [statement 1]
   [statement 2]
   ...
   [statement n]
Loop
```

Flow Diagram



Example

The following example uses **Do..Until** loop to check the condition at the beginning of the loop. The Statements inside the loop are executed only if the condition is false. It exits out of the loop when the condition becomes true.

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

  i=10
  Do Until i>15  'Condition is False.Hence loop will be executed
    i = i + 1
    Document.write("The value of i is : " & i)
    Document.write("<br></br>")
  Loop

</script>
```

```
</body>
</html>
```

When the above code is executed, it prints the following output on the console.

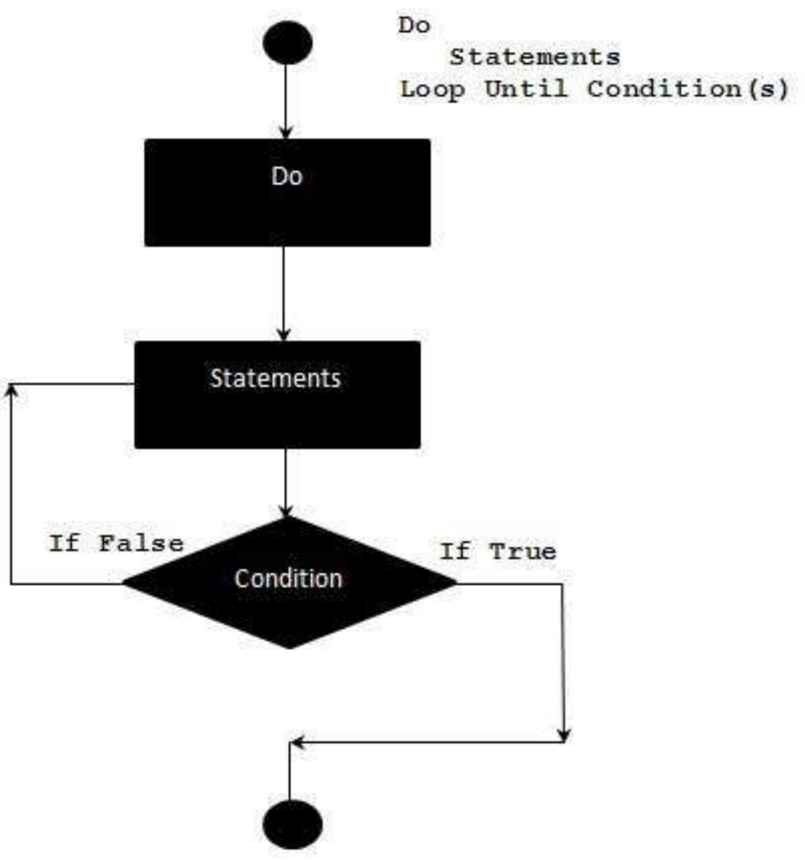
```
The value of i is : 11


The value of i is : 12


The value of i is : 13


The value of i is : 14


The value of i is : 15


The value of i is : 16
```

Alternate Syntax

There is an alternate Syntax for **Do..Until** loop which checks the condition at the end of the loop. The Major difference between these two syntax is explained below with an example.

```
Do
   [statement 1]
   [statement 2]
   ...
   [statement n]
   [Exit Do]
   [statement 1]
   [statement 2]
   ...
   [statement n]
Loop Until condition
```

Flow Diagram



Example

The below example uses **Do..Until** loop to check the condition at the end of the loop. The Statements inside the loop are executed at least once even if the condition is True.

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

  i=10
  Do
    i = i + 1
    Document.write("The value of i is : " & i)
    Document.write("<br></br>")
  Loop Until i<15 'Condition is True.Hence loop is executed once.

</script>
</body>
```

```
</html>
```

When the above code is executed, it prints the following output in the console.

```
The value of i is : 11
```

Loop Control Statements

Loop control statements change execution from its normal sequence. When execution leaves a scope, all the remaining statements in the loop are NOT executed. VBScript supports the following control statements. Click the following links to check their detail.

Control Statement	Description
Exit For statement	Terminates the For loop statement and transfers execution to the statement immediately following the loop
Exit Do statement	Terminates the Do While statement and transfers execution to the statement immediately following the loop

Exit For statement

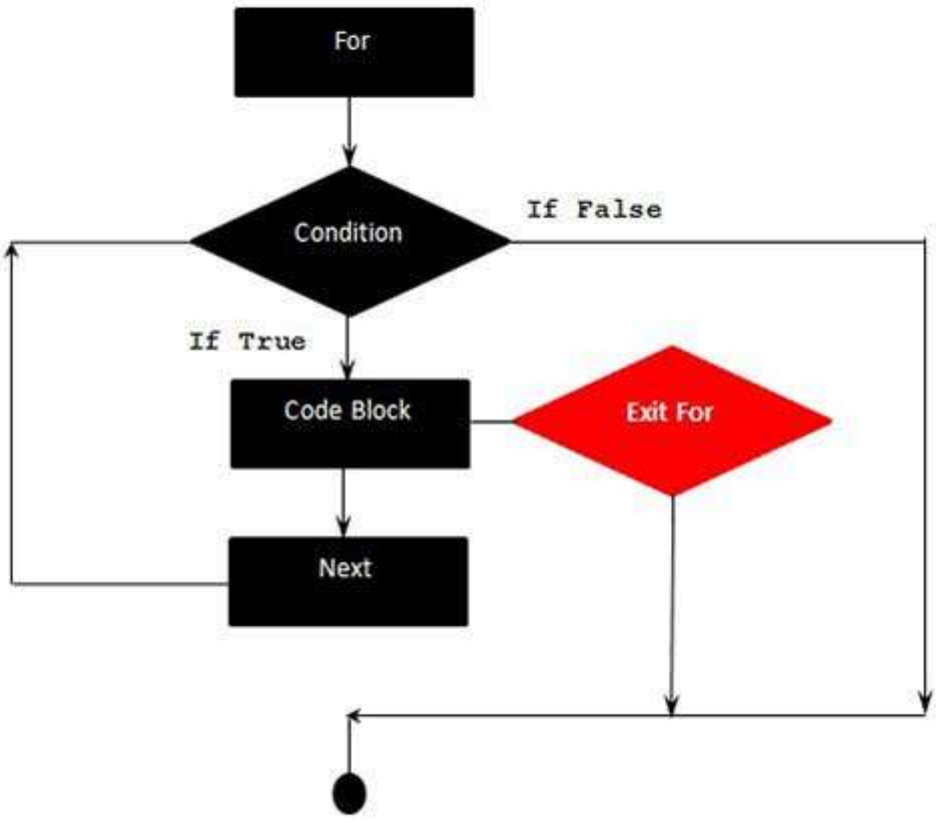
A **Exit For** Statement is used when we want to Exit the **For** Loop based on certain criteria. When **Exit For** is executed, the control jumps to next statement immediately after the **For** Loop.

Syntax

The syntax for **Exit For** Statement in VBScript is:

```
 Exit For
```

Flow Diagram



Example

The following example uses **Exit For**. If the value of the Counter reaches 4, the For Loop is Exited and control jumps to the next statement immediately after the For Loop.

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

  Dim a : a=10
  For i=0 to a Step 2 'i is the counter variable and it is incremented by 2
    document.write("The value is i is : " & i)
    document.write("<br></br>")
     If i=4 Then
       i=i*10  'This is executed only if i=4
       document.write("The value is i is : " & i)
       Exit For 'Exited when i=4
     End If
  Next
```

```
</script>
</body>
</html>
```

When the above code is executed, it prints the following output on the console.

```
The value is i is : 0


The value is i is : 2


The value is i is : 4


The value is i is : 40
```

Exit Do statement

An **Exit Do** Statement is used when we want to Exit the **Do** Loops based on certain criteria. It can be used within both **Do..While** and **Do..Until** Loops.

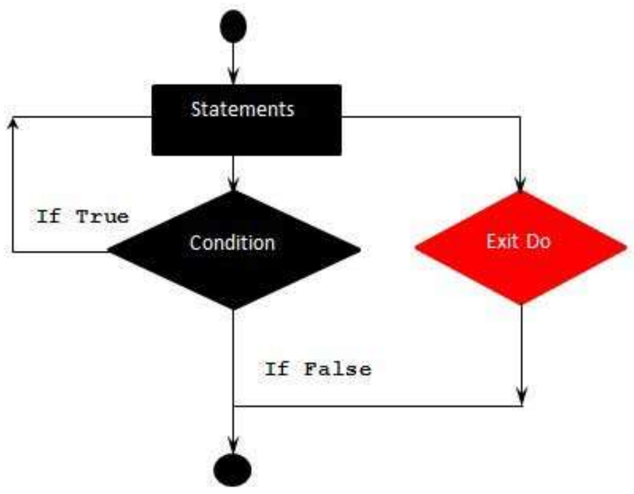
When **Exit Do** is executed, the control jumps to next statement immediately after the **Do** Loop.

Syntax

The syntax for **Exit Do** Statement in VBScript is:

```
 Exit Do
```

Flow Diagram



Example

The following example uses **Exit Do**. If the value of the Counter reaches 10, the Do Loop is Exited and control jumps to the next statement immediately after the For Loop.

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

i = 0
Do While i <= 100
  If i > 10 Then
    Exit Do   ' Loop Exits if i>10
  End If
  document.write("The Value of i is : " &i)
  document.write("<br></br>")
  i = i + 2
Loop

</script>
</body>
</html>
```

When the above code is executed, it prints the following output on the console.

```
The Value of i is : 0

The Value of i is : 2

The Value of i is : 4

The Value of i is : 6

The Value of i is : 8

The Value of i is : 10
```

10. EVENTS

What is an Event ?

VBScript's interaction with HTML is handled through events that occur when the user or browser manipulates a page. When the page loads, that is an event. When the user clicks a button, that click too is an event. Other examples of events include pressing any key, closing window, resizing window, etc. Developers can use these events to execute VBScript coded responses, which cause buttons to close windows, messages to be displayed to users, data to be validated, and virtually any other type of response imaginable to occur.

Events are a part of the Document Object Model (DOM) and every HTML element has a certain set of events, which can trigger VBScript Code. Please go through this small tutorial for a better understanding HTML Event Reference. Here, we will see few examples to understand a relation between Event and VBScript.

onclick Event Type

This is the most frequently used event type, which occurs when a user clicks mouse's left button. You can put your validation, warning, etc., against this event type.

Example

```
<html>
<head>
<script language="vbscript" type="text/vbscript">

Function sayHello()
   msgbox "Hello World"
End Function

</script>
</head>
<body>
<input type="button" onclick="sayHello()" value="Say Hello"/>
</body>
</html>
```

It will produce the following result, and when you click the Hello button, the onclick event will occur which will trigger sayHello() function.

onsubmit Event Type

Another most important event type is *onsubmit*. This event occurs when you try to submit a form. So you can put your form validation against this event type. The Form is submitted by clicking on Submit button, the message box appears.

Example

```
<html>
<head>
</head>
<body>
<script language="VBScript">

Function fnSubmit()
  Msgbox("Hello Tutorialspoint.Com")
End Function

</script>
<form action="/cgi-bin/test.cgi" method="post" name="form1"
onSubmit="fnSubmit()">
<input name="txt1" type="text"><br>
<input name="btnButton1" type="submit" value="Submit">
</form>
</script>
</body>
</html>
```

onmouseover and onmouseout

These two event types will help you to create nice effects with images or even with text as well. The *onmouseover* event occurs when you bring your mouse over any element and the *onmouseout* occurs when you take your mouse out from that element.

Example

```
<html>
<head>
</head>
```

```
<body>
<script language="VBScript">

Function AlertMsg
  Msgbox("ALERT !")
End Function

Function onmourse_over()
  Msgbox("Onmouse Over")
End Function

Sub txt2_OnMouseOut()
  Msgbox("Onmouse Out !!!")
End Sub

Sub btnButton_OnMouseOut()
  Msgbox("onmouse out on Button !")
End Sub

</script>
<form action="page.cgi" method="post" name="form1">
<input name="txt1" type="text" OnMouseOut="AlertMsg()"><br>
<input name="txt2" type="text" OnMouseOver="onmourse_over()">
<br><input name="btnButton" type="button" value="Submit">
</form>
</body>
</html>
```

It will produce a result when you hover the mouse over the text box and also when you move the focus away from the text box and the button.

HTML 4 Standard Events

The standard HTML 4 events are listed here for your reference. Here, script indicates a VBScript function to be executed against that event.

Event	Value	Description
Onchange	script	Script runs when the element changes
Onsubmit	script	Script runs when the form is submitted
Onreset	script	Script runs when the form is reset
Onblur	script	Script runs when the element loses focus
Onfocus	script	Script runs when the element gets focus
onkeydown	script	Script runs when key is pressed
onkeypress	script	Script runs when key is pressed and released
Onkeyup	script	Script runs when key is released
Onclick	script	Script runs when a mouse click
Ondblclick	script	Script runs when a mouse double-click
onmousedown	script	Script runs when mouse button is pressed
onmousemove	script	Script runs when mouse pointer moves
onmouseout	script	Script runs when mouse pointer moves out of an element
onmouseover	script	Script runs when mouse pointer moves over an element
onmouseup	script	Script runs when mouse button is released

11. VBSCRIPT AND COOKIES

What are Cookies?

Web Browsers and Servers use HTTP protocol to communicate and HTTP is a stateless protocol. But for a commercial website, it is required to maintain session information among different pages. For example, one user registration ends after completing many pages. But how to maintain user's session information across all the web pages. In many situations, using cookies is the most efficient method of remembering and tracking preferences, purchases, commissions and other information required for better visitor experience or site statistics.

How It Works?

Your server sends some data to the visitor's browser in the form of a cookie. The browser may accept the cookie. If it does, it is stored as a plain text record on the visitor's hard drive. Now, when the visitor arrives at another page on your site, the browser sends the same cookie to the server for retrieval. Once retrieved, your server knows/remembers what was stored earlier. Cookies are a plain text data record of 5 variable-length fields:

- **Expires**: The date the cookie will expire. If this is blank, the cookie will expire when the visitor quits the browser.
- **Domain**: The domain name of your site.
- **Path**: The path to the directory or web page that set the cookie. This may be blank if you want to retrieve the cookie from any directory or page.
- **Secure**: If this field contains the word "secure", then the cookie may only be retrieved with a secure server. If this field is blank, no such restriction exists.
- **Name=Value**: Cookies are set and retrieved in the form of key and value pairs.

Cookies were originally designed for CGI programming and cookies' data is automatically transmitted between the web browser and web server, so CGI scripts on the server can read and write cookie values that are stored on the client.

VBScript can also manipulate cookies using the *cookie* property of the *Document* object. VBScript can read, create, modify and delete the cookie or cookies that apply to the current web page.

Storing Cookies

The simplest way to create a cookie is to assign a string value to the *document.cookie*object, which looks like this:

Syntax

```
document.cookie = "key1=value1;key2=value2;expires=date"
```

Here *expires* attribute is optional. If you provide this attribute with a valid date or time, then cookie will expire at the given date or time and after that cookies' value will not be accessible.

Example

Following is the example to set a customer name in *input* cookie.

```
<html>
<head>
<script type="text/vbscript">

Function WriteCookie
   If document.myform.customer.value="" Then
      msgbox "Enter some value!"
   Else
      cookievalue=(document.myform.customer.value)
      document.cookie="name=" + cookievalue
      msgbox "Setting Cookies : " & "name=" & cookievalue
   End If
End Function

</script>
</head>
<body>
<form name="myform" action="">
Enter name: <input type="text" name="customer"/>
<input type="button" value="Set Cookie" onclick="WriteCookie()"/>
</form>
</body>
</html>
```

It will produce the following result. Now enter something in the textbox and press the button "Set Cookie" to set the cookies.

Now, your system has a cookie called *name*. You can set multiple cookies using multiple *key=value* pairs separated by comma. You will learn how to read this cookie in next section.

Reading Cookies

Reading a cookie is just as simple as writing one, because the value of the *document.cookie* object is the cookie. So, you can use this string whenever you want to access the cookie. The *document.cookie* string will keep a list of *name=value* pairs separated by semicolons where *name* is the *name* of a cookie and value is its string value. You can use strings' *split()* function to break the string into key and values as follows:

Example

Following is the example to get the cookies set in the previous section:

```
<html>
<head>
<script type="text/vbscript">

Function ReadCookie
   allcookies = document.cookie
   msgbox "All Cookies : " + allcookies

   cookiearray  = split(allcookies,";")

   For i=0 to ubound(cookiearray)
     Name  = Split(cookiearray(i),"=")
     Msgbox "Key is : " + Name(0) + " and Value is : " + Name(1)
   Next
End Function

</script>
</head>
<body>
<form name="myform" action="">
<input type="button" value="Get Cookie" onclick="ReadCookie()"/>
```

```
</form>
</body>
</html>
```

Note : Here, *UBound* is a method of *Array* class, which returns the length of an array. We will discuss Arrays in a separate chapter; until that time, please try to digest it.

It will produce the following result. Now, press the button "Get Cookie" to see the cookies, which you have set in previous section.

Note: There may be some other cookies already set on your system. So, tnhe above code will show you all the cookies set on your system.

Setting the Cookies Expiration Date

You can extend the life of a cookie beyond the current browser session by setting an expiration date and saving the expiration date within the cookie. This can be done by setting the *expires* attribute to a date and time.

Example

The following example illustrates how to set cookie expiration date after 1 Month:

```
<html>
<head>
<script type="text/vbscript">
Function WriteCookie()
   x = now()
   y = dateadd("m",1,now())  ' Making it to expire next
   cookievalue = document.myform.customer.value
   document.cookie = "name = "  & cookievalue
   document.cookie = "expires = " & y
   msgbox("Setting Cookies : " & "name=" & cookievalue )
End Function
</script>
</head>
<body>
<form name="myform" action="">
Enter name: <input type="text" name="customer"/>
```

```
<input type="button" value="Set Cookie" onclick="WriteCookie()"/>
</form>
</body>
</html>
```

Deleting a Cookie

Sometimes, you will want to delete a cookie so that subsequent attempts to read the cookie return nothing. To do this, you just need to set the expiration date to a time in the past.

Example

The following example illustrates how to delete a cookie by setting its expiration date 1 Month in the past:

```
<html>
<head>
<script type="text/vbscript">
Function WriteCookie()
   x = now()
   x = now()
   a = Month(x)-1
   b = day(x)
   c = year(x)
   d = DateSerial(c,a,b)
   e = hour(x)
   msgbox e
   f = minute(x)
   msgbox f
   d = cdate(d & " " & e & ":" & f)
   msgbox d
   cookievalue = document.myform.customer.value
   document.cookie = "name = "  & cookievalue
   document.cookie = "expires = " & d
   msgbox("Setting Cookies : " & "name=" & cookievalue )
End Function
</script>
</head>
<body>
```

```
<form name="myform" action="">
Enter name: <input type="text" name="customer"/>
<input type="button" value="Set Cookie" onclick="WriteCookie()"/>
</form>
</body>
</html>
```

12. VBSCRIPT NUMBERS

Number functions help the developers to handle numbers in an efficient way and also helps them to convert their subtypes. It also helps them to make use of the inbuilt mathematical functions associated with VBScript.

Number Conversion Functions

Number functions help us to convert a given number from one data subtype to another data subtype.

Function	Description
CDbl	A Function, which converts a given number of any variant subtype to double
CInt	A Function, which converts a given number of any variant subtype to Integer
CLng	A Function, which converts a given number of any variant subtype to Long
CSng	A Function, which converts a given number of any variant subtype to Single
Hex	A Function, which converts a given number of any variant subtype to Hexadecimal

VBScript Number Conversion Functions Example

Syntax

```
Variable_name = Conversion_function_name(expression)
```

Example

Try the following example to understand all the Number Conversion Functions available in VBScript.

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">
```

```
x = 123
y = 123.882

document.write("x value after converting to double - " & CDbl(x) & "<br />")
document.write("y value after converting to double - " & CDbl(y) & "<br />")
document.write("x value after converting to Int -" & CInt(x) & "<br />")
document.write("y value after converting to Int -" & CInt(y) & "<br />")
document.write("x value after converting to Long -" & CLng(x) & "<br />")
document.write("y value after converting to Long -" & CLng(y) & "<br />")
document.write("x value after converting to Single -" & CSng(x) & "<br />")
document.write("y value after converting to Single -" & CSng(y) & "<br />")
document.write("x value after converting to Hex -" & Hex(x) & "<br />")
document.write("y value after converting to Hex -" & Hex(y) & "<br />")
</script>
</body>
</html>
```

When executed, the above script will produce the following output:

```
x value after converting to double - 123
y value after converting to double - 123.882
x value after converting to Int -123
y value after converting to Int -124
x value after converting to Long -123
y value after converting to Long -124
x value after converting to Single -123
y value after converting to Single -123.882
x value after converting to Hex -7B
y value after converting to Hex -7C
```

Number Formatting Functions

The Number formatting functions help the developers to express the given number in a format that they wish to.

Function	Description

FormatNumber	A Function, which would return an expression formatted as a number
FormatPercent	A Function, which would return an expression formatted as a percentage

VBScript Number Formatting Functions Example

Syntax

```
variablename = Format_function_Name(Expression[,NumberDigAfterDec[,LeadingDig[,
UseParForNegNum[,GroupDigits]]]])
```

Description

- The Required parameter **Format_function_Name** corresponds to any of the below listed number formatting functions.
- The Optional parameter **Expression** corresponds to any numerical expression, which would result in a number.
- The Optional parameter **NumberDigAfterDec** corresponds to the number of digits after the decimal place.
- The Optional parameter **LeadingDig** corresponds to whether or not a leading zero is displayed for fractional values. It takes one of the three values based on the below settings parameter.
- The Optional parameter **UseParForNegNum** corresponds to whether or not to place negative values within parentheses. It takes one of the three values based on the below settings parameter.
- The Optional parameter **GroupDigits** corresponds to whether or not numbers are grouped using the group delimiter. It takes one of the three values based on the below settings parameter.

Settings

The above parameters LeadingDig, UseParForNegNum and GroupDigits arguments can have any of the following settings:

- -2 = vbUseDefault - Use the computer's regional settings
- -1 = vbTrue - True
- 0 = vbFalse - False

Example

Try the following example to understand all the Number Formatting Functions available in VBScript.

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

Dim num : num = -645.998651

document.write("Line 1 : " & FormatNumber(num, 3))& "<br/>"

' The UseParensForNegativeNumbers parameter is set to true.
document.write("Line 2 : " & FormatNumber (num, 3, , vbTrue))&" <br/> "

' The GroupDigits parameter is set to false.
document.write("Line 3 : " & FormatNumber (num, 3, , , vbFalse)) & "<br/>"

document.write("Line 4 : " & FormatPercent(num, 3))& "<br/>"

' The UseParensForNegativeNumbers parameter is set to true.
document.write("Line 5 : " & FormatPercent (num, 3, , vbTrue))&" <br/> "

' The GroupDigits parameter is set to false.
document.write("Line 6 : " & FormatPercent (num, 3, , , vbFalse)) & "<br/>"

</script>
</body>
</html>
```

When executed, the above script will produce the following output:

```
Line 1 : -645.999
Line 2 : (645.999)
Line 3 : -645.999
Line 4 : -64,599.865%
Line 5 : (64,599.865%)
Line 6 : -64599.865%
```

Mathematical Functions

Mathematical Functions help us to evaluate the mathematical and trigonometrical functions of a given input number.

Function	Description
Int	A Function, which returns the integer part of the given number
Fix	A Function, which returns the integer part of the given number
Log	A Function, which returns the natural logarithm of the given number. Negative numbers disallowed
Oct	A Function, which returns the Octal value of the given percentage
Hex	A Function, which returns the Hexadecimal value of the given number
Rnd	A Function, which returns a random number between 0 and 1
Sgn	A Function, which returns a number corresponding to the sign of the specified number
Sqr	A Function, which returns the square root of the given number. Negative numbers disallowed
Abs	A Function, which returns the absolute value of the given number
Exp	A Function, which returns the value of e raised to the specified number
Sin	A Function, which returns sine value of the given number
Cos	A Function, which returns cosine value of the given number
Tan	A Function, which returns tan value of the given number

Mathematical Functions in VBScript Example

Syntax

```
variablename = Mathematical_function_Name(Expression)
```

Example

Try the following example to understand all the inbuilt Mathematical Functions available in VBScript.

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

Dim num1 : num1 = -645.998651
Dim num2 : num2 = 210

document.write("int Result of num1 is : " & int(num1))& "<br/>"
document.write("int Result of num2 is : " & int(num2))& "<br/>"

document.write("Fix Result of num1 is : " & Fix(num1))& "<br/>"
document.write("Fix Result of num2 is : " & Fix(num2))& "<br/>"

document.write("Log Result of num2 is : " & Log(num2))& "<br/>"

document.write("Oct Result of num1 is : " & Oct(num1))& "<br/>"
document.write("Oct Result of num2 is : " & Oct(num2))& "<br/>"

document.write("Hex Result of num1 is : " & Hex(num1))& "<br/>"
document.write("Hex Result of num2 is : " & Hex(num2))& "<br/>"

document.write("Rnd Result of num1 is : " & Rnd(num1))& "<br/>"
document.write("Rnd Result of num2 is : " & Rnd(num2))& "<br/>"

document.write("Sgn Result of num1 is : " & Sgn(num1))& "<br/>"
document.write("Sgn Result of num2 is : " & Sgn(num2))& "<br/>"

document.write("Sqr Result of num2 is : " & Sqr(num2))& "<br/>"

document.write("Abs Result of num1 is : " & Abs(num1))& "<br/>"
document.write("Abs Result of num2 is : " & Abs(num2))& "<br/>"
document.write("Exp Result of num1 is : " & Exp(num1))& "<br/>"
document.write("Exp Result of num2 is : " & Exp(num2))& "<br/>"

document.write("Sin Result of num1 is : " & Sin(num1))& "<br/>"
document.write("Sin Result of num2 is : " & Sin(num2))& "<br/>"

document.write("Cos Result of num1 is : " & Cos(num1))& "<br/>"
document.write("Cos Result of num2 is : " & Cos(num2))& "<br/>"

document.write("Tan Result of num1 is : " & Tan(num1))& "<br/>"
document.write("Tan Result of num2 is : " & Tan(num2))& "<br/>"
</script>
</body>
</html>
```

When executed, the above script will produce the following output:

```
int Result of num1 is : -646
int Result of num2 is : 210
Fix Result of num1 is : -645
Fix Result of num2 is : 210
Log Result of num2 is : 5.34710753071747
Oct Result of num1 is : 37777776572
Oct Result of num2 is : 322
Hex Result of num1 is : FFFFFD7A
Hex Result of num2 is : D2
Rnd Result of num1 is : 0.5130115
Rnd Result of num2 is : 0.5615935
Sgn Result of num1 is : -1
Sgn Result of num2 is : 1
Sqr Result of num2 is : 14.4913767461894
Abs Result of num1 is : 645.998651
Abs Result of num2 is : 210
Exp Result of num1 is : 2.79479883633128E-281
Exp Result of num2 is : 1.59162664037792E+91
Sin Result of num1 is : 0.920530264916375
Sin Result of num2 is : 0.467718518342759
Cos Result of num1 is : 0.390671257418547
Cos Result of num2 is : -0.883877473182372

Tan Result of num1 is : 2.35627845006822

Tan Result of num2 is : -0.529166691689464
```

13. STRINGS

Strings are a sequence of characters, which can consist of alphabets or numbers or special characters or all of them. A variable is said to be a string if it is enclosed within double quotes " ".

Syntax

```
variablename = "string"
```

Examples

```
str1 = "string"    ' Only Alphabets
str2 = "132.45"    ' Only Numbers
str3 = "!@#$;*"  ' Only Special Characters
Str4 = "Asc23@#"   ' Has all the above
```

String Functions

There are predefined VBScript String functions, which help the developers to work with the strings very effectively. Below are String methods that are supported in VBScript. Please click on each one of the methods to know in detail.

Function Name	Description
InStr	Returns the first occurrence of the specified substring. Search happens from left to right.
InstrRev	Returns the first occurrence of the specified substring. Search happens from Right to Left.
Lcase	Returns the lower case of the specified string.
Ucase	Returns the Upper case of the specified string.
Left	Returns a specific number of characters from the left side of the string.
Right	Returns a specific number of characters from the Right side of the string.

Mid	Returns a specific number of characters from a string based on the specified parameters.
Ltrim	Returns a string after removing the spaces on the left side of the specified string.
Rtrim	Returns a string after removing the spaces on the right side of the specified string.
Trim	Returns a string value after removing both leading and trailing blank spaces.
Len	Returns the length of the given string.
Replace	Returns a string after replacing a string with another string.
Space	Fills a string with the specified number of spaces.
StrComp	Returns an integer value after comparing the two specified strings.
String	Returns a String with a specified character the specified number of times.
StrReverse	Returns a String after reversing the sequence of the characters of the given string.

InStr Function

The InStr Function returns the first occurrence of one string within another string. The search happens from left to right.

Syntax

```
InStr([start,]string1,string2[,compare])
```

Description

- Start, an Optional Parameter. Specifies the starting position for the search. The search begins at the first position from left to right.

- String1, a Required Parameter. String to be searched.

- String2, a Required Parameter. String against which String1 is searched.

- Compare, an Optional Parameter. Specifies the String Comparison to be used. It can take the below mentioned values:
  - 0 = vbBinaryCompare - Performs Binary Comparison(Default)
  - 1 = vbTextCompare - Performs Text Comparison

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

var="Microsoft VBScript"
document.write("Line 1 : " & InStr(1,var,"s") & "<br />")
document.write("Line 2 : " & InStr(7,var,"s") & "<br />")
document.write("Line 3 : " & InStr(1,var,"f",1) & "<br />")
document.write("Line 4 : " & InStr(1,var,"t",0) & "<br />")
document.write("Line 5 : " & InStr(1,var,"i") & "<br />")
document.write("Line 6 : " & InStr(7,var,"i") & "<br />")
document.write("Line 7 : " & InStr(var,"VB"))

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1 : 6
Line 2 : 0
Line 3 : 8
Line 4 : 9
Line 5 : 2
Line 6 : 16
Line 7 : 11
```

InStrRev Function

The InStrRev Function returns the first occurrence of one string within another string. The Search happens from right to Left.

Syntax

```
InStrRev(string1,string2[,start,[compare]])
```

Description

- String1, a Required Parameter. String to be searched.
- String2, a Required Parameter. String against which String1 is searched.
- Start, an Optional Parameter. Specifies the Starting position for the search. The Search begins at the first position from right to left.
- Compare, an Optional Parameter. Specifies the String Comparison to be used. It can take the below mentioned values:
    - 0 = vbBinaryCompare - Performs Binary Comparison(Default)
    - 1 = vbTextCompare - Performs Text Comparison

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

var="Microsoft VBScript"
document.write("Line 1 : " & InStrRev(var,"s",10) & "<br />")
document.write("Line 2 : " & InStrRev(var,"s",7) & "<br />")
document.write("Line 3 : " & InStrRev(var,"f",-1,1) & "<br />")
document.write("Line 4 : " & InStrRev(var,"t",5) & "<br />")
document.write("Line 5 : " & InStrRev(var,"i",7) & "<br />")
document.write("Line 6 : " & InStrRev(var,"i",7) & "<br />")
document.write("Line 7 : " & InStrRev(var,"VB",1))

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1 : 6
Line 2 : 6
Line 3 : 8
Line 4 : 0
Line 5 : 2
Line 6 : 2
Line 7 : 0
```

LCase Function

The LCase Function returns the string after converting the entered string into lower case letters.

Syntax

```
Lcase(String)
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

var="Microsoft VBScript"
document.write("Line 1 : " & LCase(var) & "<br />")
var="MS VBSCRIPT"
document.write("Line 2 : " & LCase(var) & "<br />")
var="microsoft"
document.write("Line 3 : " & LCase(var) & "<br />")

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1 : microsoft vbscript
Line 2 : ms vbscript
Line 3 : microsoft
```

UCase Function

The UCase Function returns the string after converting the entered string into UPPER case letters.

Syntax

```
UCase(String)
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

var="Microsoft VBScript"
document.write("Line 1 : " & UCase(var) & "<br />")
var="MS VBSCRIPT"
document.write("Line 2 : " & UCase(var) & "<br />")
var="microsoft"
document.write("Line 3 : " & UCase(var) & "<br />")

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1 : MICROSOFT VBSCRIPT
Line 2 : MS VBSCRIPT
Line 3 : MICROSOFT
```

Left Function

The Left Function returns a specified number of characters from the left side of the given input string.

Syntax

```
Left(String, Length)
```

- String, a Required Parameter. Input String from which the specified number of characters to be returned from left side.
- Length, a Required Parameter. An Integer, which specifies the number of characters to be returned.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

var="Microsoft VBScript"
document.write("Line 1 : " & Left(var,2) & "<br />")
var="MS VBSCRIPT"
document.write("Line 2 : " & Left(var,5) & "<br />")
var="microsoft"
document.write("Line 3 : " & Left(var,9) & "<br />")

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1 : Mi
Line 2 : MS VB
Line 3 : microsoft
```

Right Function

The Right Function returns a specified number of characters from the right side of the given input string.

Syntax

```
Right(String, Length)
```

- String, a Required Parameter. Input String from which the specified number of characters to be returned from Right side.

- Length, a Required Parameter. An Integer, which Specifies the number of characters to be returned.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

var="Microsoft VBScript"
document.write("Line 1 : " & Right(var,2) & "<br />")
var="MS VBSCRIPT"
document.write("Line 2 : " & Right(var,5) & "<br />")
var="microsoft"
document.write("Line 3 : " & Right(var,9) & "<br />")

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1 : pt
Line 2 : CRIPT
Line 3 : microsoft
```

Mid Function

The Mid Function returns a specified number of characters from a given input string.

Syntax

```
Mid(String,start[,Length])
```

- String, a Required Parameter. Input String from which the specified number of characters to be returned.

- Start, a Required Parameter. An Integer, which Specifies starting position of the string .

- Length, an Optional Parameter. An Integer, which specifies the number of characters to be returned.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

var="Microsoft VBScript"
document.write("Line 1 : " & Mid(var,2) & "<br />")
document.write("Line 2 : " & Mid(var,2,5) & "<br />")
document.write("Line 3 : " & Mid(var,5,7) & "<br />")

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1 : icrosoft VBScript
Line 2 : icros
Line 3 : osoft V
```

LTrim Function

The Ltrim Function removes the blank spaces that are there on the left side of the string.

Syntax

```
LTrim(String)
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

var =       "             Microsoft VBScript"
document.write("After Ltrim : " & LTrim(var) & "<br />")

```

```
</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
After Ltrim : Microsoft VBScript
```

RTrim Function

The Rtrim Function removes the blank spaces that are there on the Right side of the string.

Syntax

```
RTrim(String)
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

var =       "Microsoft VBScript           "
document.write("After Rtrim : " & RTrim(var) & "<br />")

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
After Rtrim : Microsoft VBScript
```

Trim Function

The Trim Function removes both the Leading and Trailing blank spaces of the given input string.

Syntax

```
Trim(String)
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

var =       "            Microsoft VBScript           "
document.write("After Trim : " & Trim(var) & "<br />")

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
After trim : Microsoft VBScript
```

Len Function

The Len Function returns the length of the given input string including the blank spaces.

Syntax

```
Len(String)
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

var1 =       "Microsoft VBScript"
document.write("Length of var1 is : " & Len(var1) & "<br />")

var2 =       "       Microsoft VBScript           "
```

```
document.write("Length of var2 is : " & Len(var2) & "<br />")


</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Length of var1 is : 18
Length of var2 is : 36
```

Replace Function

The Replace Function replaces a specified part of a string with a specific string a specified number of times.

Syntax

```
Replace(string,find,replacewith[,start[,count[,compare]]])
```

- string, a Required Parameter. The Input String from to be searched for replacing.
- find, a Required Parameter. The Part of the String that will be be replaced.
- replace with, a Required Parameter. The replacement string, which would be replaced against the find parameter.
- start, an Optional Parameter. Specifies the start position from where the string has to be searched and replaced. Default value is 1.
- count, an Optional Parameter. Specifies the number of times the replacement has to be performed.
- compare, an Optional Parameter. Specifies the comparison method to be used. Default value is 0.
  - 0 = vbBinaryCompare - Performs a binary comparison
  - 1 = vbTextCompare - Performs a Textual comparison

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

```

```
var="This is VBScript Programming"

'VBScript to be replaced by MS VBScript
document.write("Line 1: " & Replace(var,"VBScript","MS VBScript") & "<br />")

'VB to be replaced by vb
document.write("Line 2: " & Replace(var,"VB","vb") & "<br />")

''is' replaced by ##
document.write("Line 3: " & Replace(var,"is","##") & "<br />")

''is' replaced by ## ignores the characters before the first occurence
document.write("Line 4: " & Replace(var,"is","##",5) & "<br />")

''s' is replaced by ## for the next 2 occurences.
document.write("Line 5: " & Replace(var,"s","##",1,2) & "<br />")

''r' is replaced by ## for all occurences textual comparison.
document.write("Line 6: " & Replace(var,"r","##",1,-1,1) & "<br />")

''t' is replaced by ## for all occurences Binary comparison
document.write("Line 7: " & Replace(var,"t","##",1,-1,0) & "<br />")

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1: This is MS VBScript Programming
Line 2: This is vbScript Programming
Line 3: Th## ## VBScript Programming
Line 4: ## VBScript Programming
Line 5: Thi## i## VBScript Programming
Line 6: This is VBSc##ipt P##og##amming
Line 7: This is VBScrip## Programming
```

Space Function

The Space Function fills a string with a specific number of spaces.

Syntax

```
space(number)
```

number, a Required Parameter. The number of spaces that we want to add to the given string.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

var1="Microsoft"
var2="VBScript"
document.write(var1 & Space(2)& var2)

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Microsoft VBScript
```

StrComp Function

The StrComp Function returns an integer value after comparing the two given strings. It can return any of the three values -1, 0 or 1 based on the input strings to be compared.

- If String 1 < String 2 then StrComp returns -1
- If String 1 = String 2 then StrComp returns 0
- If String 1 > String 2 then StrComp returns 1

Syntax

```
StrComp(string1,string2[,compare])
```

Description

- String1, a Required Parameter. The first String expression.
- String2, a Required Parameter. The second String expression.
- Compare, an Optional Parameter. Specifies the String Comparison to be used. It can take the below-mentioned values:
  - 0 = vbBinaryCompare - Performs Binary Comparison(Default)
  - 1 = vbTextCompare - Performs Text Comparison

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

document.write("Line 1 :" & StrComp("Microsoft","Microsoft") & "<br />")
document.write("Line 2 :" &StrComp("Microsoft","MICROSOFT") & "<br />")
document.write("Line 3 :" &StrComp("Microsoft","MiCrOsOfT") & "<br />")
document.write("Line 4 :" &StrComp("Microsoft","MiCrOsOfT",1) & "<br />")
document.write("Line 5 :" &StrComp("Microsoft","MiCrOsOfT",0) & "<br />")

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1 :0
Line 2 :1
Line 3 :1
Line 4 :0
Line 5 :1
```

String Function

The String Function fills a string with the specified character the specified number of times.

Syntax

```
String(number,character)
```

- Number, a Required Parameter. An integer value, which would be repeated for the specified number of times against the character parameter.

- Character, a Required Parameter. Character value, which has to be repeated for the specified number of times.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

document.write("Line 1 :" & String(3,"$") & "<br />")
document.write("Line 2 :" & String(4,"*") & "<br />")
document.write("Line 3 :" & String(5,100) & "<br />")
document.write("Line 4 :" & String(6,"ABCDE") & "<br />")

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1 :$$$
Line 2 :****
Line 3 :ddddd
Line 4 :AAAAAA
```

StrReverse Function

The StrReverse Function reverses the specified string.

Syntax

```
StrReverse(string)
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

document.write("Line 1 : " & StrReverse("VBSCRIPT") & "<br />")
document.write("Line 2 : " & StrReverse("My First VBScript") & "<br />")
document.write("Line 3 : " & StrReverse("123.45") & "<br />")

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1 : TPIRCSBV
Line 2 : tpircSBV tsriF yM
Line 3 : 54.321
```

14. ARRAYS

What is an Array?

We know very well that a variable is a container to store a value. Sometimes, developers are in a position to hold more than one value in a single variable at a time. When a series of values is stored in a single variable, then it is known as an **array variable**.

Array Declaration

Arrays are declared the same way a variable has been declared except that the declaration of an array variable uses parenthesis. In the following example, the size of the array is mentioned in the brackets.

```
'Method 1 : Using Dim
Dim arr1()  'Without Size

'Method 2 : Mentioning the Size
Dim arr2(5)  'Declared with size of 5

'Method 3 : using 'Array' Parameter
Dim arr3
arr3 = Array("apple","Orange","Grapes")
```

- Although, the Array size is indicated as 5, it can hold 6 values as array index starts from ZERO.
- Array Index Cannot be Negative.
- VBScript Arrays can store any type of variable in an array. Hence, an array can store an integer, string or characters in a single array variable.

Assigning Values to an Array

The values are assigned to the array by specifying array index value against each one of the values to be assigned. It can be a string.

Example

```
<!DOCTYPE html>
<html>
<body>
```

```
<script language="vbscript" type="text/vbscript">

Dim arr(5)
arr(0) = "1"           'Number as String
arr(1) = "VBScript"    'String
arr(2) = 100                'Number
arr(3) = 2.45               'Decimal Number
arr(4) = #10/07/2013#  'Date
arr(5) = #12.45 PM#    'Time

document.write("Value stored in Array index 0 : " & arr(0) & "<br />")
document.write("Value stored in Array index 1 : " & arr(1) & "<br />")
document.write("Value stored in Array index 2 : " & arr(2) & "<br />")
document.write("Value stored in Array index 3 : " & arr(3) & "<br />")
document.write("Value stored in Array index 4 : " & arr(4) & "<br />")
document.write("Value stored in Array index 5 : " & arr(5) & "<br />")

</script>
</body>
</html>
```

When the above code is saved as .HTML and executed in Internet Explorer, it produces the following result:

```
Value stored in Array index 0 : 1
Value stored in Array index 1 : VBScript
Value stored in Array index 2 : 100
Value stored in Array index 3 : 2.45
Value stored in Array index 4 : 7/10/2013
Value stored in Array index 5 : 12:45:00 PM
```

Multi-Dimension Arrays

Arrays are not just limited to single dimension and can have a maximum of 60 dimensions. Two-dimension arrays are the most commonly used ones.

Example

In the following example, a multi-dimension array is declared with 3 rows and 4 columns.

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

Dim arr(2,3)      ' Which has 3 rows and 4 columns
arr(0,0) = "Apple"
arr(0,1) = "Orange"
arr(0,2) = "Grapes"
arr(0,3) = "pineapple"
arr(1,0) = "cucumber"
arr(1,1) = "beans"
arr(1,2) = "carrot"
arr(1,3) = "tomato"
arr(2,0) = "potato"
arr(2,1) = "sandwitch"
arr(2,2) = "coffee"
arr(2,3) = "nuts"

document.write("Value in Array index 0,1 : " &  arr(0,1) & "<br />")
document.write("Value in Array index 2,2 : " &  arr(2,2) & "<br />")

</script>
</body>
</html>
```

When the above code is saved as .HTML and executed in Internet Explorer, it produces the following result:

```
Value stored in Array index : 0 , 1 : Orange
Value stored in Array index : 2 , 2 : coffee
```

ReDim Statement

ReDim Statement is used to declare dynamic-array variables and allocate or reallocate storage space.

```
ReDim [Preserve] varname(subscripts) [, varname(subscripts)]
```

- **Preserve** - An Optional parameter used to preserve the data in an existing array when you change the size of the last dimension.
- **varname** - A Required parameter, which denotes Name of the variable, which should follow the standard variable naming conventions.
- **subscripts** - A Required parameter, which indicates the size of the array.

Example

In the below example, an array has been redefined and then preserved the values when the existing size of the array is changed.

Note : Upon resizing an array smaller than it was originally, the data in the eliminated elements will be lost.

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

  Dim a()
  i=0
  redim a(5)
  a(0)="XYZ"
  a(1)=41.25
  a(2)=22

  REDIM PRESERVE a(7)
  For i=3 to 7
  a(i)= i
  Next

  'to Fetch the output
  For i=0 to ubound(a)
    Msgbox a(i)
  Next
</script>
</body>
</html>
```

When we save the above script as HTML and execute it in Internet Explorer, it produces the following result.

```
XYZ

41.25

22

3

4

5

6

7
```

Array Methods

There are various inbuilt functions within VBScript which help the developers to handle arrays effectively. All the methods that are used in conjunction with arrays are listed below. Please click on the method name to know in detail.

Function	Description
LBound	A Function, which returns an integer that corresponds to the smallest subscript of the given arrays.
UBound	A Function, which returns an integer that corresponds to the Largest subscript of the given arrays.
Split	A Function, which returns an array that contains a specified number of values. Split based on a Delimiter.
Join	A Function, which returns a String that contains a specified number of substrings in an array. This is an exact opposite function of Split Method.
Filter	A Function, which returns a zero based array that contains a subset of a string array based on a specific filter criteria.
IsArray	A Function, which returns a Boolean value that indicates whether or not the input variable is an array.
Erase	A Function, which recovers the allocated memory for the array variables.

LBound Function

The LBound Function returns the smallest subscript of the specified array. Hence, LBound of an array is ZERO.

Syntax

```
LBound(ArrayName[,dimension])
```

- **ArrayName**, a Required parameter. This parameter corresponds to the name of the array.

- **dimension**, an Optional Parameter. This takes an integer value that corresponds to the dimension of the array. If it is '1', then it returns the lower bound of the first dimension; if it is '2', then it returns the lower bound of the second dimension and so on.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

Dim arr(5)
arr(0) = "1"           'Number as String
arr(1) = "VBScript     'String
arr(2) = 100                  'Number
arr(3) = 2.45                 'Decimal Number
arr(4) = #10/07/2013#  'Date
arr(5) = #12.45 PM#    'Time

document.write("The smallest Subscript value of  the given array is : " &
LBound(arr))

' For MultiDimension Arrays :
Dim arr2(3,2)
document.write("The smallest Subscript of the first dimension of arr2 is : " &
LBound(arr2,1) & "<br />")
document.write("The smallest Subscript of the Second dimension of arr2 is : " &
LBound(arr2,2) & "<br />")

</script>
```

```
</body>
</html>
```

When the above code is saved as .html and executed in Internet Explorer, it produces the following result:

```
The smallest Subscript value of the given array is : 0
The smallest Subscript of the first dimension of arr2 is : 0
The smallest Subscript of the Second dimension of arr2 is : 0
```

UBound Function

The UBound Function returns the Largest subscript of the specified array. Hence, this value corresponds to the size of the array.

Syntax

```
UBound(ArrayName[,dimension])
```

- **ArrayName**, a Required parameter. This parameter corresponds to the name of the array.
- **dimension**, an Optional Parameter. This takes an integer value that corresponds to dimension of the array. If it is '1', then it returns the lower bound of the first dimension; if it is '2', then it returns the lower bound of the second dimension, and so on.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

Dim arr(5)
arr(0) = "1"           'Number as String
arr(1) = "VBScript"    'String
arr(2) = 100                'Number
arr(3) = 2.45               'Decimal Number
arr(4) = #10/07/2013#  'Date
arr(5) = #12.45 PM#    'Time

document.write("The Largest Subscript value of  the given array is : " &
UBound(arr))
```

```
' For MultiDimension Arrays :
Dim arr2(3,2)
document.write("The Largest Subscript of the first dimension of arr2 is : " &
UBound(arr2,1) & "<br />")
document.write("The Largest Subscript of the Second dimension of arr2 is : " &
UBound(arr2,2) & "<br />")


</script>
</body>
</html>
```

When the above code is saved as .HTML and executed in Internet Explorer, then it produces the following result:

```
The Largest Subscript value of the given array is : 5
The Largest Subscript of the first dimension of arr2 is : 3
The Largest Subscript of the Second dimension of arr2 is : 2
```

Split Function

A Split Function returns an array that contains a specific number of values split based on a Delimiter.

Syntax

```
Split(expression[,delimiter[,count[,compare]]])
```

- **expression**, a Required parameter. The String Expression that can contain strings with delimiters.
- **delimiter**, an Optional Parameter. The Parameter, which is used to convert into arrays based on a delimiter.
- **count**, an Optional Parameter. The number of substrings to be returned, and if specified as -1, then all the substrings are returned.
- **compare**, an Optional Parameter. This parameter specifies which comparison method to be used.
  - 0 = vbBinaryCompare - Performs a binary comparison
  - 1 = vbTextCompare - Performs a textual comparison

Example

```
<!DOCTYPE html>
```

```
<html>
<body>
<script language="vbscript" type="text/vbscript">

' Splitting based on delimiter comma '$'
a=Split("Red $ Blue $ Yellow","$")
b=ubound(a)
For i=0 to b
   document.write("The value of array in " & i & " is :"  & a(i)& "<br />")
Next

</script>
</body>
</html>
```

When the above code is saved as .HTML and executed in Internet Explorer, it produces the following result:

```
The value of array in 0 is :Red
The value of array in 1 is : Blue
The value of array in 2 is : Yellow
```

Join Function

A Function, which returns a String that contains a specified number of substrings in an array. This is an exact opposite function of Split Method.

Syntax

```
Join(List[,delimiter])
```

- **List**, a Required parameter. An Array that contains the substrings that are to be joined.

- **delimiter**, an Optional Parameter. The Character, which used as a delimiter while returning the string. The Default delimiter is Space.

Example

```
<!DOCTYPE html>
<html>
```

```
<body>
<script language="vbscript" type="text/vbscript">

' Join using spaces
a = array("Red","Blue","Yellow")
b = join(a)
document.write("The value of b " & " is :"  & b & "<br />")

' Join using $
b = join(a,"$")
document.write("The Join result after using delimiter is : " & b & "<br />")

</script>
</body>
</html>
```

When the above code is saved as .html and executed in Internet Explorer, it produces the following result:

```
The value of b is :Red Blue Yellow
The Join result after using delimiter is : Red$Blue$Yellow
```

Filter Function

A Filter Function, which returns a zero-based array that contains a subset of a string array based on a specific filter criteria.

Syntax

```
Filter(inputstrings,value[,include[,compare]])
```

- **inputstrings**, a Required parameter. This parameter corresponds to the array of strings to be searched.
- **value**, a Required Parameter. This parameter corresponds to the string to search for against the inputstrings parameter.
- **include**, an Optional Parameter. This is a Boolean value, which indicates whether or not to return the substrings that include or exclude.
- **compare**, an Optional Parameter. This Parameter describes what string comparison method to be used.
  - 0 = vbBinaryCompare - Performs a binary comparison
  - 1 = vbTextCompare - Performs a textual comparison

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

a= array("Red","Blue","Yellow")
b = Filter(a,"B")
c = Filter(a,"e")
d = Filter(a,"Y")

For each x in b
  Document.write("The Filter result 1: " & x & "<br />")
Next

For each y in c
  Document.write("The Filter result 2: " & y & "<br />")
Next

For each z in d
  Document.write("The Filter result 3: " & z & "<br />")
Next

</script>
</body>
</html>
```

When the above code is saved as .HTML and executed in Internet Explorer, it produces the following result:

```
The Filter result 1: Blue
The Filter result 2: Red
The Filter result 2: Blue
The Filter result 2: Yellow
The Filter result 3: Yellow
```

IsArray Function

The IsArray Function returns a Boolean value that indicates whether or NOT the specified input variable is an array variable.

Syntax

```
IsArray(variablename)
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

a = array("Red","Blue","Yellow")
b = "12345"

Document.write("The IsArray result 1 : " & IsArray(a) & "<br />")
Document.write("The IsArray result 2 : " & IsArray(b) & "<br />")

</script>
</body>
</html>
```

When the above code is saved as .HTML and executed in Internet Explorer, it produces the following result:

```
The IsArray result 1 : True
The IsArray result 2 : False
```

Erase Function

The Erase Function is used to reset the values of fixed size arrays and free the memory of the dynamic arrays. It behaves depending upon the type of the arrays.

Syntax

```
Erase ArrayName
```

- Fixed numeric array, each element in an array is reset to Zero.
- Fixed String array, each element in an array is reset to Zero length " ".
- Array of Objects, each element in an array is reset to s special value Nothing.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

Dim NumArray(3)
NumArray(0) = "VBScript"
NumArray(1) = 1.05
NumArray(2) = 25
NumArray(3) = #23/04/2013#

Dim DynamicArray()
ReDim DynamicArray(9)   ' Allocate storage space.

Erase NumArray          ' Each element is reinitialized.
Erase DynamicArray      ' Free memory used by array.

' All values would be erased.
Document.write("The value at Zeroth index of NumArray is " & NumArray(0) & "<br />")
Document.write("The value at First index of NumArray is " & NumArray(1) & "<br />")
Document.write("The value at Second index of NumArray is " & NumArray(2) & "<br />")
Document.write("The value at Third index of NumArray is " & NumArray(3) & "<br />")

</script>
</body>
</html>
```

When the above code is saved as .HTML and executed in Internet Explorer, it produces the following result:

```
The value at Zero index of NumArray is
The value at First index of NumArray is
The value at Second index of NumArray is
The value at Third index of NumArray is
```

15. DATE AND TIME FUNCTIONS

VBScript Date and Time Functions help the developers to convert date and time from one format to another or to express the date or time value in the format that suits a specific condition.

Date Functions

Function	Description
Date	A Function, which returns the current system date
CDate	A Function, which converts a given input to Date
DateAdd	A Function, which returns a date to which a specified time interval has been added
DateDiff	A Function, which returns the difference between two time period
DatePart	A Function, which returns a specified part of the given input date value
DateSerial	A Function, which returns a valid date for the given year, month, and date
FormatDateTime	A Function, which formats the date based on the supplied parameters
IsDate	A Function, which returns a Boolean Value whether or not the supplied parameter is a date
Day	A Function, which returns an integer between 1 and 31 that represents the day of the specified Date
Month	A Function, which returns an integer between 1 and 12 that represents the month of the specified Date
Year	A Function, which returns an integer that represents the year of the specified Date

MonthName	A Function, which returns Name of the particular month for the specified date
WeekDay	A Function, which returns an integer(1 to 7) that represents the day of the week for the specified day.
WeekDayName	A Function, which returns the weekday name for the specified day.

Date Function

The Function returns the current system Date.

Syntax

```
date()
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

 a = date()
 document.write("The Value of a : " & a)

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
The Value of a : 19/07/2013
```

CDate Function

The Function converts a valid date and time expression to type date.

Syntax

```
cdate(date)
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

 a = cdate("Jan 01 2020")
 document.write("The Value of a : " & a)
 document.write("<br />")
 b = cdate("31 Dec 2050")
 document.write("The Value of b : " & b)

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
The Value of a : 1/01/2012
The Value of b : 31/12/2050
```

DateAdd Function

A Function, which returns a date to which a specified time interval has been added.

Syntax

```
DateAdd(interval,number,date)
```

Parameter Description

- **Interval**, a Required Parameter. It can take the following values:
    - d - day of the year.
    - m - month of the year
    - y - year of the year
    - yyyy - year
    - w - weekday

  - ww - week
  - q - quarter
  - h - hour
  - m - minute
  - s - second

- **Number**, a Required parameter. It can take both positive and negative parameters.
- **Date**, a Required parameter. A Variant or literal representing the date to which interval is added.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

' Positive Interal
date1=01-Jan-2013
document.write("Line 1 : " &DateAdd("yyyy",1,date1) & "<br />")
document.write("Line 2 : " &DateAdd("q",1,date1) & "<br />")
document.write("Line 3 : " &DateAdd("m",1,date1) & "<br />")
document.write("Line 4 : " &DateAdd("y",1,date1) & "<br />")
document.write("Line 5 : " &DateAdd("d",1,date1) & "<br />")
document.write("Line 6 : " &DateAdd("w",1,date1) & "<br />")
document.write("Line 7 : " &DateAdd("ww",1,date1) & "<br />")
document.write("Line 8 : " &DateAdd("h",1,"01-Jan-2013 12:00:00") & "<br />")
document.write("Line 9 : " &DateAdd("n",1,"01-Jan-2013 12:00:00") & "<br />")
document.write("Line 10 : "&DateAdd("s",1,"01-Jan-2013 12:00:00") & "<br />")

' Negative Interval
document.write("Line 11 : " &DateAdd("yyyy",-1,date1) & "<br />")
document.write("Line 12 : " &DateAdd("q",-1,date1) & "<br />")
document.write("Line 13 : " &DateAdd("m",-1,date1) & "<br />")
document.write("Line 14 : " &DateAdd("y",-1,date1) & "<br />")
document.write("Line 15 : " &DateAdd("d",-1,date1) & "<br />")
document.write("Line 16 : " &DateAdd("w",-1,date1) & "<br />")
document.write("Line 17 : " &DateAdd("ww",-1,date1) & "<br />")
document.write("Line 18 : " &DateAdd("h",-1,"01-Jan-2013 12:00:00") & "<br />")
document.write("Line 19 : " &DateAdd("n",-1,"01-Jan-2013 12:00:00") & "<br />")
document.write("Line 20 : " &DateAdd("s",-1,"01-Jan-2013 12:00:00") & "<br />")
</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1 : 27/06/1895
Line 2 : 27/09/1894
Line 3 : 27/07/1894
Line 4 : 28/06/1894
Line 5 : 28/06/1894
Line 6 : 28/06/1894
Line 7 : 4/07/1894
Line 8 : 1/01/2013 1:00:00 PM
Line 9 : 1/01/2013 12:01:00 PM
Line 10 : 1/01/2013 12:00:01 PM
Line 11 : 27/06/1893
Line 12 : 27/03/1894
Line 13 : 27/05/1894
Line 14 : 26/06/1894
Line 15 : 26/06/1894
Line 16 : 26/06/1894
Line 17 : 20/06/1894
Line 18 : 1/01/2013 11:00:00 AM
Line 19 : 1/01/2013 11:59:00 AM
Line 20 : 1/01/2013 11:59:59 AM
```

DateDiff Function

It is a function that returns the difference between two specified time intervals.

Syntax

```
DateDiff(interval, date1, date2 [,firstdayofweek[, firstweekofyear]])
```

Parameter Description

- **Interval**, a Required Parameter. It can take the following values:
    - d - day of the year
    - m - month of the year
    - y - year of the year
    - yyyy - year
    - w - weekday
    - ww - week
    - q - quarter
    - h - hour
    - m - minute
    - s - second
- **date1** and **date2** are Required parameters.
- **firstdayofweek** is Optional. Specifies the first day of the week. It can take the following values:
    - 0 = vbUseSystemDayOfWeek - Use National Language Support (NLS) API setting
    - 1 = vbSunday - Sunday
    - 2 = vbMonday - Monday
    - 3 = vbTuesday - Tuesday
    - 4 = vbWednesday - Wednesday
    - 5 = vbThursday - Thursday
    - 6 = vbFriday - Friday

   - 7 = vbSaturday - Saturday

- **firstdayofyear** is Optional. Specifies the first day of the year. It can take the following values:

   - 0 = vbUseSystem - Use National Language Support (NLS) API setting
   - 1 = vbFirstJan1 - Start with the week in which January 1 occurs (default)
   - 2 = vbFirstFourDays - Start with the week that has at least four days in the new year
   - 3 = vbFirstFullWeek - Start with the first full week of the new year

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

fromDate="01-Jan-09 00:00:00"
toDate="01-Jan-10 23:59:00"
document.write("Line 1 : " &DateDiff("yyyy",fromDate,toDate) & "<br />")
document.write("Line 2 : " &DateDiff("q",fromDate,toDate) & "<br />")
document.write("Line 3 : " &DateDiff("m",fromDate,toDate) & "<br />")
document.write("Line 4 : " &DateDiff("y",fromDate,toDate) & "<br />")
document.write("Line 5 : " &DateDiff("d",fromDate,toDate) & "<br />")
document.write("Line 6 : " &DateDiff("w",fromDate,toDate) & "<br />")
document.write("Line 7 : " &DateDiff("ww",fromDate,toDate)& "<br />")
document.write("Line 8 : " &DateDiff("h",fromDate,toDate) & "<br />")
document.write("Line 9 : " &DateDiff("n",fromDate,toDate) & "<br />")
document.write("Line 10 : "&DateDiff("s",fromDate,toDate) & "<br />")

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1 : 1
Line 2 : 4
Line 3 : 12
Line 4 : 365
Line 5 : 365
Line 6 : 52
Line 7 : 52
Line 8 : 8783
Line 9 : 527039
Line 10 : 31622340
```

DatePart Function

It is a function that returns the specific part of a given date.

Syntax

```
DatePart(interval,date[,firstdayofweek[,firstweekofyear]])
```

Parameter Description

- **Interval**, a Required Parameter. It can take the following values:
  - d - day of the year.
  - m - month of the year
  - y - year of the year
  - yyyy - year
  - w - weekday
  - ww - week
  - q - quarter
  - h - hour
  - m - minute
  - s - second
- **date1** is a required parameter.
- **firstdayofweek** is Optional. Specifies the first day of the week. It can take the following values:

  - 0 = vbUseSystemDayOfWeek - Use National Language Support (NLS) API setting
  - 1 = vbSunday - Sunday
  - 2 = vbMonday - Monday
  - 3 = vbTuesday - Tuesday
  - 4 = vbWednesday - Wednesday
  - 5 = vbThursday - Thursday
  - 6 = vbFriday - Friday
  - 7 = vbSaturday - Saturday

- **firstdayofyear** is Optional. Specifies the first day of the year. It can take the following values:
  - 0 = vbUseSystem - Use National Language Support (NLS) API setting
  - 1 = vbFirstJan1 - Start with the week in which January 1 occurs (default)
  - 2 = vbFirstFourDays - Start with the week that has at least four days in the new year
  - 3 = vbFirstFullWeek - Start with the first full week of the new year

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

Dim Quarter, DayOfYear, WeekOfYear

Date1 = "2013-01-15"
Quarter    = DatePart("q", Date1)
document.write("Line 1 : " & Quarter&"<br />")
DayOfYear  = DatePart("y", Date1)
document.write("Line 2 : " & DayOfYear&"<br />")
WeekOfYear = DatePart("ww", Date1)
document.write("Line 3 : " & WeekOfYear&"<br />")
document.write("Line 4 : " & DatePart("m",Date1))
```

```

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1 : 1
Line 2 : 15
Line 3 : 3
Line 4 : 1
```

DateSerial Function

It is a function that returns a date for the specified day, month and year parameters.

Syntax

```
DateSerial(year,month,day)
```

Parameter Description

- **year**, a Required Parameter. A number between 100 and 9999 or a numeric expression. Values between 0 and 99 are interpreted as the years 1900 to 1999. For all other year arguments, use a complete four-digit year.

- **month**, a Required Parameter. It can also be in the form of an expression, which should range from 1 to 12.

- **day**, a Required Parameter. It can also be in the form of an expression, which should range from 1 to 31.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

 document.write(DateSerial(2013,5,10))

</script>
</body>
```

```
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Fri May 10 00:00:00 UTC+0530 2013
```

FormatDateTime Function

It is a function that helps the developers to format and return a valid date and time expression.

Syntax

```
FormatDateTime(date,format)
```

Parameter Description

- **date**, a Required Parameter.
- **format**, an Optional Parameter. The Value that specifies the date or time format to be used. It can take the following values:
  - 0 = vbGeneralDate - Default.
  - 1 = vbLongDate - Returns date.
  - 2 = vbShortDate - Returns date.
  - 3 = vbLongTime - Returns time.
  - 4 = vbShortTime - Returns time.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">


d=("2013-08-15 20:25")
document.write("Line 1 : " & FormatDateTime(d) & " <br />")
document.write("Line 2 : " & FormatDateTime(d,1) & "<br />")
document.write("Line 3 : " & FormatDateTime(d,2) & "<br />")
document.write("Line 4 : " & FormatDateTime(d,3) & "<br />")
document.write("Line 5 : " & FormatDateTime(d,4) & "<br />")

</script>
```

```
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1 : 15/08/2013 8:25:00 PM
Line 2 : Thursday, 15 August 2013
Line 3 : 15/08/2013
Line 4 : 8:25:00 PM
Line 5 : 20:25
```

IsDate Function

It is a function that returns a Boolean Value whether or Not the given input is a date.

Syntax

```
IsDate(expression)
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

document.write("Line 1 : " & IsDate("Nov 03, 1950") & "<br />")
document.write("Line 2 : " & IsDate(#01/31/20#) & "<br />")
document.write("Line 3 : " & IsDate(#05/31/20 10:30 PM#) & "<br />")

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1 : True
Line 2 : True
Line 3 : True
```

Day Function

The Day function returns a number between 1 and 31 that represents the day of the specified date.

Syntax

```
Day(date)
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

 document.write(Day("2013-06-30"))

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
30
```

Month Function

The Month function returns a number between 1 and 12 that represents the month of the specified date.

Syntax

```
Month(date)
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

```

```
 document.write(Month("2013-06-30"))


</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
6
```

Year Function

The Year function returns an integer that represents a year of the specified date.

Syntax

```
Year(date)
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

 document.write(Year("2013-06-30"))

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
2013
```

MonthName Function

The MonthName function returns the name of the month for the specified date.

Syntax

```
MonthName(month[,toabbreviate])
```

Parameter Description

- **Month**, a Required Parameter. It specifies the number of the month.
- **toabbreviate**, an Optional Parameter. A Boolean value Boolean value that indicates if the month name is to be abbreviated. If left blank, the default value would be taken as False.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

 document.write("Line 1 : " & MonthName(01,True) & "<br />")
 document.write("Line 2 : " & MonthName(01,false) & "<br />")

 document.write("Line 3 : " & MonthName(07,True) & "<br />")
 document.write("Line 4 : " & MonthName(07,false) & "<br />")

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1 : Jan
Line 2 : January
Line 3 : Jul
Line 4 : July
```

WeekDay Function

The WeekDay function returns an integer from 1 to 7 that represents the day of the week for the specified date.

Syntax

```
Weekday(date[,firstdayofweek])
```

Parameter Description

- **Date**, a Required Parameter. The Week day would be returns for this specified date.

- **firstdayofweek**, an Optional Parameter. Specifies the first day of the week..

    - 0 = vbUseSystemDayOfWeek - Use National Language Support (NLS) API setting
    - 1 = vbSunday - Sunday
    - 2 = vbMonday - Monday
    - 3 = vbTuesday - Tuesday
    - 4 = vbWednesday - Wednesday
    - 5 = vbThursday - Thursday
    - 6 = vbFriday - Friday
    - 7 = vbSaturday - Saturday

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

document.write("Line 1: " & Weekday("2013-05-16",1) & "<br />")
document.write("Line 2: " & Weekday("2013-05-16",2) & "<br />")
document.write("Line 3: " & Weekday("2013-05-16",2) & "<br />")
document.write("Line 4: " & Weekday("2010-02-16") & "<br />")
document.write("Line 5: " & Weekday("2010-02-17") & "<br />")
document.write("Line 6: " & Weekday("2010-02-18") & "<br />")

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1: 5
Line 2: 4
Line 3: 4
Line 4: 3
Line 5: 4
Line 6: 5
```

WeekDayName Function

The WeekDayName function returns the name of the Weekday for the specified day.

Syntax

```
WeekdayName(weekday[,abbreviate[,firstdayofweek]])
```

Parameter Description

- **weekday**, a Required Parameter. The number of the weekday.
- **toabbreviate**, an Optional Parameter. A Boolean value Boolean value that indicates if the month name is to be abbreviated. If left blank, the default value would be taken as False.
- **firstdayofweek**, an Optional Parameter. Specifies the first day of the week.
  - 0 = vbUseSystemDayOfWeek - Use National Language Support (NLS) API setting
  - 1 = vbSunday - Sunday
  - 2 = vbMonday - Monday
  - 3 = vbTuesday - Tuesday
  - 4 = vbWednesday - Wednesday
  - 5 = vbThursday - Thursday
  - 6 = vbFriday - Friday
  - 7 = vbSaturday - Saturday

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

document.write("Line 1 : " &WeekdayName(3) & "<br />")
document.write("Line 2 : " &WeekdayName(2,True)& "<br />")
document.write("Line 3 : " &WeekdayName(1,False)& "<br />")
document.write("Line 4 : " &WeekdayName(2,True,0)& "<br />")
document.write("Line 5 : " &WeekdayName(1,False,1)& "<br />")

</script>
</body>
```

```
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1 : Tuesday
Line 2 : Mon
Line 3 : Sunday
Line 4 : Tue
Line 5 : Sunday
```

Time Functions

Function	Description
Now	A Function that returns the current system date and Time
Hour	A Function that returns and integer between 0 and 23 that represents the Hour part of the given time
Minute	A Function that returns and integer between 0 and 59 that represents the Minutes part of the given time
Second	A Function that returns and integer between 0 and 59 that represents the Seconds part of the given time
Time	A Function that returns the current system time
Timer	A Function that returns the number of seconds and milliseconds since 12:00 AM
TimeSerial	A Function that returns the time for the specific input of hour, minute and second
TimeValue	A Function that converts the input string to a time format

Now Function

The Function Now returns the current system date and time.

Syntax

```
Now()
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

 a = Now()
 document.write("The Value of a : " & a)

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
The Value of a : 19/07/2013 3:04:09 PM
```

Hour Function

The Hour Function returns a number between 0 and 23 that represents the hour of the day for the specified time stamp.

Syntax

```
Hour(time)
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

 document.write("Line 1: " & Hour("3:13:45 PM") & "<br />")
 document.write("Line 2: " & Hour("23:13:45") & "<br />")
 document.write("Line 3: " & Hour("2:20 PM") & "<br />")

```

```
</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1: 15
Line 2: 23
Line 3: 14
```

Minute Function

The Minute Function returns a number between 0 and 59 that represents the Minute of the hour for the specified time stamp.

Syntax

```
Minute(time)
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

 document.write("Line 1: " & Minute("3:13:45 PM") & "<br />")
 document.write("Line 2: " & Minute("23:43:45") & "<br />")
 document.write("Line 3: " & Minute("2:20 PM") & "<br />")

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1: 13
Line 2: 43
Line 3: 20
```

Second Function

The Second Function returns a number between 0 and 59 that represents the Second of the hour for the specified time stamp.

Syntax

```
Second(time)
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

 document.write("Line 1: " & Second("3:13:25 PM") & "<br />")
 document.write("Line 2: " & Second("23:13:45") & "<br />")
 document.write("Line 3: " & Second("2:20 PM") & "<br />")

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1: 25
Line 2: 45
Line 3: 0
```

Time Function

The Time Function returns the current system time.

Syntax

```
Time()
```

Example

```
<!DOCTYPE html>
<html>
```

```
<body>
<script language="vbscript" type="text/vbscript">

 document.write("Line 1: " & Time() & "<br />")

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Line 1: 3:29:15 PM
```

Timer Function

The Timer Function returns the number of seconds and milliseconds since 12:00 AM.

Syntax

```
Timer()
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

 document.write("Time is : " & Now() & "<br />")
 document.write("Timer is: " & Timer())

 </script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
Time is : 19/07/2013 3:45:53 PM
Timer is: 56753.4
```

TimeSerial Function

The TimeSerial function returns the time for the specified hour, minute and second values.

Syntax

```
TimeSerial(hour,minute,second)
```

Parameter Description

- Hour, a Required parameter, which is an integer between 0 and 23 or any numeric expression.

- Minute, a Required parameter, which is an integer between 0 and 59 or any numeric expression.

- Second, a Required parameter, which is an integer between 0 and 59 or any numeric expression.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

document.write(TimeSerial(20,1,2) & "<br />")
document.write(TimeSerial(0,59,59) & "<br />")
document.write(TimeSerial(7*2,60/3,15+3)& "<br />")

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
8:01:02 PM
12:59:59 AM
2:20:18 PM
```

TimeValue Function

The TimeValue Function converts the given input string to a valid time.

Syntax

```
TimeValue(StringTime)
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

document.write(TimeValue("20:30") & "<br />")
document.write(TimeValue("5:15") & "<br />")
document.write(TimeValue("2:30:58") & "<br />")

</script>
</body>
</html>
```

When you save it as .html and execute it in Internet Explorer, then the above script will produce the following result:

```
8:30:00 PM
5:15:00 AM
2:30:58 AM
```

Part 2: Advanced VBScript

16. PROCEDURES

What is a Function?

A function is a group of reusable code which can be called anywhere in your program. This eliminates the need of writing same code over and over again. This will enable programmers to divide a big program into a number of small and manageable functions. Apart from inbuilt Functions, VBScript allows us to write user-defined functions as well. This section will explain you how to write your own functions in VBScript.

Function Definition

Before we use a function, we need to define that particular function. The most common way to define a function in VBScript is by using the **Function** keyword, followed by a unique function name and it may or may not carry a list of parameters and a statement with an **End Function** keyword, which indicates the end of the function. The basic syntax is shown below:

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

Function Functionname(parameter-list)
  statement 1
  statement 2
  statement 3
  .......
  statement n
End Function

</script>
</body>
</html>
```

Example

```
<!DOCTYPE html>
<html>
<body>
```

```
<script language="vbscript" type="text/vbscript">

 Function sayHello()
   msgbox("Hello there")
 End Function

</script>
</body>
</html>
```

Calling a Function

To invoke a function somewhere later in the script, you would simple need to write the name of that function with the **Call** keyword.

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

 Function sayHello()
   msgbox("Hello there")
 End Function

 Call sayHello()

</script>
</body>
</html>
```

Function Parameters

Till now, we have seen function without a parameter, but there is a facility to pass different parameters while calling a function. These passed parameters can be captured inside the function and any manipulation can be done over those parameters. The Functions are called using the **Call** Keyword.

```
<!DOCTYPE html>
<html>
```

```
<body>
<script language="vbscript" type="text/vbscript">

Function sayHello(name, age)
   msgbox( name & " is " & age & " years old.")
End Function

Call sayHello("Tutorials point", 7)

</script>
</body>
</html>
```

Returning a Value from a Function

A VBScript function can have an optional return statement. This is required if you want to return a value from a function. For example, you can pass two numbers in a function and then you can expect from the function to return their multiplication in your calling program.

NOTE : A function can return multiple values separated by comma as an array assigned to the function name itself.

Example

This function takes two parameters and concatenates them and returns result in the calling program. In VBScript, the values are returned from a function using function name. In case if you want to return two or more values, then the function name is returned with an array of values. In the calling program, the result is stored in the result variable.

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

  Function concatenate(first, last)
    Dim full
    full = first & last
    concatenate = full  'Returning the result to the function name itself
  End Function

</script>
</body>
```

```
</html>
```

Now, we can call this function as follows:

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">
 Function concatenate(first, last)
    Dim full
    full = first & last
    concatenate = full  'Returning the result to the function name itself
  End Function
  ' Here is the usage of returning value from function.
  dim result
  result = concatenate("Zara", "Ali")
  msgbox(result)
</script>
</body>
</html>
```

Sub-Procedures

Sub-Procedures are similar to functions but there are few differences.

- Sub-procedures DONOT Return a value while functions may or may not return a value.
- Sub-procedures Can be called without call keyword.
- Sub-procedures are always enclosed within **Sub** and **End Sub** statements.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

 Sub sayHello()
   msgbox("Hello there")
 End Sub
```

```

</script>
</body>
</html>
```

Calling Procedures

To invoke a Procedure somewhere later in the script, you would simply need to write the name of that procedure with or without the **Call** keyword.

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

 Sub sayHello()
   msgbox("Hello there")
 End Sub
 sayHello()

</script>
</body>
</html>
```

Advanced Concepts for Functions

There is lot to learn about VBScript functions. We can pass the parameter byvalue or byreference. Please click on each one of them to know more.

- **ByVal** - Pass the parameters by value
- **ByRef** - Pass the parameters by the reference

VBScript ByVal Parameters

If ByVal is specified, then the arguments are sent as byvalue when the function or procedure is called.

Example

```
<!DOCTYPE html>
<html>
```

```
<body>
<script language="vbscript" type="text/vbscript">

Function fnadd(Byval num1, Byval num2)
   num1 = 4
   num2 = 5
End Function

 Dim x,y
 x=6
 y=4
 res= fnadd(x,y)
 document.write("The value of x is " & x & "<br />")
 document.write("The value of y is " & y & "<br />")

</script>
</body>
</html>
```

The above function takes the parameter x and y as by values. Hence, after executing the function, the values are unchanged.

If the above function is saved as .html and executed in IE, the output would be as follows:

```
The value of x is 6
The value of y is 4
```

VBScript ByRef Parameters

If **ByRef** is specified, then the arguments are sent as a reference when the function or procedure is called.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

Function fnadd(ByRef num1, ByRef num2)
```

```
    num1 = 4
    num2 = 5
End Function

 Dim x,y
 x=6
 y=4
 res= fnadd(x,y)
 document.write("The value of x is " & x & "<br />")
 document.write("The value of y is " & y & "<br />")

</script>
</body>
</html>
```

The above function takes the parameter x and y as by reference. Hence, after executing the function, the values are changed.

If the above function is saved as .html and executed in IE, the output would be as follows:

```
The value of x is 4
The value of y is 5
```

17. DIALOG BOXES

What is a Dialog Box ?

VBScript allows the developers to interact with the user effectively. It can be a message box to display a message to a user or an input box with which user can enter the values.

VBScript MsgBox Function

The MsgBox function displays a message box and waits for the user to click a button and then an action is performed based on the button clicked by the user.

Syntax

```
MsgBox(prompt[,buttons][,title][,helpfile,context])
```

Parameter Description

- **Prompt** - A Required Parameter. A String that is displayed as a message in the dialog box. The maximum length of prompt is approximately 1024 characters. If the message extends to more than a line, then we can separate the lines using a carriage return character (Chr(13)) or a linefeed character (Chr(10)) between each line.

- **buttons** - An Optional Parameter. A Numeric expression that specifies the type of buttons to display, the icon style to use, the identity of the default button, and the modality of the message box. If left blank, the default value for buttons is 0.

- **Title** - An Optional Parameter. A String expression displayed in the title bar of the dialog box. If the title is left blank, the application name is placed in the title bar.

- **helpfile** - An Optional Parameter. A String expression that identifies the Help file to use to provide context-sensitive help for the dialog box.

- **context** - An Optional Parameter. A Numeric expression that identifies the Help context number assigned by the Help author to the appropriate Help topic. If context is provided, helpfile must also be provided.

The **Buttons** parameter can take any of the following values:

- 0 vbOKOnly Displays OK button only.

- 1 vbOKCancel Displays OK and Cancel buttons.

- 2 vbAbortRetryIgnore Displays Abort, Retry, and Ignore buttons.

- 3 vbYesNoCancel Displays Yes, No, and Cancel buttons.

- 4 vbYesNo Displays Yes and No buttons.
- 5 vbRetryCancel Displays Retry and Cancel buttons.
- 16 vbCritical Displays Critical Message icon.
- 32 vbQuestion Displays Warning Query icon.
- 48 vbExclamation Displays Warning Message icon.
- 64 vbInformation Displays Information Message icon.
- 0 vbDefaultButton1 First button is default.
- 256 vbDefaultButton2 Second button is default.
- 512 vbDefaultButton3 Third button is default.
- 768 vbDefaultButton4 Fourth button is default.
- 0 vbApplicationModal Application modal. The current application will not work until the user responds to the message box.
- 4096 vbSystemModal System modal. All applications will not work until the user responds to the message box.

The above values are logically divided into four groups: The first group(0 to 5) indicates the buttons to be displayed in the message box. The second group (16, 32, 48, 64) describes the sytle of the icon to be displayed, the third group (0, 256, 512, 768) indicates which button must be the default, and the fourth group (0, 4096) determines the modality of the message box.

Return Values

The MsgBox function can return one of the following values:

- 1 - vbOK - OK was clicked
- 2 - vbCancel - Cancel was clicked
- 3 - vbAbort - Abort was clicked
- 4 - vbRetry - Retry was clicked
- 5 - vbIgnore - Ignore was clicked
- 6 - vbYes - Yes was clicked
- 7 - vbNo - No was clicked

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

  'Message Box with just prompt message
  MsgBox("Welcome")

  'Message Box with title, yes no and cancel Butttons
  a = MsgBox("Do you like blue color?",3,"Choose options")
  ' Assume that you press No Button
  document.write("The Value of a is " & a)

</script>
</body>
</html>
```

When the above script is executed, the message box is displayed, and if you press No Button, then the value of a is 7.

```
The Value of a is 7
```

VBScript InputBox Function

The InputBox function helps the user to get the values from the user. After entering the values, if the user clicks the OK button or presses ENTER on the keyboard, the InputBox function will return the text in the text box. If the user clicks on the Cancel button, the function will return an empty string ("").

Syntax

```
InputBox(prompt[,title][,default][,xpos][,ypos][,helpfile,context])
```

Parameter Description

- **Prompt** - A Required Parameter. A String that is displayed as a message in the dialog box. The maximum length of prompt is approximately 1024 characters. If the message extends to more than a line, then we can separate the lines using a carriage return character (Chr(13)) or a linefeed character (Chr(10)) between each line.

- **Title** - An Optional Parameter. A String expression displayed in the title bar of the dialog box. If the title is left blank, the application name is placed in the title bar.

- **Default** - An Optional Parameter. A default text in the text box that the user would like to be displayed.

- **XPos** - An Optional Parameter. The Position of X axis which represents the prompt distance from left side of the screen horizontally. If left blank, the input box is horizontally centered.

- **YPos** - An Optional Parameter. The Position of Y axis which represents the prompt distance from left side of the screen Vertically. If left blank, the input box is Vertically centered.

- **helpfile** - An Optional Parameter. A String expression that identifies the Help file to use to provide context-sensitive Help for the dialog box.

- **context** - An Optional Parameter. A Numeric expression that identifies the Help context number assigned by the Help author to the appropriate Help topic. If context is provided, helpfile must also be provided.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

  ' Input Box with only Prompt
  InputBox("Enter a number")

  ' Input Box with a Title
  a=InputBox("Enter a Number","Enter Value")
  msgbox a

  ' Input Box with a Prompt,Title and Default value
  a=InputBox("Enter a Number","Enter Value",123)
  msgbox a

  ' Input Box with a Prompt,Title,Default and XPos
  a=InputBox("Enter your name","Enter Value",123,700)
  msgbox a
  ' Input Box with a Prompt,Title and Default and YPos
  a=InputBox("Enter your name","Enter Value",123,,500)
  msgbox a

</script>
</body>
</html>
```

When the above script is executed, the input box is displayed and displays the entered value by the user.

18. OBJECT ORIENTED VBSCRIPT

What is an Object?

VBScript runtime objects help us to accomplish various tasks. This section will help you understand how to instantiate an object and work with it.

Syntax

In order to work with objects seamlessly, we need to declare the object and instantiate it using **Set** Keyword.

```
Dim objectname    'Declare the object name

Set objectname = CreateObject(object_type)
```

Example

In the below example, we are creating an object of type **Scripting.Dictionary**.

```
Dim obj

Set obj = CreateObject("Scripting.Dictionary")
```

Destroying the Objects

The significance of destroying the Object is to free the memory and reset the object variable.

Syntax

In order to destroy the objects, we need to use **Set** Keyword followed by the object name and point it to **Nothing**.

```
Set objectname = Nothing 'Destroy the object.
```

Example

In the below example, we are creating an object of type **Scripting.Dictionary**.

```
Dim obj

Set obj = CreateObject("Scripting.Dictionary")

Set obj = Nothing.
```

Object Usage

Please click on each one of the given object types to know more.

Object Type	Description
Class	Class is a container, which holds methods and variables associated with it and accessed by creating an object of Type Class.
Scripting.FileSystemObject	It is the group of objects with which we can work with file system.
Scripting.Dictionary	A Group of objects, which are used for creating the dictionary objects.
Debug	A Global Object with which we can send output to the Microsoft script debugger.

Class Objects

Class is a construct that is used to define a unique type. Like Object Oriented Programming, VbScript 5.0 supports the creation of classes and it is very similar to writing COM objects with VB.

Class is simply the template for an object and we instantiate an object to access the properties and methods of it. Classes can contain variables, properties, methods or events.

Syntax

VBScript classes are enclosed within **Class** .... **End Class**

```
'Defining the Class
Class classname    'Declare the object name
...
End Class


' Instantiation of the Class
Set objectname = new classname
```

Class Variables

Classes can contain variables, which can be of private or public. Variables within classes should follow VBScript naming conventions. By default, the variables in class are **Public**. That is why they can be accessed outside the class.

```
Dim var1 , var2.
Private var1 , var2.
Public var1 , var2.
```

Class Properties

Class properties, such as Property Let, which handles the process of data validation and assigning the new value to the private variable. Property set, which assigns the new property value to the private object variable.

Read-only properties have only a Property Get procedure while write-only properties (which are rare) have only a Property Let or a Property Set procedure.

Example

In the below example, we are using Properties to wrap private variables.

```
Class Comp

   Private modStrType
   Private OS

   Public Property Let ComputerType(strType)
      modStrType = strType
   End Property

   Public Property Get ComputerType()
      ComputerType = modStrType
   End Property

   Public Property Set OperatingSystem(oObj)
      Set OS = oObj
   End Property

   Public Property Get OperatingSystem()
      Set OperatingSystem = OS
   End Property

End Class
```

Class Methods

Methods allow the class to perform the operation that the developer wants. The Methods are nothing but Functions or Subroutines.

Example

In the below example, we are using Properties to wrap private variables.

```
Class Car


   Private Model

   Private Year


   Public Start()

      Fuel = 2.45

       Pressure =  4.15

   End Function


End Class
```

Class Events

There are two events that are automatically associated with every class by default. Class_Initialize and Class_Terminate.

Class_Initialize is triggered whenever you instantiate an object based on the class. **Class_Terminate** event is fired when the object goes out of scope or when the object is set to Nothing.

Example

In the below example, we will make you understand how the events work in VBScript.

```
'Instantation of the Object

Set objectname = New classname


Private Sub Class_Initialize(  )

     Initalization code goes here

End Sub


'When Object is Set to Nothing

Private Sub Class_Terminate(  )

     Termination code goes here
```

```
End Sub
```

FileSystem Objects

As the name suggests, FSO Objects help the developers to work with drives, folders and files. In this section, we will discuss:

Objects and Collections

Object Type	Description
Drive	Drive is an Object. Contains methods and properties that allow you to gather information about a drive attached to the system
Drives	Drives is a Collection. It Provides a list of the drives attached to the system, either physically or logically.
File	File is an Object. It Contains methods and properties that allow developers to create, delete or move a file.
Files	Files is a Collection. It Provides a list of all files contained within a folder.
Folder	Folder is an Object. It Provides methods and properties that allow developers to create, delete or move folders.
Folders	Folders is a Collection. It Provides a list of all the folders within a Folder.
TextStream	TextStream is an Object. It enables developers to read and write text files.

Drive

Drive is an object, which provides access to the properties of a particular disk drive or network share. The Following properties are supported by **Drive**object:

- AvailableSpace
- DriveLetter
- DriveType
- FileSystem

- FreeSpace
- IsReady
- Path
- RootFolder
- SerialNumber
- ShareName
- TotalSize
- VolumeName

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

   Dim oFS, drive, space
   Set oFS = CreateObject("Scripting.FileSystemObject")
   Set drive = oFS.GetDrive(oFS.GetDriveName("C:\"))
   space = "Drive " & UCase(drvPath) & " - "
   space = space & drive.VolumeName   & "  "
   space = space & "Free Space: " & FormatNumber(drive.FreeSpace/1024, 0)
   space = space & " Kbytes"
   Document.write space

</script>
</body>
</html>
```

If the above script is saved as HTML and executed in IE, we would get the following output in the console.

```
Drive - Win 7 Free Space:20,154,059 Kbytes
```

Drives

Drives is a collection, which provides details of all the drives attached to the system, either physically or logically. It carries two properties:

- Count Property
- Item Property

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

   Dim oFS, d, dc, s, n
   Set oFS = CreateObject("Scripting.FileSystemObject")
   Set dc = oFS.Drives
   For Each d in dc
      n = ""
      s = s & d.DriveLetter & " - "
      If d.DriveType = 3 Then
         n = d.ShareName
      ElseIf d.IsReady Then
         n = d.VolumeName
      Else
         n = "Drive not available"
      End If
      s = s & n & "::"
   Next

   document.write s
   document.write dc.count

</script>
</body>
</html>
```

If the above script is saved as HTML and executed in IE, we would get the following output in the console.

```
C- Win 7::D-Personal ::E-Common::F-Songs::

4
```

File

File is an Object, which contains both properties and methods that allow the developers to create, delete or move a file.

Methods

- Copy
- Delete
- Move
- openasTextStream

Properties

- Attributes
- DateCreated
- DateLastAccessed
- DateLastModified
- Drive
- Name
- ParentFolder
- Path
- ShortName
- ShortPath
- Size
- Type

Example

```
<!DOCTYPE html>

<html>

<body>
```

```
<script language="vbscript" type="text/vbscript">


   Dim fso, f
   Set fso = CreateObject("Scripting.FileSystemObject")
   Set f = fso.GetFile("C:\user.js")
   document.write "Line 1: "& f.DateCreated & "<br />"
   document.write "Line 2: "& f.Attributes & "<br />"
   document.write "Line 3: "& f.DateLastAccessed & "<br />"
   document.write "Line 4: "& f.DateLastModified & "<br />"
   document.write "Line 5: "& f.Drive  & "<br />"
   document.write "Line 6: "& f.Name  & "<br />"
   document.write "Line 7: "& f.ParentFolder & "<br />"
   document.write "Line 8: "& f.Path  & "<br />"
   document.write "Line 9: "& f.ShortName  & "<br />"
   document.write "Line 10: "& f.ShortPath & "<br />"
   document.write "Line 11: "& f.Size  & "<br />"
   document.write "Line 12: "& f.Type & "<br />"
   f.copy ("D:\") & "<br />"    'copying to file to another location'
   f.Move ("E:\") & "<br />"   'Move the file to another location'
   f.Delete ("D:\") & "<br />"  'Delete to file from one location'


</script>
</body>
</html>
```

If the above script is saved as HTML and executed in IE, we would get the following output in the console.

```
Line 1: 08/02/13 06:57:34
Line 2: 32
Line 3: 08/02/13 06:57:34
Line 4: 04/18/12 22:23:37
Line 5: C:
Line 6: user.js
Line 7: C:\
Line 8: C:\user.js
Line 9: user.js
Line 10: C:\user.js
Line 11: 474

Line 12: JScript Script File
```

Files

Files is a collection, which provides a list of all files contained within a folder.

Properties

- Count
- Item

Example

```
<!DOCTYPE html>

<html>

<body>

<scrip

t language="vbscript" type="text/vbscript">


   Dim fso, f, f1, fc, s

   Set oFS = CreateObject("Scripting.FileSystemObject")


   'get the folder by giving its path

   Set f = oFS.GetFolder("D:\PROJECT\")

   Set fc = f.Files


   'Get Item

   Set s = fc.Item("sendmail.vbs")


   'Get Count

   x = fc.Count


   Document.write s

   Document.write x


</script>

</body>

</html>
```

If the above script is saved as HTML and executed in IE, we would get the following output in the console.

```
D:\PROJECT\sendmail.vbs
6
```

Folder

Folder is an Object, which contains both properties and methods that allow the developers to create, delete or move a folder.

Methods

- Copy
- Delete
- Move
- CreateTextFile

Properties

- Attributes
- DateCreated
- DateLastAccessed
- DateLastModified
- Drive
- Files
- IsRootFolder
- Name
- ParentFolder
- Path
- ShortName
- ShortPath
- Size
- SubFolders

- Type

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

   Dim fso, f
   Set fso = CreateObject("Scripting.FileSystemObject")

   ' Enter a Folder Name that exists on your System'
   Set f = fso.GetFolder("D:\PROJECT\")

   ShowFileInfo = "Created: " & f.DateCreated & "<br / >"
   document.write ShowFileInfo

   ShowFileInfo = "attributes " & f.attributes & "<br / >"
   document.write ShowFileInfo

   ShowFileInfo = "Last Accessed : " &  f.DateLastAccessed & "<br / >"
   document.write ShowFileInfo

   ShowFileInfo = "DateLastModified : " & f.DateLastModified & "<br / >"
   document.write ShowFileInfo

   ShowFileInfo =  "Drive : " &  f.Drive & "<br / >"
   document.write ShowFileInfo

   ShowFileInfo =   "count : " &  f.Files.count & "<br / >"
   document.write ShowFileInfo

   ShowFileInfo = "IsRoot folder : "  &f.IsRootFolder   & "<br / >"
   document.write ShowFileInfo

   ShowFileInfo =  "Name : " & f.Name    & "<br / >"
   document.write ShowFileInfo
   ShowFileInfo =  "parent folder : " & f.ParentFolder    & "<br / >"
   document.write ShowFileInfo

   ShowFileInfo =  "Path : " & f.Path    & "<br / >"
   document.write ShowFileInfo

   ShowFileInfo =  "shortname : " & f.ShortName    & "<br / >"
   document.write ShowFileInfo

   ShowFileInfo =  "ShortPath : "  & f.ShortPath    & "<br / >"
   document.write ShowFileInfo

   ShowFileInfo =  "File Size : " & f.Size & "<br / >"
   document.write ShowFileInfo

   ShowFileInfo = "Type : " &  f.Type    & "<br / >"
   document.write ShowFileInfo

</script>
</body>
</html>
```

If the above script is saved as HTML and executed in IE, we would get the following output in the console.

```
Created: 22/02/2012 8:24:57 PM
attributes 16
Last Accessed : 1/08/2013 12:48:36 PM
DateLastModified : 1/08/2013 12:48:36 PM
Drive : D:
count : 6
IsRoot folder : False
Name : PROJECT
parent folder : D:\
Path : D:\PROJECT
shortname : PROJECT
ShortPath : D:\PROJECT
```

```
File Size : 8655239975

Type : File folder
```

Folders

Folders is an collection of all Folder Objects within a Folder object.

Methods

- Add

Properties

- Count
- Item

Example

If the above script is saved as HTML and executed in IE, we would create a folder with name "Test_Folder".

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

   Dim fso, f, fc, nf
   Set fso = CreateObject("Scripting.FileSystemObject")
   Set f = fso.GetFolder("D:\PROJECT")
   Set fc = f.SubFolders
   folderName = "Test_Folder"
   If folderName <> "" Then
      Set nf = fc.Add(folderName)
   Else
      Set nf = fc.Add("New Folder")
   End If

</script>
</body>
</html>
```

TextStream

TextStream object helps the developers to work with text files seamlessly. Developers can read, write or append the contents to the text file using the text stream object.

Syntax

```
TextStream.{property  | method( )}
```

Example

If the above script is saved as HTML and executed in IE, we would create a folder with name "Test_Folder".

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

  Dim objFSO
  Set objFSO = CreateObject("Scripting.FileSystemObject")
  Dim objTextFile
  Set objTextFile = objFSO.CreateTextFile("D:\Testfile.txt")
  objTextFile.Close
  Const ForAppending = 8
  Set objTextFile = objFSO.OpenTextFile("D:\Testfile.txt",ForAppending,True)
  objTextFile.WriteLine "Welcome to VBScript Programming"
  objTextFile.Close
  Set objTextFile = Nothing
  Set objFSO = Nothing

</script>
</body>
</html>
```

If the above script is saved as HTML and executed in IE, it will create a text file in D:\ Drive and append the string specified in the WriteLine Method.

```
Welcome to VBScript Programming
```

Dictionary Objects

A Dictionary object can be compared to a PERL associative array. Any Values can be stored in the array and each item is associated with a unique key. The key is used to retrieve an individual element and it is usually an integer or a string, but can be anything except an array.

Syntax

VBScript classes are enclosed within **Class** .... **End Class**.

```
Dim variablename

Set variablename = CreateObject("Scripting.Dictionary")

variablename.Add (key, item)
```

Example

```
<!DOCTYPE html>

<html>

<body>

<script language="vbscript" type="text/vbscript">


   Dim obj_datadict   ' Create a variable.

   Set obj_datadict = CreateObject("Scripting.Dictionary")

   obj_datadict.Add "a", "Apple"   ' Add some keys and items.

   obj_datadict.Add "b", "Bluetooth"

   obj_datadict.Add "c", "Clear"


</script>

</body>

</html>
```

There are various methods associated with DataDictionary Objects which enable the developers to work with dictionary objects seamlessly.

Exists Method

Exist Method helps the user to check whether or not the Key Value pair exists.

```
 object.Exists(key)
```

Parameter Description

- **Object**, a Mandatory Parameter. This represents the name of the Dictionary Object.

- **Key**, a Mandatory Parameter. This represents the value of the Dictionary Object.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

   Dim d, msg   ' Create some variables.
   Set d = CreateObject("Scripting.Dictionary")
   d.Add "a", "Apple"   ' Add some   keys and items.
   d.Add "b", "BlueTooth"
   d.Add "c", "C++"
   If d.Exists("c") Then
      msgbox  "Specified key exists."
   Else
      msgbox  "Specified key doesn't exist."
   End If

</script>
</body>
</html>
```

Save the file as .HTML, and upon executing the above script in IE, it displays the following message in a message box.

```
Specified key exists.
```

Items Method

Items Method helps us to get the values stored in the key value pair of the data dictionary object.

Parameter Description

- **Object**, a Mandatory Parameter. This represents the name of the Dictionary Object.

Example

```
<!DOCTYPE html>
```

```
<html>
<body>
<script language="vbscript" type="text/vbscript">

   Dim obj_datadict   ' Create a variable.
   Set obj_datadict = CreateObject("Scripting.Dictionary")
   obj_datadict.Add "a", "Apple"   ' Add some keys and items.
   obj_datadict.Add "b", "Bluetooth"
   obj_datadict.Add "c", "C++"
   a=obj_datadict.items

   msgbox a(0)
   msgbox a(2)

</script>
</body>
</html>
```

Save the file as .HTML, and upon executing the above script in IE, it displays the following message in a message box.

```
Apple
C++
```

Keys Method

```
object.Keys( )
```

Parameter Description

- **Object**, a Mandatory Parameter. This represents the name of the Dictionary Object.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

   Dim obj_datadict   ' Create a variable.
   Set obj_datadict = CreateObject("Scripting.Dictionary")
   obj_datadict.Add "a", "Apple"   ' Add some keys and items.
   obj_datadict.Add "b", "Bluetooth"
   obj_datadict.Add "c", "C++"
   a=obj_datadict.Keys

   msgbox a(0)
   msgbox a(2)

</script>
</body>
</html>
```

Save the file as .HTML, and upon executing the above script in IE, it displays the following message in a message box.

```
a
c
```

Remove Method

```
object.Remove(key)
```

Parameter Description

- **Object**, a Mandatory Parameter. This represents the name of the Dictionary Object.
- **Key**, a Mandatory Parameter. This represents the key value pair that needs to be removed from the Dictionary Object.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

   Dim obj_datadict   ' Create a variable.
   Set obj_datadict = CreateObject("Scripting.Dictionary")
   obj_datadict.Add "a", "Apple"   ' Add some keys and items.
   obj_datadict.Add "b", "Bluetooth"
   obj_datadict.Add "c", "C++"
   a=obj_datadict.Keys

   msgbox a(0)
   msgbox a(2)

   obj_datadict.remove("b")  'The key value pair of "b" is removed'

</script>
</body>
</html>
```

Save the file as .HTML, and upon executing the above script in IE, it displays the following message in a message box.

```
a
c
```

Remove All Method

```
object.RemoveAll()
```

Parameter Description

- **Object**, a Mandatory Parameter. This represents the name of the Dictionary Object.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

   Dim obj_datadict   ' Create a variable.
   Set obj_datadict = CreateObject("Scripting.Dictionary")
   obj_datadict.Add "a", "Apple"   ' Add some keys and items.
   obj_datadict.Add "b", "Bluetooth"
   obj_datadict.Add "c", "C++"
   a=obj_datadict.Keys
   msgbox a(0)

   msgbox a(2)


   obj_datadict.removeall


</script>

</body>

</html>
```

Debug Objects

The Debug Objects are global objects that can send output to a script debugger. Here, the debugger what we refer to is Microsoft Script Debugger.

The **Debug** objects cannot be created like other objects but can be used when we are debugging.

The following methods are supported by **Debug** Objects. These methods or objects have no effect if the script is NOT executed in debug mode. The Methods supported by Debug Objects are discussed in detail.

Write

The Write method sends strings to the immediate window of the Microsoft Script Debugger at run-time. If the script is not executed in debug mode, then the Write method has no effect.

```
Write Debug.Write([str1 [, str2 [, ... [, strN]]]])
```

Example

```
<!DOCTYPE html>

<html>

<body>

<script language="vbscript" type="text/vbscript">


 Dim counter

 counter = 42

 Debug.Write "The value of counter is " & counter


</script>

</body>
```

```
</html>
```

WriteLine

The Writeline method is very similar to Write method. The WriteLine method sends strings, followed by a newline character, to the immediate window of the Microsoft Script Debugger at run time. If the script is not executed in debug mode, then the WriteLine method has no effect.

```
Debug.WriteLine([str1 [, str2 [, ... [, strN]]]])
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

  Dim counter
  counter = 42
  Debug.WriteLine "The value of counter is " & counter

</script>
</body>
</html>
```

Enabling Debug Mode

To enable script in debug mode, following actions to be performed by the user:

- On the **Tools** menu, click Internet Options.
- In the Internet Options dialog box, click the Advanced tab.
- In the Browsing category, clear the Disable script debugging check box.
- Click OK.
- Exit and restart Internet Explorer.

19. VBSCRIPT REGULAR EXPRESSIONS

What are Regular Expressions?

Regular Expressions is a sequence of characters that forms a pattern, which is mainly used for search and replace. The purpose of creating a pattern is to match specific strings, so that the developer can extract characters based on conditions and replace certain characters.

RegExp Object

RegExp object helps the developers to match the pattern of strings and the properties and methods help us to work with Regular Expressions easily. It is similar to RegExp in JavaScript

Properties

- **Pattern** - The Pattern method represents a string that is used to define the regular expression and it should be set before using the regular expression object.

- **IgnoreCase** - A Boolean property that represents if the regular expression should be tested against all possible matches in a string if true or false. If not specified explicitly, IgnoreCase value is set to False.

- **Global** - A Boolean property that represents if the regular expression should be tested against all possible matches in a string. If not specified explicitly, Global value is set to False.

Methods

- **Test** (search-string) - The Test method takes a string as its argument and returns True if the regular expression can successfully be matched against the string, otherwise False is returned.

- **Replace** (search-string, replace-string) - The Replace method takes 2 parameters. If the search is successful then it replaces that match with the replace-string, and the new string is returned. If there are no matches then the original search-string is returned.

- **Execute** (search-string) - The Execute method works like Replace, except that it returns a Matches collection object, containing a Match object for each successful match. It doesn't modify the original string.

Matches Collection Object

The Matches collection object is returned as a result of the Execute method. This collection object can contain zero or more Match objects and the properties of this object are read-only.

- **Count** - The Count method represents the number of match objects in the collection.

- **Item** - The Item method enables the match objects to be accessed from matches collections object.

Match Object

The Match object is contained within the matches collection object. These objects represent the successful match after the search for a string.

- **FirstIndex** - It represents the position within the original string where the match occurred. This index are zero-based which means that the first position in a string is 0.

- **Length** - A value that represents the total length of the matched string.

- **Value** - A value that represents the matched value or text. It is also the default value when accessing the Match object.

All about Pattern Parameter

The pattern building is similar to PERL. Pattern building is the most important thing while working with Regular Expressions. In this section, we will deal with how to create a pattern based on various factors.

Position Matching

The significance of position matching is to ensure that we place the regular expressions at the correct places.

Symbol	Description
^	Matches only the beginning of a string.
$	Match only the end of a string.
\b	Matches any word boundary
\B	Matches any non-word boundary

Literals Matching

Any form of characters such as alphabet, number or special character or even decimal, hexadecimal can be treated as a Literal. Since few of the characters have already got a special meaning within the context of Regular Expression, we need to escape them using escape sequences.

Symbol	Description
Alphanumeric	Matches alphabetical and numerical characters only.
\n	Matches a new line.
\[	Matches [literal only
\]	Matches] literal only
\(	Matches (literal only
\)	Matches) literal only
\t	Matches horizontal tab
\v	Matches vertical tab
\\|	Matches | literal only
\{	Matches { literal only
\}	Matches } literal only
\\	Matches \ literal only
\?	Matches ? literal only
*	Matches * literal only
\+	Matches + literal only
\.	Matches . literal only
\b	Matches any word boundary
\B	Matches any non-word boundary
\f	Matches a form feed

\r	Matches carriage return
\xxx	Matches the ASCII character of an octal number xxx.
\xdd	Matches the ASCII character of an hexadecimal number dd.
\uxxxx	Matches the ASCII character of an UNICODE literal xxxx.

Character Classes Matching

The character classes are the Pattern formed by customized grouping and enclosed within [ ] braces. If we are expecting a character class that should not be in the list, then we should ignore that particular character class using the negative symbol, which is a cap ^.

Symbol	**Description**
[xyz]	Match any of the character class enclosed within the character set.
[^xyz]	Matches any of the character class that are NOT enclosed within the character set.
.	Matches any character class except \n
\w	Match any word character class. Equivalent to [a-zA-Z_0-9]
\W	Match any non-word character class. Equivalent to [^a-zA-Z_0-9]
\d	Match any digit class. Equivalent to [0-9].
\D	Match any non-digit character class. Equivalent to [^0-9].
\s	Match any space character class. Equivalent to [\t\r\n\v\f]
\S	Match any space character class. Equivalent to [^\t\r\n\v\f]

Repetition Matching

Repetition matching allows multiple searches within the regular expression. It also specifies the number of times an element is repeated in a Regular Expression.

Symbol	Description
*	Matches zero or more occurrences of the given regular Expression. Equivalent to {0,}.
+	Matches one or more occurrences of the given regular Expression. Equivalent to {1,}.
?	Matches zero or one occurrences of the given regular Expression. Equivalent to {0,1}.
{x}	Matches exactly x number of occurrences of the given regular expression.
{x,}	Match atleast x or more occurrences of the given regular expression.
{x,y}	Matches x to y number of occurrences of the given regular expression.

Alternation & Grouping

Alternation and grouping helps developers to create more complex Regular Expressions in particularly handling intricate clauses within a Regular Expression which gives a great flexibility and control.

Symbol	Description
0	Grouping a clause to create a clause. "(xy)?(z)" matches "xyz" or "z".
|	Alternation combines one regular expression clause and then matches any of the individual clauses. "(ij)|(23)|(pq)" matches "ij" or "23" or "pq".

Building Regular Expressions

Given below are a few examples that clearly explain how to build a Regular Expression.

Regular Expression	Description
"^\s*.." and "..\s*$"	Represents that there can be any number of leading and trailing space characters in a single line.
"((\$\s?)|(#\s?))?"	Represents an optional $ or # sign followed by an optional space.

"((\d+(\.(\d\d)?)?))"	Represents that at least one digit is present followed by an optional decimals and two digits after decimals.

Example

The below example checks whether or not the user entered an email id whose format should match such that there is an email id followed by '@' and then followed by domain name.

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">
  strid = "welcome.user@tutorialspoint.co.us"
  Set re = New RegExp
  With re
      .Pattern    = "^[\w-\.]{1,}\@([\da-zA-Z-]{1,}\.){1,}[\da-zA-Z-]{2,3}$"
      .IgnoreCase = False
      .Global     = False
  End With

  ' Test method returns TRUE if a match is found
  If re.Test( strid ) Then
      Document.write(strid & " is a valid e-mail address")
  Else
      Document.write(strid & " is NOT a valid e-mail address")
  End If

  Set re = Nothing
</script>
</body>
</html>
```

20. VBSCRIPT ERROR HANDLING

There are three types of errors in programming: (a) Syntax Errors, (b) Runtime Errors, and (c) Logical Errors.

Syntax Errors

Syntax errors, also called parsing errors, occur at interpretation time for VBScript. For example, the following line causes a syntax error because it is missing a closing parenthesis:

```
<script type="text/vbscript">


dim x,y

x = "Tutorialspoint"

y = Ucase(x


</script>
```

Runtime Errors

Runtime errors, also called exceptions, occur during execution, after interpretation. For example, the following line causes a runtime error because here syntax is correct but at runtime it is trying to call fnmultiply, which is a non-existing function:

```
<script type="text/vbscript">


  Dim x,y

  x = 10

  y = 20

  z = fnadd(x,y)

  a = fnmultiply(x,y)

  Function fnadd(x,y)

      fnadd = x+y

  End Function


</script>
```

Logical errors

Logic errors can be the most difficult type of errors to track down. These errors are not the result of a syntax or runtime error. Instead, they occur when you make a mistake in the logic that drives your script and you do not get the result you expected. You cannot catch those errors, because it depends on your business requirement what type of logic you want to put in your program. For example, dividing a number by zero or a script that is written which enters into infinite loop.

Err Object

Assume if we have a runtime error, then the execution stops by displaying the error message. As a developer, if we want to capture the error, then **Error** Object is used.

Example

In the following example, **Err.Number** gives the error number and **Err.Description** gives error description.

```
<script type="text/vbscript">


  Err.Raise 6   ' Raise an overflow error.
  MsgBox "Error # " & CStr(Err.Number) & " " & Err.Description
  Err.Clear   ' Clear the error.


</script>
```

21. MISCELLANEOUS STATEMENTS

VBScript has a few other important statements to help developers develop an efficient script. The following table lists a set of such important statements. In this chapter, we will discuss each of these statements in detail with examples.

Category	Function Name/Statement Name
Options	Option Explicit
Script Engine ID	ScriptEngine
variants	IsArray, IsEmpty, IsNull, IsNumeric, IsObject, TypeName
Expression	Eval,Execute
Control Statement	With...End With
Math Function	Randomize

Option Explicit

Option Explicit forces the developer to declare the variables using **Dim** statement before they are used in some part of the code.

Syntax

```
Option Explicit
```

Example

If we use **Option Explicit** and if we don't declare the variables then the interpreter will throw and error.

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

  Option Explicit
  Dim x,y,z,a
  x = 10
  y = 20
  z = fnadd(x,y)
  a = fnmultiply(x,y)

  Function fnadd(x,y)
      fnadd = x+y
  End Function

</script>
</body>
</html>
```

ScriptEngine

ScriptEngine represents the details of the scripting language in use. It is also used in combination with **ScriptEngineMajorVersion**, **ScriptEngineMinor Version**, **ScriptEngineBuildVersion** which gives the major version of the vbscript engine, minor version the vbscript engine, and the build version of vbscript respectively.

Syntax

```
ScriptEngine
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

  Dim scriptdetails
  scriptdetails =  " Version " & ScriptEngine & " - "
  'For getting Major version, use ScriptEngineMajorVersion'

  scriptdetails = scriptdetails & ScriptEngineMajorVersion & "."

  'For getting Minor version, use ScriptEngineMinorVersion'
  scriptdetails = scriptdetails & ScriptEngineMinorVersion & "."
  'For getting Build version, use ScriptEngineBuildVersion'
  scriptdetails = scriptdetails & ScriptEngineBuildVersion

  Document.write scriptdetails

</script>
</body>
</html>
```

Save the file with .html extension upon executing the script in IE , the following result is displayed on the screen.

```
Version VBScript - 5.8.16996
```

IsEmpty

The Function IsEmpty is used to check whether or not the expression is empty. It returns a Boolean value. **IsEmpty** returns True if the variable is uninitialized or explicitly set to Empty. Otherwise the expression returns False.

Syntax

```
IsEmpty(expression)
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

  Dim var, MyCheck
  MyCheck = IsEmpty(var)
  Document.write "Line 1 : " & MyCheck & "<br />"

  var = Null   ' Assign Null.
  MyCheck = IsEmpty(var)
  Document.write "Line 2 : " & MyCheck & "<br />"

  var = Empty   ' Assign Empty.
  MyCheck = IsEmpty(var)
  Document.write "Line 3 : " & MyCheck & "<br />"

</script>
</body>
</html>
```

Save the file with .html extension upon executing the script in IE, the following result is displayed on the screen.

```
Line 1 : True
Line 2 : False
Line 3 : True
```

IsNull

The Function IsNull is used to check whether or not the expression has a valid data. It returns a Boolean value. **IsNull** returns True if the variable is Null otherwise the expression returns False.

Syntax

```
IsNull(expression)
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

   Dim var, res
   res = IsNull(var)
   document.write "Line 1 : " & res & "<br />"

   var = Null
   res = IsNull(var)
   document.write "Line 2 : " & res & "<br />"

   var = Empty
   res = IsNull(var)
   document.write "Line 3 : " & res & "<br />"


</script>
</body>
</html>
```

Save the file with .html extension upon executing the script in IE, the following result is displayed on the screen.

```
Line 1 : False
Line 2 : True
Line 3 : False
```

IsObject

The IsObject Function is used to check whether or not the expression has a valid Object. It returns a Boolean value. **IsObject** returns True if the expression contains an object subtype otherwise the expression returns False.

Syntax

```
IsObject(expression)
```

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">
  Dim fso,b
  b = 10
  set fso = createobject("Scripting.Filesystemobject")
  x = isobject(fso)
  Document.write "Line 1 : " &  x  & "<br />"
  y = isobject(b)
  Document.write "Line 2 : " &  y  & "<br />"


</script>
</body>
</html>
```

Save the file with .html extension upon executing the script in IE, the following result is displayed on the screen.

```
Line 1 : True

Line 2 : False
```

IsNumeric

The IsNumeric Function is used to check whether or not the expression has a number subtype. It returns a Boolean value. **IsObject** returns True if the expression contains an number subtype otherwise the expression returns False.

Syntax

```
IsNumeric(expression)
```

Example

```
<!DOCTYPE html>

<html>

<body>

<script language="vbscript" type="text/vbscript">


  Dim var, chk

  var = 20

  chk = IsNumeric(var)

  Document.write "Line 1 : " &  chk  & "<br />"


  var = "3.1415935745"

  chk = IsNumeric(var)

  Document.write "Line 2 : " &  chk  & "<br />"


  var = "20 Chapter 23.123 VBScript"

  chk = IsNumeric(var)

  Document.write "Line 3 : " &  chk  & "<br />"


</script>

</body>

</html>
```

Save the file with .html extension upon executing the script in IE , the following result is displayed on the screen.

```
Line 1 : True

Line 2 : True

Line 3 : False
```

TypeName

The TypeName Function is used to return the variant subtype information of the variable.

Syntax

```
TypeName(varname)
```

The Typename function can return any of the following values.

- Byte - Byte Value
- Integer - Integer Value
- Long - Long Integer Value
- Single - Single-precision floating-point Value
- Double - Double-precision floating-point Value
- Currency - Currency Value
- Decimal - Decimal Value
- Date - Date or Time Value
- String - Character string Value
- Boolean - Boolean Value
- Empty - Uninitialized Value
- Null - No Valid Data
- Object - typename of Object
- Nothing - Object variable that doesn't yet refer to an object instance
- Error

Example

```
<!DOCTYPE html>
```

```
<html>
<body>
<script language="vbscript" type="text/vbscript">

  Dim ArrVar(2), vartype
  NullVar = Null   ' Assign Null value.

  vartype = TypeName(3.1450)
  Document.write "Line 1 : " &  vartype  & "<br />"
  vartype = TypeName(432)
  Document.write "Line 2 : " &  vartype  & "<br />"
  vartype = TypeName("Microsoft")
  Document.write "Line 3 : " &  vartype  & "<br />"
  vartype = TypeName(NullVar)
  Document.write "Line 4 : " &  vartype  & "<br />"
  vartype = TypeName(ArrVar)
  Document.write "Line 5 : " &  vartype  & "<br />"

</script>
</body>
</html>
```

Save the file with .html extension upon executing the script in IE, the following result is displayed on the screen.

```
Line 1 : Double
Line 2 : Integer
Line 3 : String
Line 4 : Null
Line 5 : Variant()
```

Eval

The Eval Function executes an expression and returns the result either as a string or a number.

Syntax

```
      Eval(expression)
```

The argument Expression can be a string expression or a number. If you pass to the Eval function a string that doesn't contain a numeric expression or a function name but only a simple text string, a run-time error occurs. For example, Eval("VBScript") results in an error.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

  Document.write Eval("10 + 10") & "<br />"
  Document.write Eval("101 = 200") & "<br />"
  Document.write Eval("5 * 3") & "<br />"

</script>
</body>
</html>
```

Save the file with .html extension upon executing the script in IE, the following result is displayed on the screen.

```
20
false
15
```

Execute

The Execute statement accepts argument that is a string expression containing one or more statements for execution.

Syntax

```
      Execute(expression)
```

In VBScript, a = b can be interpreted two ways. It can be treated as an assignment statement where the value of x is assigned to y. It can also be interpreted as an expression that tests if a and b have the same value. If they do, result is True; if they are not, result is False. The Execute statement always uses the first interpretation while the Eval statement always uses the second.

Example

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

  Dim x
  x = "Global"
  y = "VBScript"
  Execute("x=y")
  msgbox x
  msgbox y

</script>
</body>
</html>
```

Save the file with .html extension upon executing the script in IE, the following result is displayed on the screen.

```
VBScript
VBScript
```

With..End With

The With statement allows us to perform a series of operation on a specified object without explicitly mentioning the object name over again and again.

Syntax

```

With (objectname)
   statement 1
   statement 2
   statement 3
   ...
   ...
   statement n
End With
```

Example

Upon Executing the following script, Winword gets opened and the specified text is entered.

```
<!DOCTYPE html>
<html>
<body>
<script language="vbscript" type="text/vbscript">

 Msg =  "Vbscript" & vbCrLf & "Programming"
 Set objWord = CreateObject("Word.Application")
 objWord.Visible = True

 ' Objects methods are accessed without requaliyfying the objects again.'
 With objWord
     .Documents.Add
     .Selection.TypeText Msg
     .Selection.WholeStory
 End With



</script>
</body>
</html>
```

Randomize

The Randomize statement initializes the random number generator which is helpful for the developers to generate a random number.

Syntax

```
     Randomize [number]
```

Example

Upon Executing the following script, Winword gets opened and the specified text is entered.

```
<!DOCTYPE html>
<html>
<body>
```

```
<script language="vbscript" type="text/vbscript">


  Dim MyValue
  Randomize
  MyValue = Int((100 * Rnd) + 1)    ' Generate random value between 1 and 100.
  MsgBox MyValue


</script>
</body>
</html>
```

Save the above script as HTML and upon executing the script in IE, the following output is shown.

```
42
```