

Module II– Java Script

Topics

Introduction to JavaScript

Variables

Conditional and Loops

Events

Functions

Frames

HTML document

Predefined Objects

Image Object

Layers

Drag and Drop

Building a Sample Form.

Introduction

- JavaScript is the most popular scripting language on the internet, and works in all major browsers, such as Internet Explorer, Firefox, Chrome, Opera, and Safari.
- JavaScript is used in billions of Web pages to add functionality, validate forms, communicate with the server, and much more.

What is JavaScript?

- JavaScript was designed to **add interactivity to HTML pages**
- JavaScript is a **scripting language**
- A scripting language is a **lightweight programming language**
- JavaScript is usually **embedded directly into HTML pages**
- JavaScript is an **interpreted language** (means that scripts execute without preliminary compilation)
- Everyone can use JavaScript without purchasing a license

What Can JavaScript do?

- **JavaScript gives HTML designers a programming tool** - HTML authors are normally not programmers, but JavaScript is a scripting language with a very simple syntax!
- **JavaScript can react to events** - A JavaScript can be set to execute when something happens, like when a page has finished loading or when a user clicks on an HTML element
- **JavaScript can read and write HTML elements** - A JavaScript can read and change the content of an HTML element
- **JavaScript can be used to validate data** - A JavaScript can be used to validate form data before it is submitted to a server. This saves the server from extra processing
- **JavaScript can be used to detect the visitor's browser** - A JavaScript can be used to detect the visitor's browser, and - depending on the browser - load another page specifically designed for that browser
- **JavaScript can be used to create cookies** - A JavaScript can be used to store and retrieve information on the visitor's computer

History

- JavaScript was invented by **Brendan Eich at Netscape** (with Navigator 2.0), and has appeared in all browsers since 1996.
- The official standardization was adopted by the ECMA organization (an industry standardization association) in 1997.
- **ECMA-262** is the official JavaScript standard.

Writing to The HTML Document

- The HTML `<script>` tag is used to insert a JavaScript into an HTML page.

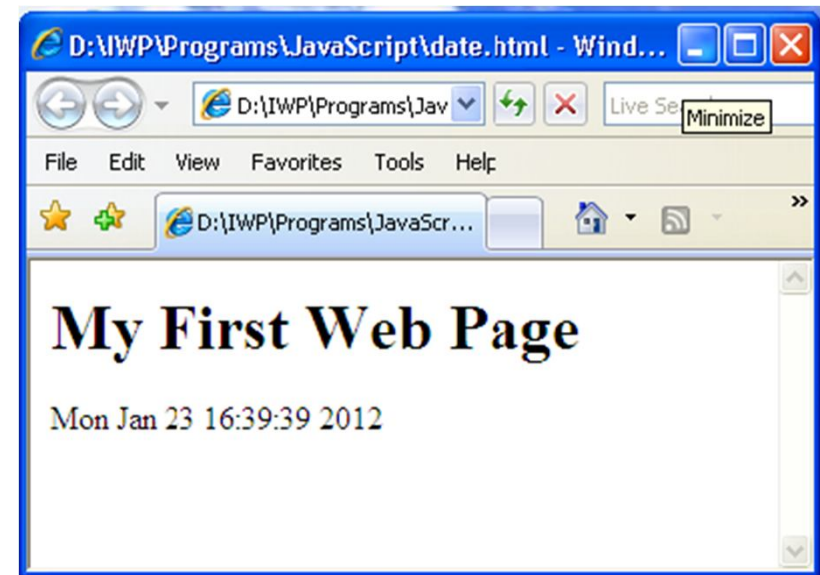
```
<html>
```

```
<head>
```

```
<script type="text/javascript">  
  document.write("<p>" + Date() + "</p>");  
</script></head>
```

```
<body>
```

```
<h1>My First Web Page</h1>  
</body>  
</html>
```



Where to write the Java Script

Scripts in <head> and <body>

- You can place an unlimited number of scripts in your document, and you can have scripts in both the body and the head section at the same time.
- It is a common practice to put all functions in the head section, or at the bottom of the page. This way they are all in one place and do not interfere with page content.

Using an External JavaScript

- JavaScript can also be placed in external files.
- External JavaScript files often contain code to be used on several different web pages.
- External JavaScript files have the file extension .js.
- **Note:** External script cannot contain the <script></script> tags!
- To use an external script, point to the .js file in the "src" attribute of the <script> tag:

```
<html><head>  
<script type="text/javascript" src="xxx.js"></script>  
</head>  
<body></body></html>
```

Statements

- Unlike HTML, **JavaScript is case sensitive** - therefore watch your capitalization closely when you write JavaScript statements, create or call variables, objects and functions.
- A JavaScript statement is a command to a browser. The purpose of the command is to tell the browser what to do.

```
<script type="text/javascript">  
document.write("<h1>This is a heading</h1>");  
document.write("<p>This is a paragraph.</p>");  
document.write("<p>This is another paragraph.</p>");  
</script>
```


Comments

- Single line comments start with //
- Multi line comments start with /* and end with */

Variables

- Variables are "containers" for storing information.

Rules for JavaScript variable names:

- Variable names are case sensitive (y and Y are two different variables)
- Variable names must begin with a letter, the \$ character, or the underscore character

Declaring (Creating) JavaScript Variables

```
var x;
```

```
var carname="Volvo";
```

Local JavaScript Variables

- A variable declared within a JavaScript function becomes **LOCAL** and can only be accessed within that function. (the variable has local scope).
- Local variables are destroyed when you exit the function.

Global JavaScript Variables

- Variables declared outside a function become **GLOBAL**, and all scripts and functions on the web page can access it.
- Global variables are destroyed when you close the page.
- If you declare a variable, **without using "var"**, the variable always becomes **GLOBAL**.

Operators

- **Arithmetic Operators:** + - * / % ++ --
- **Assignment operators:** = += -= *= /= %=
- To add two or more string variables together, use the + operator.

```
txt1="What a very";
```

```
txt2="nice day";
```

```
txt3=txt1+" " +txt2;
```

- **Comparison Operators :** == != > >= < <=
=== (is exactly equal to (value and type))
- **Logical Operators :** && || !
- **Conditional Operator :** ? :

Output ???

```
<html>
<body>
<script type="text/javascript">
var x;
x=5+5;
document.write(x);
document.write("<br />");
x="5"+"5";
document.write(x);
document.write("<br />");
```

```
x=5+"5";
document.write(x);
document.write("<br />");
x="5"+5;
document.write(x);
document.write("<br />");
</script>
<p>The rule is: If you add a
    number and a string, the result
    will be a string.</p>
</body>
</html>
```

If...Else Statements

```
<html><body>
<script type="text/javascript">
  var d = new Date();
  var time = d.getHours();
  if (time<10)
  {
    document.write("<b>Good
morning</b>");
  }
  else if (time>=10 && time<16)
  {
    document.write("<b>Good
day</b>");
  }
  else
  {
    document.write("<b>Hello
World!</b>");
  }
</script> </body></html>
```

```
<html><body>
<script type="text/javascript">
  var r=Math.random();
  if (r>0.5)
  {
    document.write("
<a href='http://www.w3schools.com'>
  Learn Web Development!</a>");
  }
  else
  {
    document.write("<a
href='ftp://192.168.2.172/lab/'>Vis
it FTP Data!</a>");
  }
</script></body></html>
```

Switch Statement

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

```
<script type="text/javascript">
```

```
var d=new Date();
```

```
var theDay=d.getDay(); //Note that Sunday=0,Monday=1, etc.
```

```
switch (theDay)
```

```
{
```

```
case 5: document.write("Finally Friday"); break;
```

```
case 6: document.write("Super Saturday"); break;
```

```
case 0: document.write("Sleepy Sunday"); break;
```

```
default: document.write("I'm looking forward to this weekend!");
```

```
}
```

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

For Loop

```
<html><body>
<script type="text/javascript">
var i=0;
for (i=0;i<=5;i++)
{
document.write("The number is
" + i);
document.write("<br >");
}
</script></body></html>
```

```
<html><body>
<script type="text/javascript">
for (i = 1; i <= 6; i++)
{
document.write("<h" + i +
">This is heading " + i);
document.write("</h" + i +
">");
}
</script></body></html>
```


While and Do-While Loop

```
<html>
<body>
<script type="text/javascript">
var i=0;
while (i<=5)
{
  document.write("The number is "
+ i);
  document.write("<br >");
  i++;
}
</script>
</body>
</html>
```

```
<html>
<body>
<script type="text/javascript">
var i=0;
do
{
  document.write("The number is "
+ i);
  document.write("<br >");
  i++;
}
while (i<=5);
</script>
</body>
</html>
```

Break and Continue Statement

```
<html> <body>
<script type="text/javascript">
var i=0;
for (i=0;i<=10;i++)
{
  if (i==3)
  {
    break;
  }
  document.write("The number is "
+ i);
  document.write("<br >");
}
</script> </body> </html>
```

```
<html> <body>
<script type="text/javascript">
var i=0
for (i=0;i<=10;i++)
{
  if (i==3)
  {
    continue;
  }
  document.write("The number is "
+ i);
  document.write("<br >");
}
</script> </body> </html>
```