

Introduction to Scripting Javascript

JavaScript scripting language

Originally created by Netscape and

1) Facilitates disciplined approach to designing computer programs

2) Enhances functionality and appearance of Web pages

3) Reacts to user events.

4) Alters a web page in response to user actions.

JavaScript is not Java

- 1. JavaScript is a very simple scripting language.**
- 2. Syntax is similar to a subset of Java.**
- 3. Interpreted language.**
- 4. Uses objects, but doesn't really support the creation of new object types**

A Simple Program: Printing a Line of Text in a Web Page

1) Browser includes *JavaScript Interpreter*
Processes JavaScript commands

2) *Whitespace*

Blank lines, space characters, tab characters

Generally ignored by browser

Used for readability and clarity

<SCRIPT>...</SCRIPT> tag:

Encloses entire script

Attribute **LANGUAGE** = "JavaScript"

Indicates scripting language (JavaScript default in IE5 & Netscape)

Tag must be closed at the end of the script

1) Correct method call syntax:

`object.method("string", "[additional arguments]");`

2) `document.writeln("<H1>argument</H1>");`

1. Case-sensitive, like all JavaScript functions
2. Uses the `writeln` method in the browser's document object
3. Prints the *string*, which can consist of any text and *HTML* tags
4. String must be surrounded by quotation marks ("...")

3) Statement terminators

All statements must end with semi-colons (;)

JavaScript Syntax

```
<html>
```

```
<HEAD>
```

```
  <script type="JavaScript">
```

```
    document.write("Hello World!")
```

```
  </script>
```

```
</HEAD>
```

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

In JavaScript semicolons are optional However, semicolons are required if you want to put more than one statement on a single line.

Output



JavaScript Example

```
<HEAD>  
<TITLE>JavaScript is Javalicious</TITLE>  
</HEAD>  
<BODY>  
<H3>I am a web page and here is my  
name:</H3>  
<SCRIPT>  
document.write(document.title);  
</SCRIPT><HR>  
</BODY>
```

Output




```
<HTML>
```

```
  <!-- comments go here -->
```

```
<HEAD>
```

```
<SCRIPT LANGUAGE="JavaScript">
```

```
document.writeln("<H1>Welcome to  
  JavaScript Programming!</H1>" );
```

```
</SCRIPT>
```

```
</HEAD>
```

```
<BODY> </BODY>
```

```
</HTML>
```

Output



```
<HTML>
```

```
<!-- comments can go here or -->
```

```
<HEAD>
```

```
<SCRIPT LANGUAGE="JavaScript">
```

```
document.writeln("<H1>Welcome<BR>to  
<BR>JavaScript <BR>  
Programming!</H1>" );
```

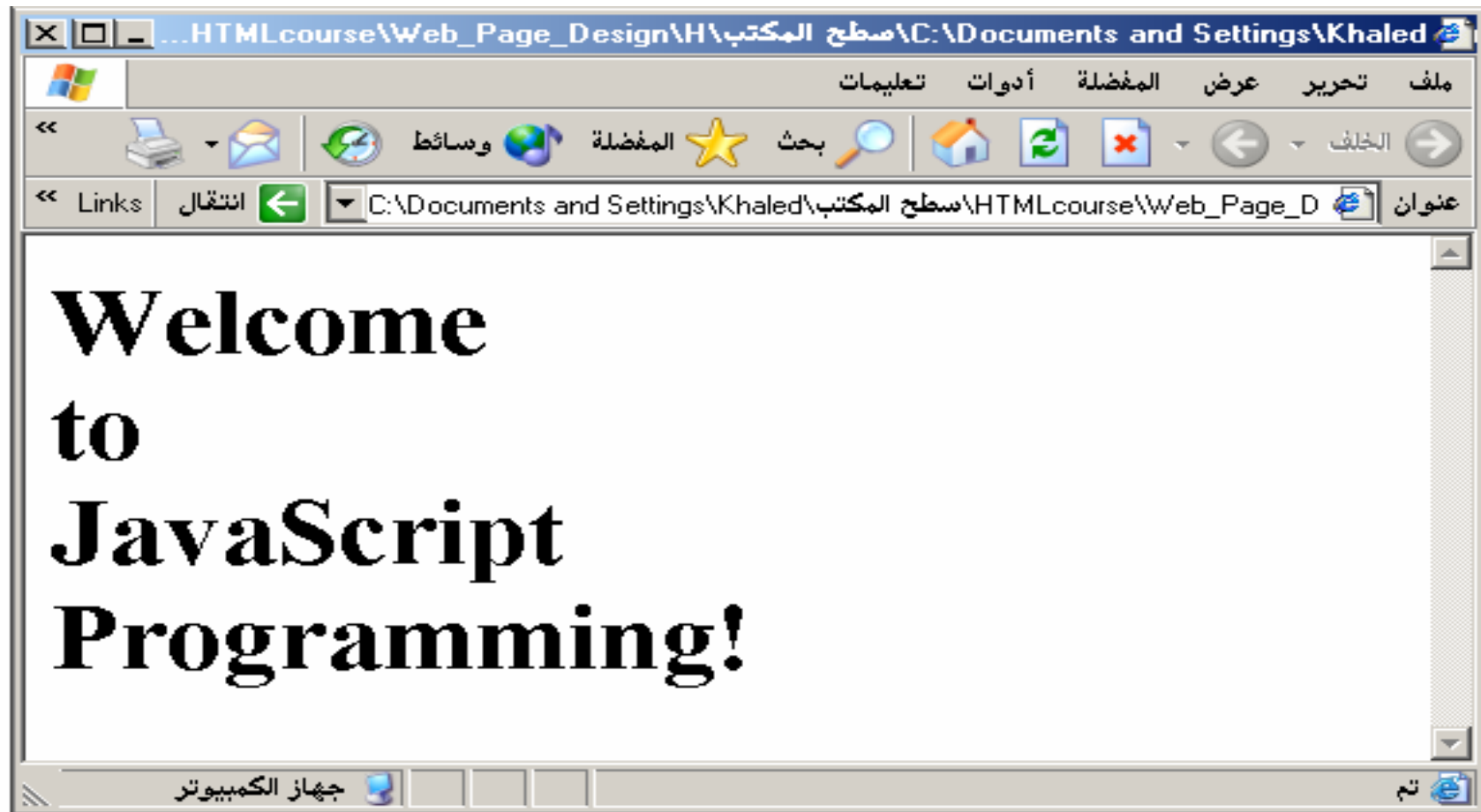
```
</SCRIPT>
```

```
</HEAD>
```

```
<BODY> </BODY>
```

```
</HTML>
```

Output



```
<HTML>
```

```
  <!-- comments can go here or... -->
```

```
<HEAD>
```

```
<SCRIPT LANGUAGE="JavaScript">
```

```
document.writeln(
```

```
"<H1><font color=red>Welcome<BR>to
```

```
<BR>JavaScript <BR>
```

```
Programming!</H1></font>" );
```

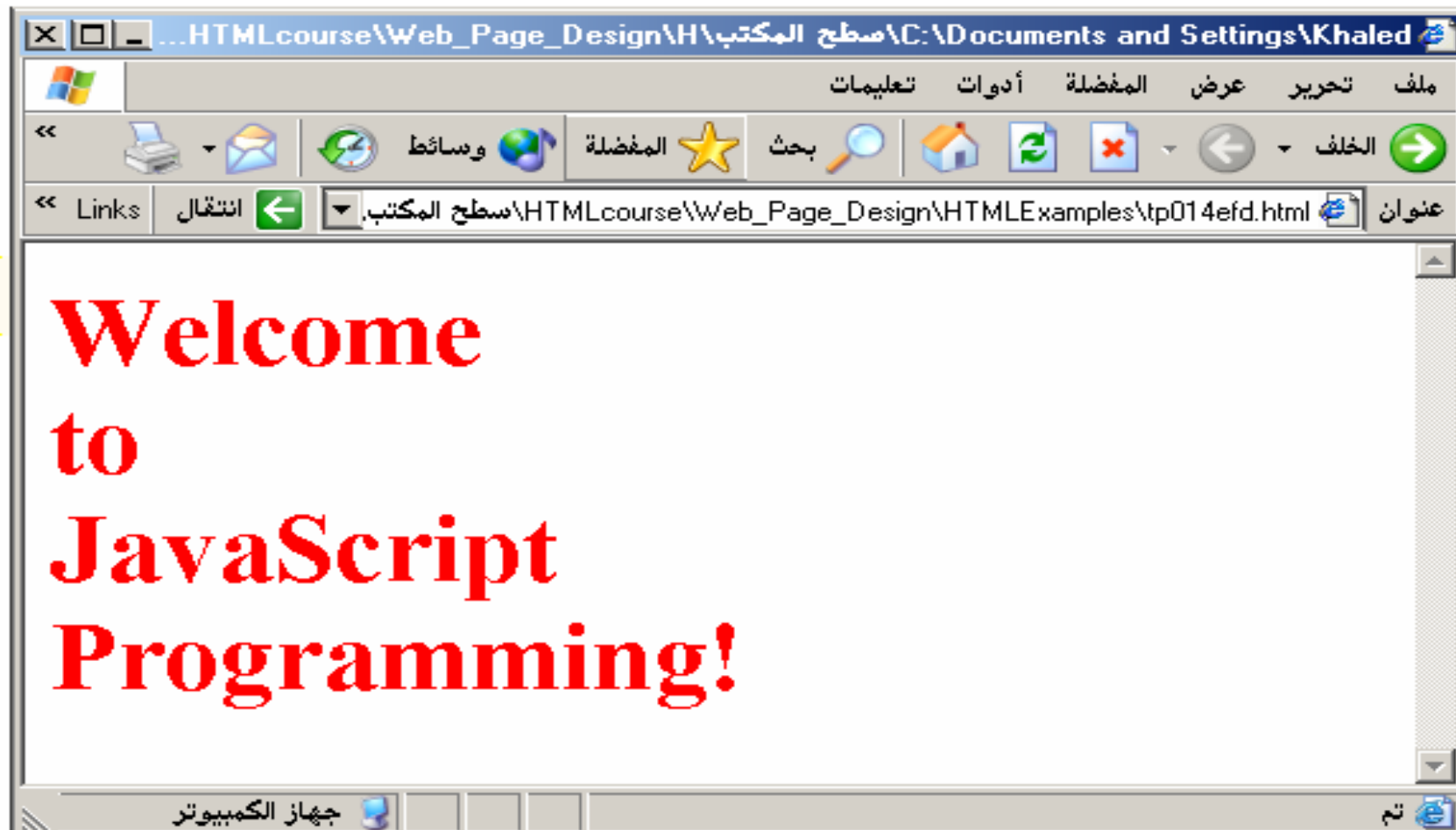
```
</SCRIPT>
```

```
</HEAD>
```

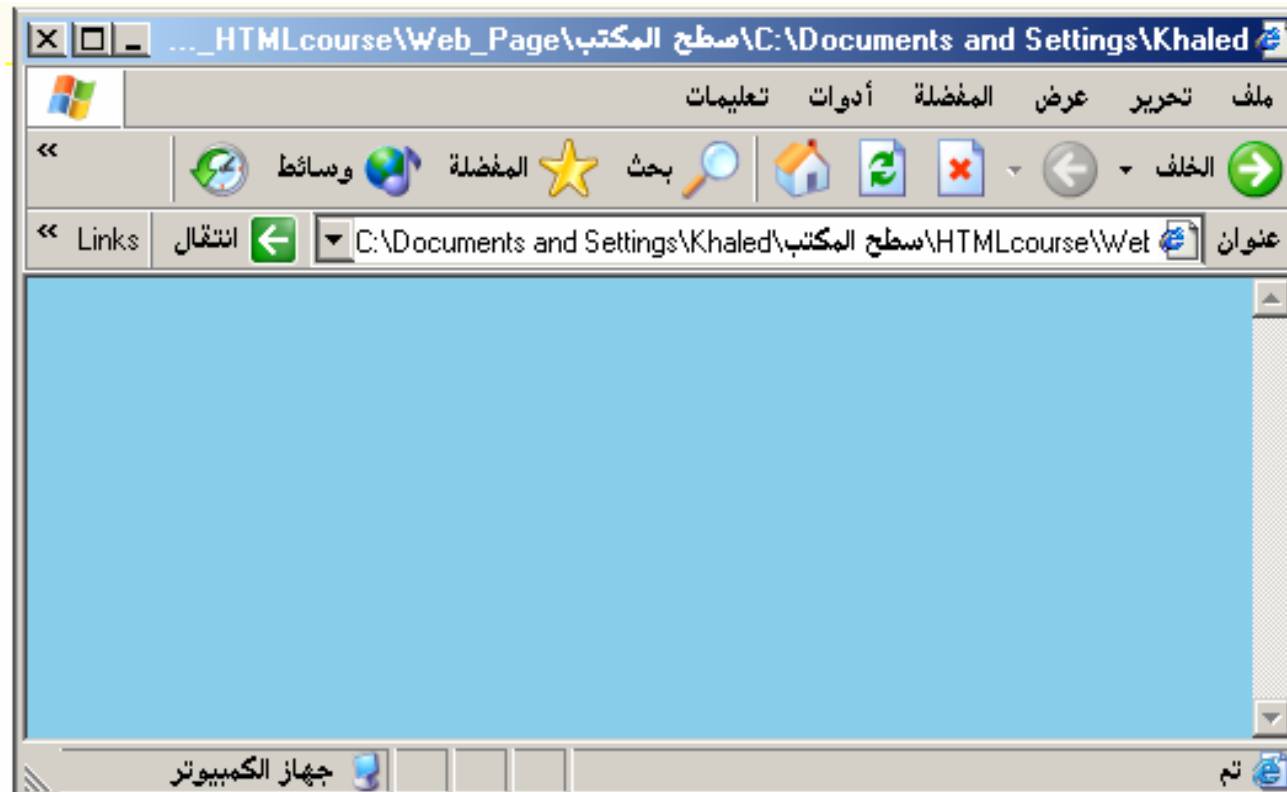
```
<BODY> </BODY>
```

```
</HTML>
```

Output



```
<HTML><HEAD>  
<SCRIPT LANGUAGE="JavaScript">  
document.bgColor="skyblue";  
</SCRIPT>  
</HEAD><BODY> </BODY></HTML>
```



window.alert(" ") ... method

This tells the browser that JavaScript program is coming

```
<SCRIPT LANGUAGE="JavaScript">  
window.alert("You created a JavaScript program");  
</SCRIPT>
```

alert is a **method** that tells the browser to open an alert box

This is *alert*'s **argument**. Arguments go in () because the message is displayed literally, it goes in " "

Statements end with ;

Dialog Box

```
<HTML>
```

```
  <!-- A page that opens a dialog box -->
```

```
<HEAD>
```

```
<SCRIPT LANGUAGE="JavaScript">
```

```
  window.alert("You have created a JavaScript  
  program that opens a dialog box");
```

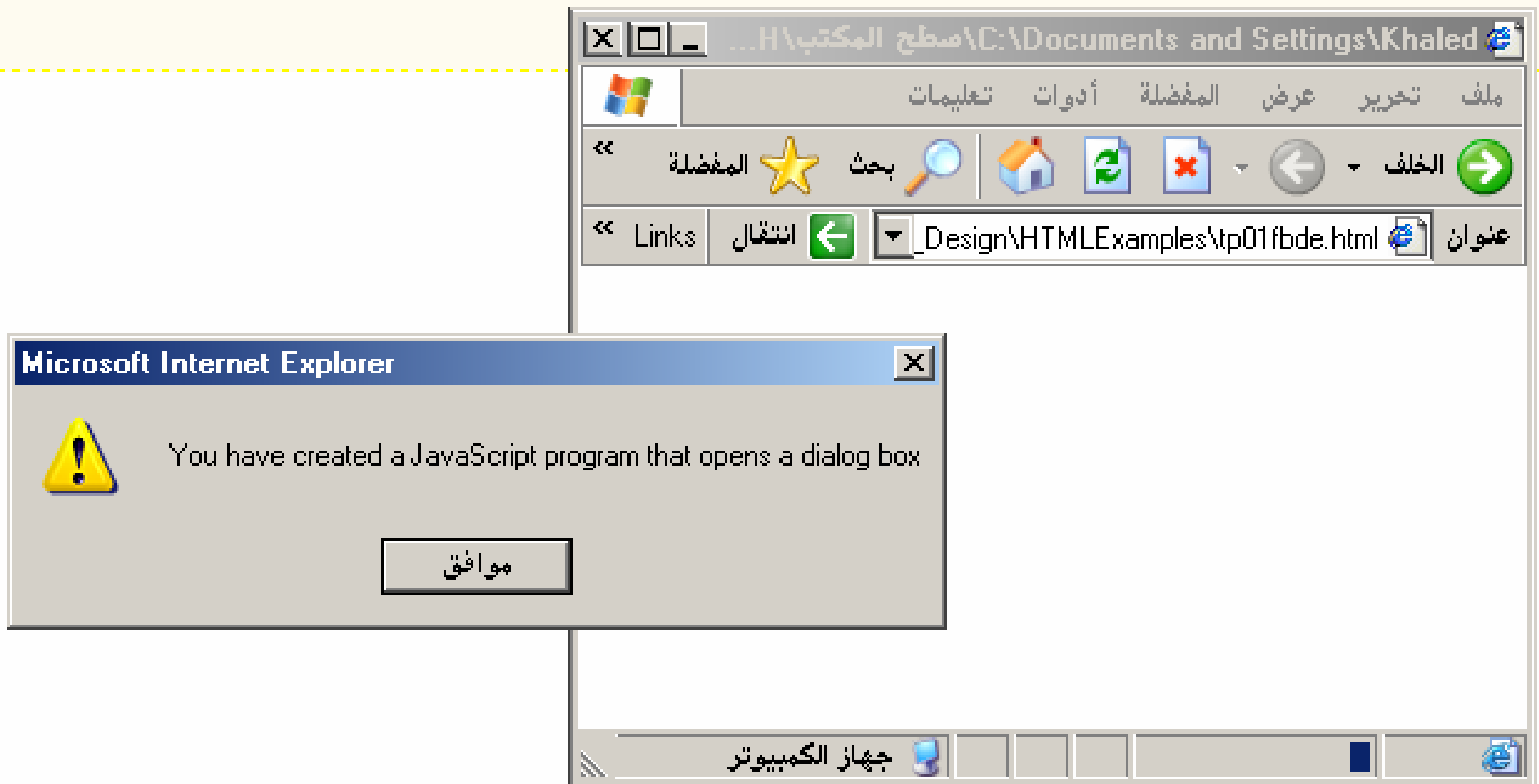
```
</SCRIPT>
```

```
</HEAD>
```

```
<BODY> </BODY>
```

```
</HTML>
```

Output



<HTML>

<!-- A page that opens a dialog box -->

<HEAD>

<SCRIPT LANGUAGE="JavaScript">

**window.alert("You have created\na
JavaScript program\nthat opens a\ndialog
box");**

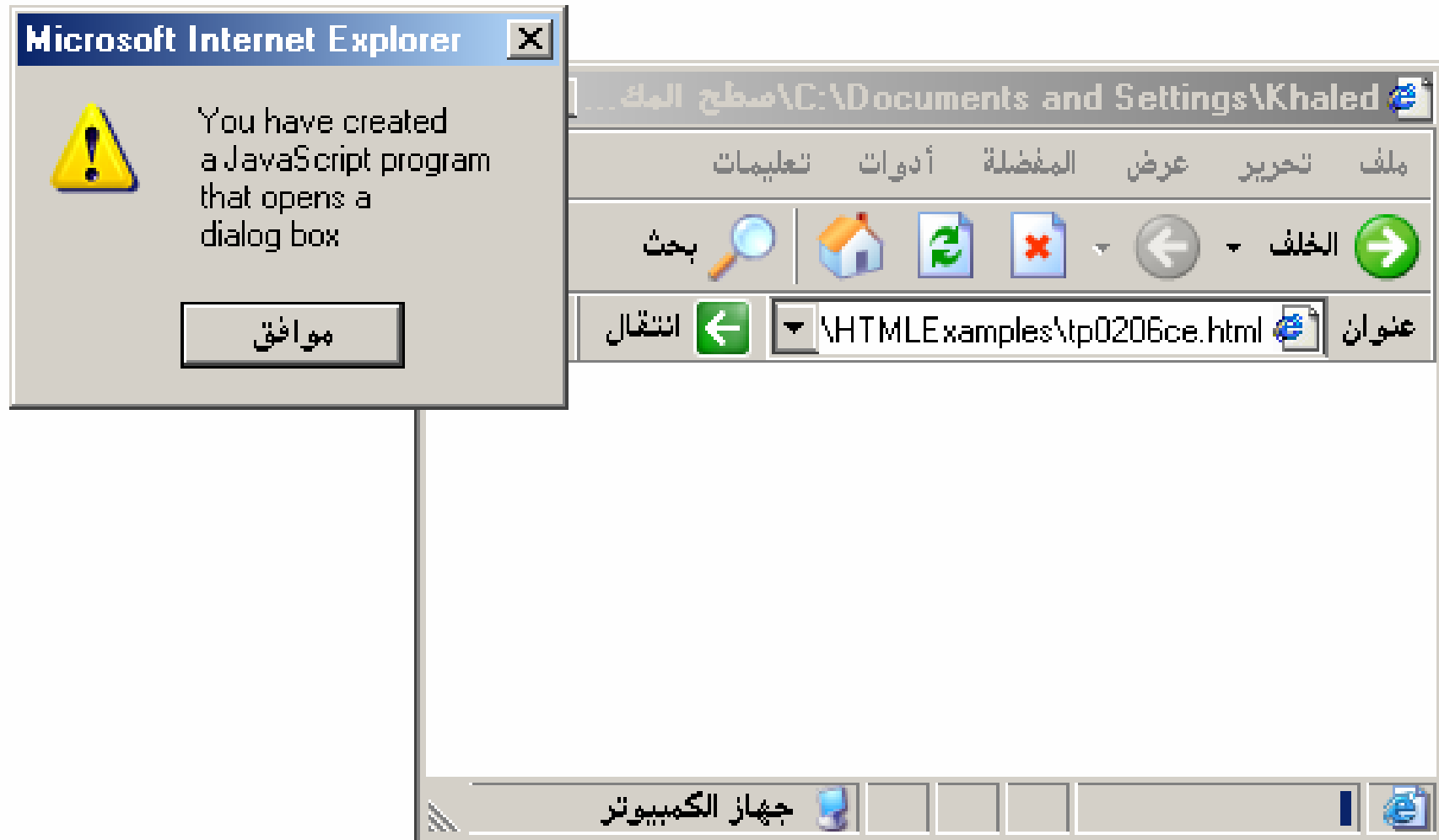
</SCRIPT>

</HEAD>

<BODY> </BODY>

</HTML>

Output



window.prompt (" ") method

```
var response = prompt("What is your name? ", "");
```

prompt is a **method** that tells the browser to open a box to get user input

The answer is stored in *response* so that it can be used later.
response is a **variable**

prompt has two arguments:

- ✧ message displayed
- ✧ default answer
- ✧ arguments are separated by commas

Statements end with ;

var is used to **declare a variable**: variables must be declared with **var** when they are used for the first time

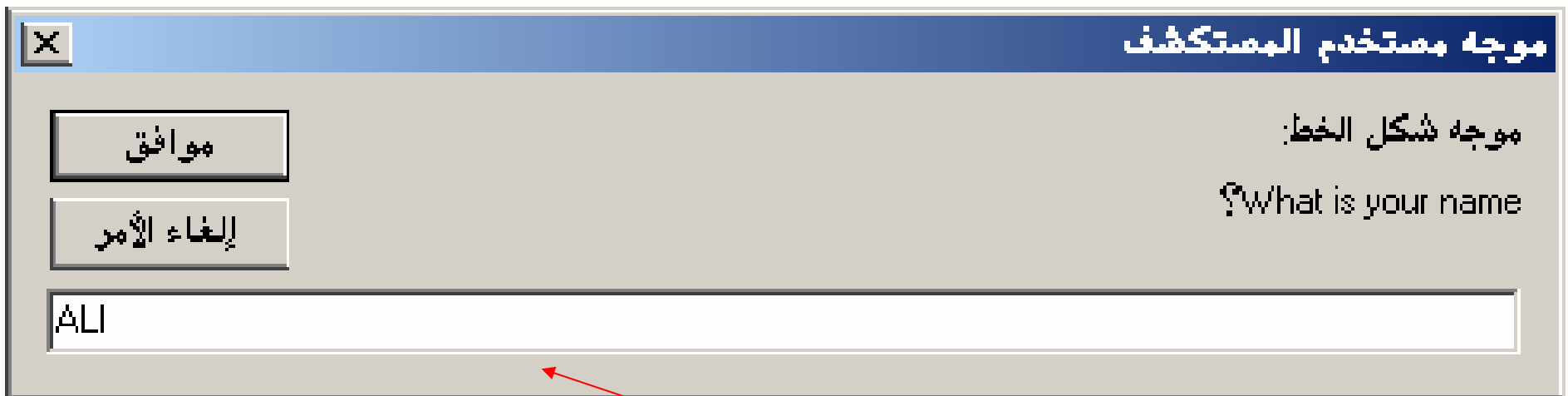
Assignment statements

```
var response=window.prompt("What is your  
name? ", "");
```

- ✧ **This is called an *assignment statement***
- ✧ ***Left-side* (response) is a variable**
- ✧ **The answer to prompt is stored in *response* so that it can be used later.**
- ✧ **= is the assignment operator**
 - ✧ **It doesn't mean "equality"**
 - ✧ **it means *store the right-side into the left-side***
- ✧ **You can't reverse the order!**

```
<HTML><HEAD>
<SCRIPT LANGUAGE="JavaScript">
var response = window.prompt("What is your
name? ", "");
window.alert("Welcome to JavaScript Dr. " +
response); </SCRIPT>
</HEAD><BODY></BODY><HTML>
```

+ is the concatenation operator: join text



prompt box

```
<HTML><HEAD>  
<SCRIPT LANGUAGE="JavaScript">  
var response = window.prompt("What is  
your name? ", "");  
window.alert("Welcome to JavaScript Dr. "  
+ response);
```

```
</SCRIPT>  
</HEAD><HTML>
```


Output



```
<HTML><HEAD>  
<SCRIPT LANGUAGE="JavaScript">  
var response = window.prompt("What is  
your name? ", "");  
document.writeln("<h1>Welcome to  
JavaScript Dr. " + response+"</h1>");  
  
window.alert("Welcome to JavaScript Dr. "  
+ response);  
window.setTimeout("window.alert('hi '+  
response)" ,5000);  
</SCRIPT>  
</HEAD><HTML>
```

Output



After 5 seconds from closing the alert box above the alert box below shows up

window.status (" ") method

```
<HTML><HEAD>  
<SCRIPT LANGUAGE="JavaScript">  
var response = prompt("What is your  
name? ", "");  
window.status="Welcome to JavaScript Dr.  
" + response;  
  
</SCRIPT>  
</HEAD><HTML>
```

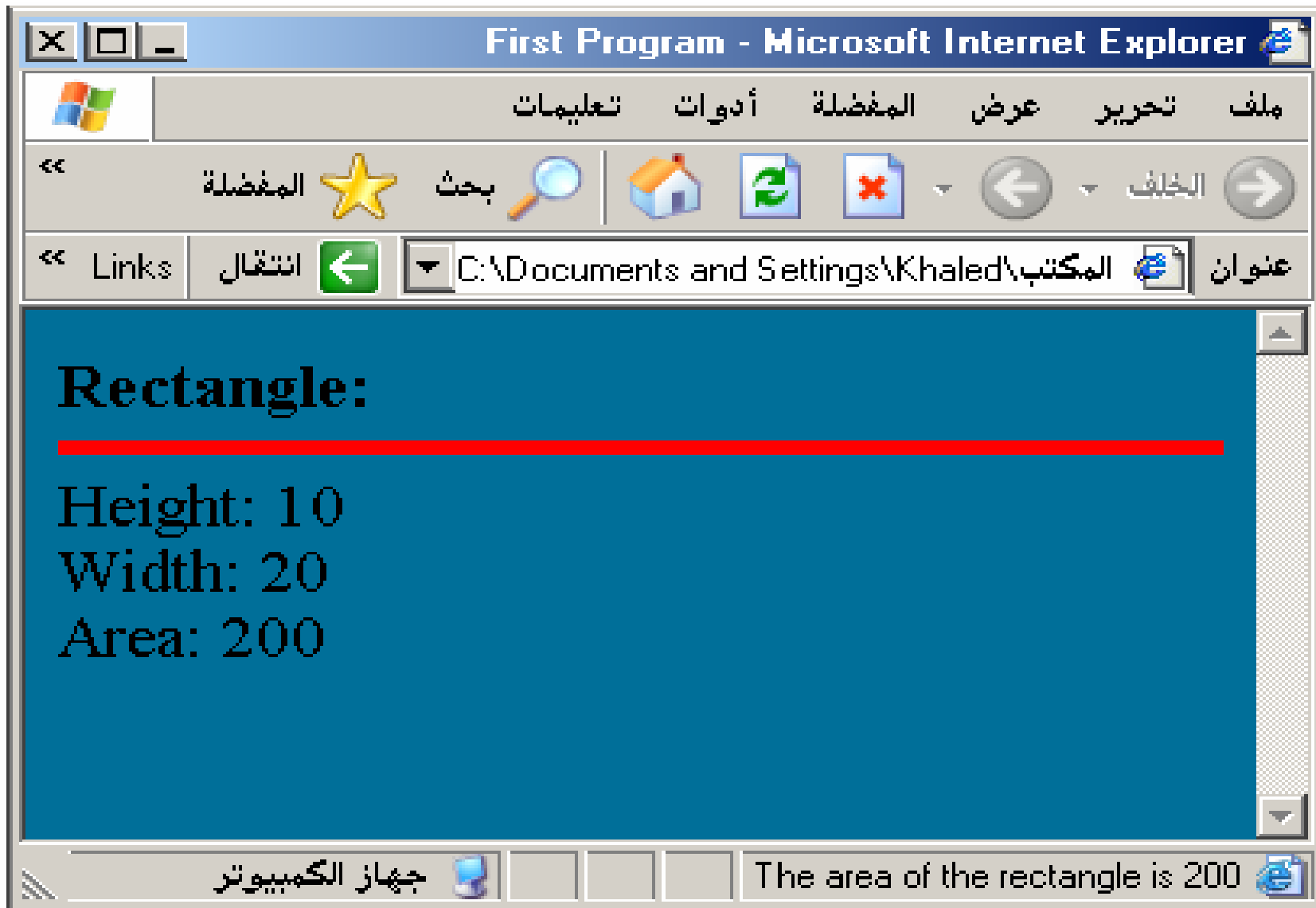
Notes



Example

```
<html><head>  
<script language="javascript">  
var height=10; var width =20;  
var area = height * width;  
document.bgColor="#006F99";  
document.write("<B>Rectangle:</B><HR color=red  
size=5 >");  
document.write("Height: "+height);  
document.write("<br >Width: "+width);  
document.write("<br >Area: "+area);  
window.status="The area of the rectangle is " +area;  
</script> </head>  
<body></body></html>
```

Output



Notes

You need to observe the following:

**window.alert() == alert()
== this.alert()**

**2.window.prompt() == prompt() ==
this.prompt() // it does not work if it
is placed within ""**

**3.window.status == status ==
this.status//it does not work if it is
placed within ""**

Example SPHERE

Write a program that asks the user to enter the **radius** of sphere. Your program must display the **volume** of the sphere in:

- 1) **A document web page**
- 2) **An alert box**
- 3) **A window status bar....**

Also, your program must display the **surface area** of the sphere in a web page

Your results must be rounded to integers..

Output (enter radius=10)

Volume of Sphere - Microsoft Internet Explorer


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« Links انتقال > HTMLcourse\Web_Page_Design\HTMLExamples\tp004dd4.html عنوان

The volume of the sphere is 4190
The surface area of the sphere is 1257

Microsoft Internet Explorer

 The volume of the sphere is 4190

موافق

منطقة غير معروفة The volume of the sphere is 4190

Solution

```
<HTML><HEAD><TITLE> Volume of  
Sphere</TITLE>
```

```
<SCRIPT LANGUAGE = "JavaScript">
```

```
var radius=window.prompt("Enter radius of the  
Sphere", "");
```

```
radius=parseFloat(radius);
```

```
var volume=(4/3)*(22/7)*(radius*radius*radius);
```

```
volume=Math.round(volume);
```

```
var areaSurface=(4)*(22/7)*(radius*radius);
```

```
areaSurface=Math.round(areaSurface);
```

```
document.writeln("<H2>The volume of the  
sphere is "+volume);  
document.writeln("<BR>The surface area of the  
sphere is "+areaSurface+"</H2>");
```

```
window.status="The volume of the sphere is  
"+volume;  
window.alert("The volume of the sphere is  
"+volume);
```

```
</SCRIPT>
```

```
</HEAD>
```

```
<BODY></BODY></HTML>
```

Example On back-ground color

```
<SCRIPT LANGUAGE="JavaScript">
var color=window.prompt("Enter name of the back
ground color","green");
document.writeln("<h1><marquee>Color selected is
"+color);
document.bgColor=color;</SCRIPT
```



window.confirm (" ") method

```
<HTML><HEAD>  
<SCRIPT LANGUAGE = "JavaScript">  
var age=window.prompt("How old are?","")  
var ageConfirm=window.confirm("are you sure of  
that age?");  
document.writeln("Your age is "+age+"<BR> Your  
confirmation is "+ageConfirm+" for that age");  
</SCRIPT>  
</HEAD>  
<BODY></BODY></HTML>
```

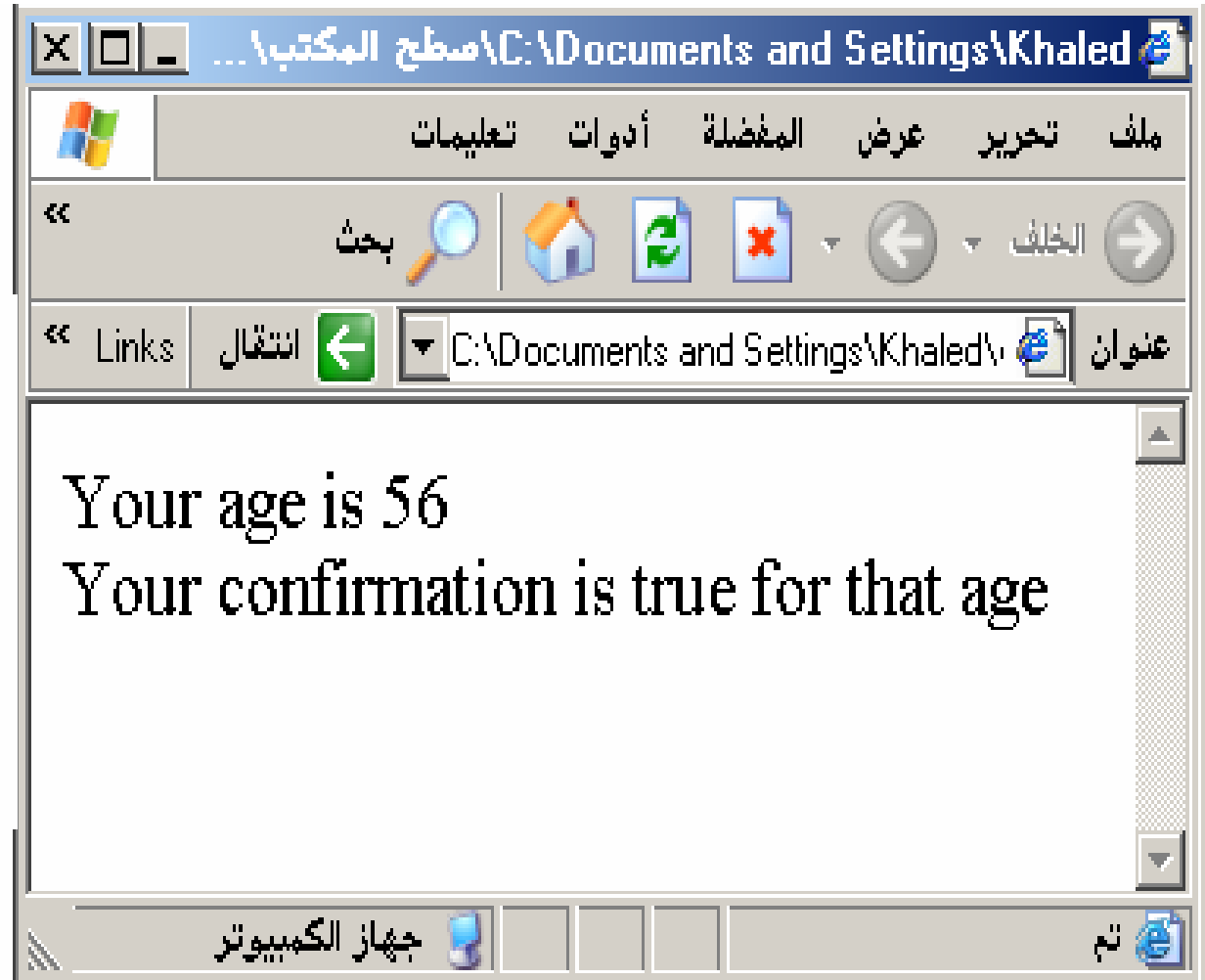
```
<HTML><HEAD>
```

```
<SCRIPT LANGUAGE = "JavaScript">  
var age=window.prompt("How old are?","")  
var ageConfirm=window.confirm("are you  
sure of that age?");  
document.writeln("Your age is "+ age+  
"<BR><H1> Your confirmation is "+  
ageConfirm+" for that age");
```

```
</SCRIPT></HEAD>
```

```
<BODY></BODY></HTML>
```

Output




```
<HTML> <HEAD>
```

```
<SCRIPT LANGUAGE = "JavaScript">
```

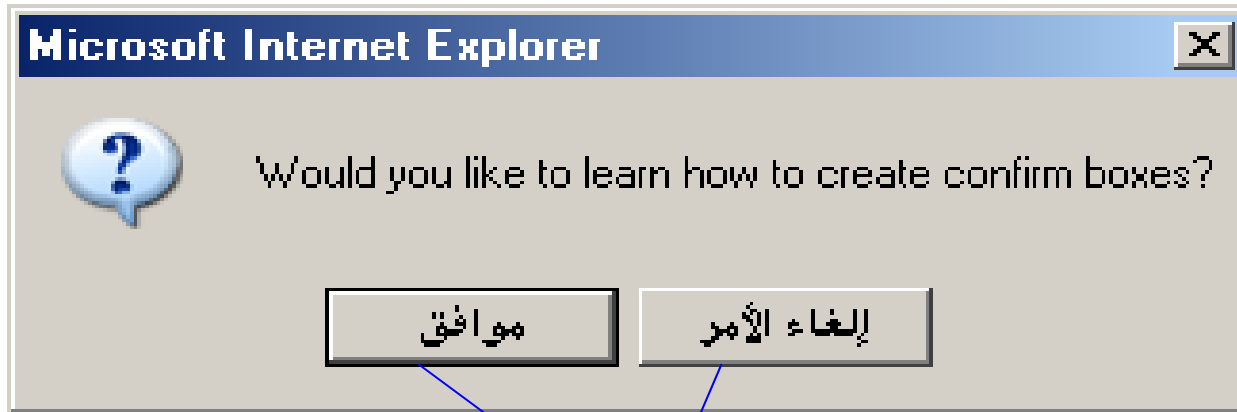
```
var reply = confirm("Would you like to  
learn how to create confirm boxes?");  
document.write("<P><h1><font color= red  
>You picked " + reply + ".</P>");
```

```
</SCRIPT>
```

```
</HEAD>
```

```
<BODY></BODY> </HTML>
```

Output



Draw a Table using Javascript

```
<HTML> <HEAD>
<SCRIPT LANGUAGE = "JavaScript">
document.write("<TABLE width=60% height=50% border=5
borderColor=red >");
document.write("<TR bgcolor=gold ><TD> X1 </TD>
<TD>X2</TD>");
document.write("<TD>X3</TD><TD>X4</TD></TR>");
document.write("<TR bgcolor=lightgreen ><TD> X5</TD>
<TD>X6</TD>");
document.write("<TD>X7</TD><TD>X8</TD></TR>");
document.write("<TR bgcolor=silver ><TD>X9 </TD>
<TD>X10</TD>");
document.write("<TD colspan=2 align=center
bgcolor=white>X11</TD></TR>");
document.write("</TABLE>");
</SCRIPT></HEAD><BODY></BODY> </HTML>
```

Output

The screenshot shows a web browser window with a table displayed on the page. The table has three rows and four columns. The first row contains cells X1, X2, X3, and X4. The second row contains cells X5, X6, X7, and X8. The third row contains cells X9, X10, and X11, where X11 spans the last two columns. The table is highlighted with a red border.

X1	X2	X3	X4
X5	X6	X7	X8
X9	X10	X11	

Other Object Document PROPERTIES

document.fgColor

Syntax: `document.fgColor = "colorinfo"`

This property defines a document's foreground (text) color. The "colorinfo" argument is a string that can contain either the **hexadecimal definition (FFAA55)** of the color or its **literal description (blue)**

```
<HTML><HEAD>
```

```
<SCRIPT LANGUAGE = "JavaScript">
```

```
var response = window.prompt("What is your name? ", " ");
```

```
document.fgColor = "FF0C55"
```

```
document.bgColor = "44FFCC"
```

```
document.write("<h1>My name is "+response);
```

```
</SCRIPT>
```

```
</HEAD><BODY> </BODY></HTML>
```



document.linkColor = "colorinfo"

Syntax: document.linkColor = "colorinfo"

This property defines the color of any hyperlinks in the document. The "colorinfo" argument is a string that can contain either the hexadecimal definition of the color or its literal description.

document.alinkColor = "colorinfo"

Syntax: document.alinkColor = "colorinfo"

document.URL

Syntax: document.URL. This property is used to retrieve the document's full URL

```
<HTML><HEAD>
```

```
<SCRIPT LANGUAGE = "JavaScript">
```

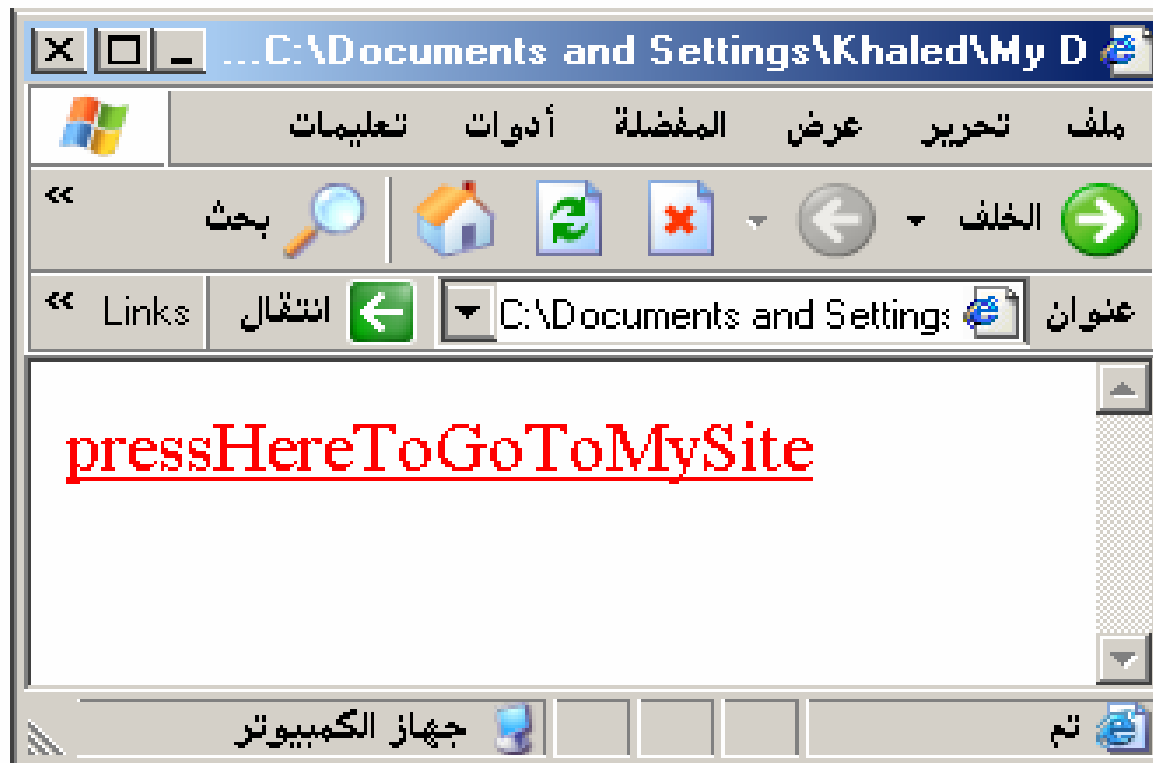
```
document.linkColor = "red";
```

```
</SCRIPT>
```

```
</HEAD><BODY>
```

```
<A HREF="special.html"> pressHereToGoToMySite </A>
```

```
</BODY></HTML>
```



The String Object

A string object is a place of storage for any string you want to create. **There are two ways to create a string object:**

```
var s1 = "My name is Khaled";  
var s2 = new String("My name is Cathy");
```

You can add **onto** a string by using the **"+"** operator. For example:

```
var s3 = "Then she said: " + s2 + ". What is yours?";
```

s3 now equals:

Then she said: My name is Cathy. What is yours?

toUpperCase() and toLowerCase()

These functions can be used to transform any string and return a new string which is all uppercase or lowercase.

```
<Script Language="JavaScript">  
var s1 = "Good day";  
var s2 = s1.toUpperCase();  
window.alert(s2);  
</Script>
```



charAt()

The `charAt()` method takes an integer argument that specifies the position of a character in a string and then returns that character.

Note that the first character position in a string is zero, not one (this is called zero-based indexing).

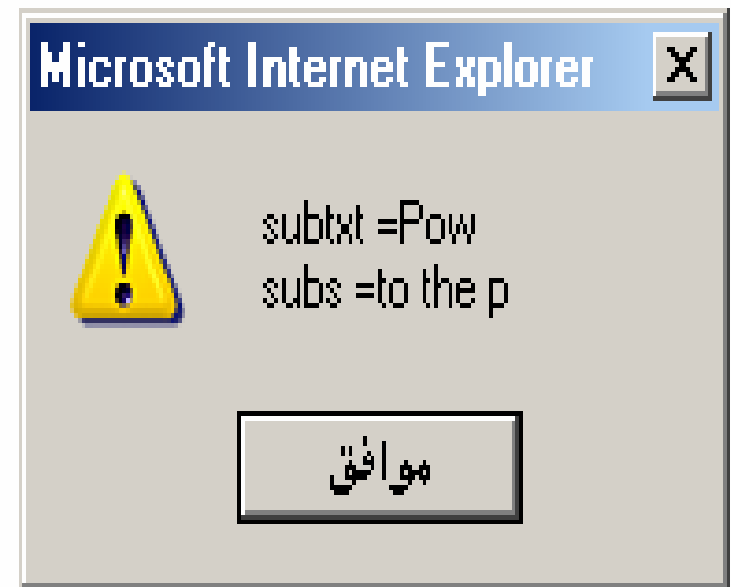
```
<Script Language="JavaScript">
var s1 = "Cathy Marshall";
var c1 = s1.charAt(4);
var c2 = s1.charAt(10);
window.alert("c1 = "+c1+" \n "+
"c2= "+c2);
</Script>
```



substring()

The `substring()` method is similar to `charAt()` in that it takes a part of a larger string and returns that value. It returns a string, however, not a character. `substring()` takes two integer arguments.

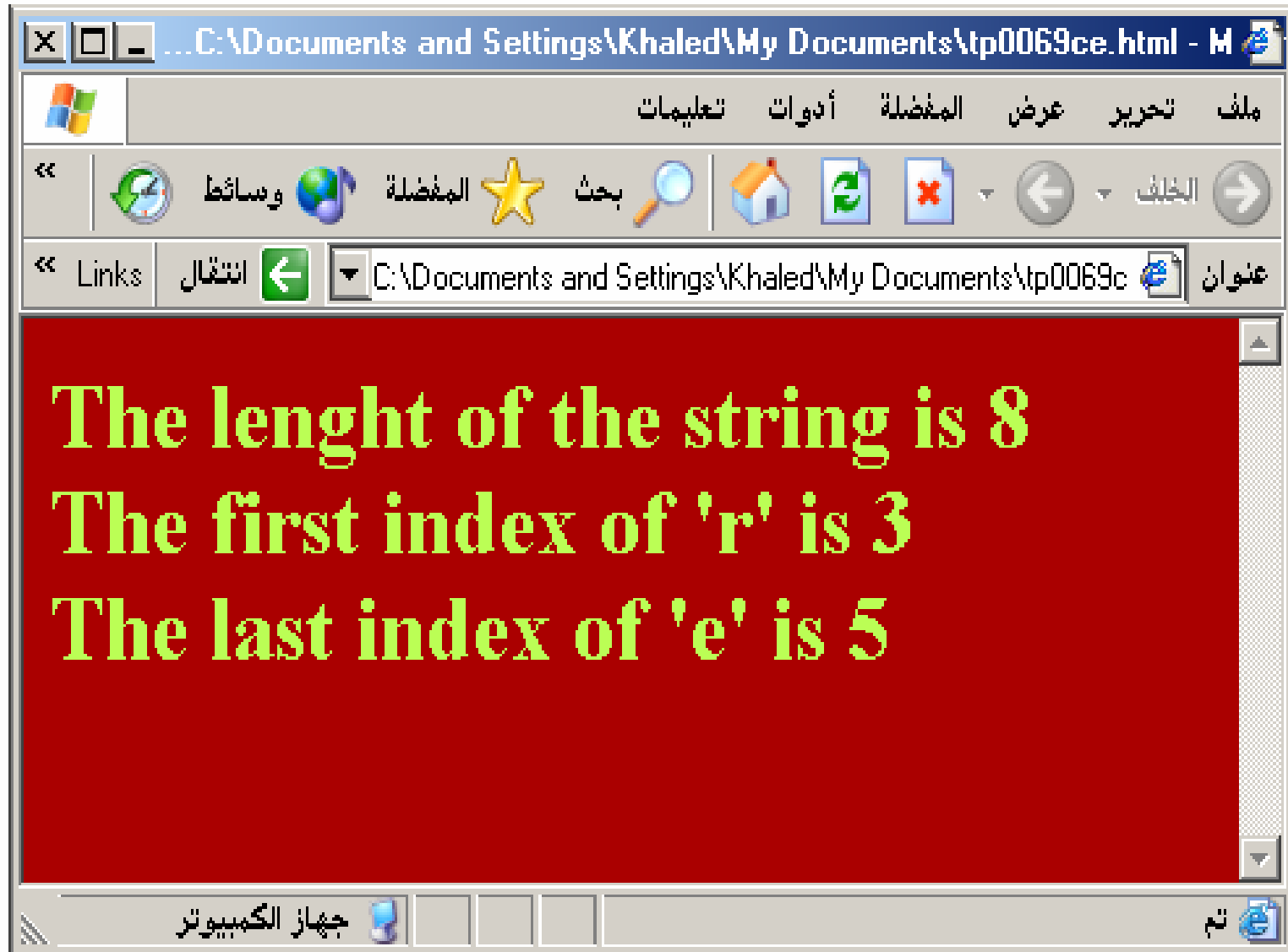
```
<Script Language="JavaScript">  
var txt = "Power to the people!";  
var subtxt = txt.substring(0,3);  
var subs = txt.substring(6,14);  
window.alert("subtxt =" + subtxt  
+ "\n" + "subs =" + subs);  
</Script>
```



length Property+ indexOf()+ lastIndexOf()

```
<Script Language="JavaScript">  
var s1 = "Good Day";  
document.bgColor="#AA0000";  
document.fgColor="#BBFF55";  
document.writeln("<H2>The length of the string is "+  
s1.length);  
myname = "khareem";  
var index=myname.indexOf("r");  
var lastIndex=myname.lastIndexOf("e");  
document.writeln("<BR>The first index of 'r' is "+index);  
document.writeln("<BR>The last index of 'e' is " +  
lastIndex);  
</Script>
```

Output

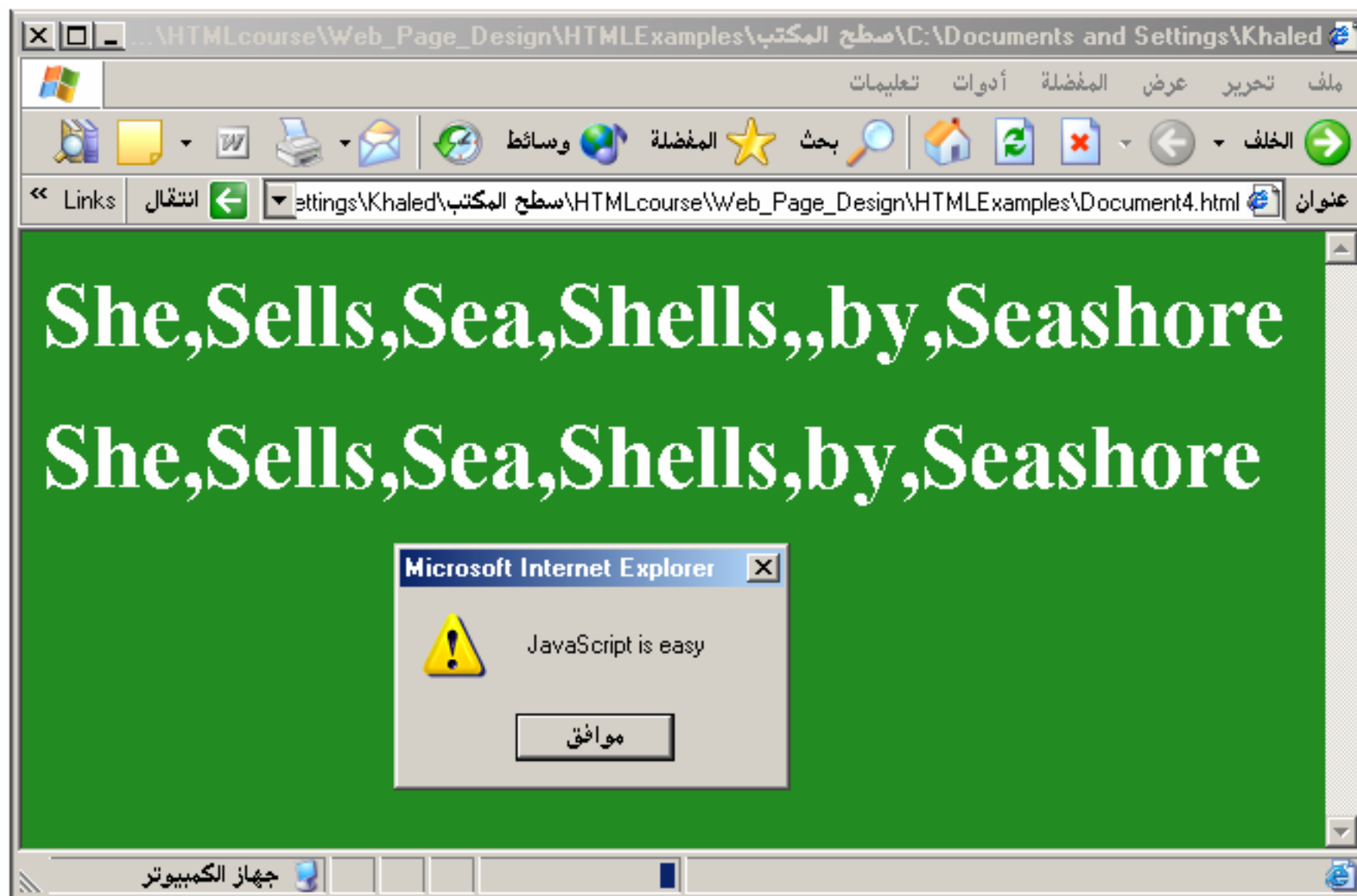


split () & concat()

The string split() command takes a character or regular expression as its argument and splits the string into tokens based upon the delimiter character.

```
<Script Language="JavaScript">
document.bgColor="forestgreen";
document.fgColor="white";
var shels="She Sells Sea Shells by Seashore";
var sheAre="She=Sells=Sea=Shells=by=Seashore";
splitValues=shels.split(" ");
valuesSplit=sheAre.split("=")
document.write("<h1>" +splitValues);
document.write("<h1>" +valuesSplit);
var s = "JavaScript".concat(" is ", "easy");
window.alert(s);
</Script>
```

Output

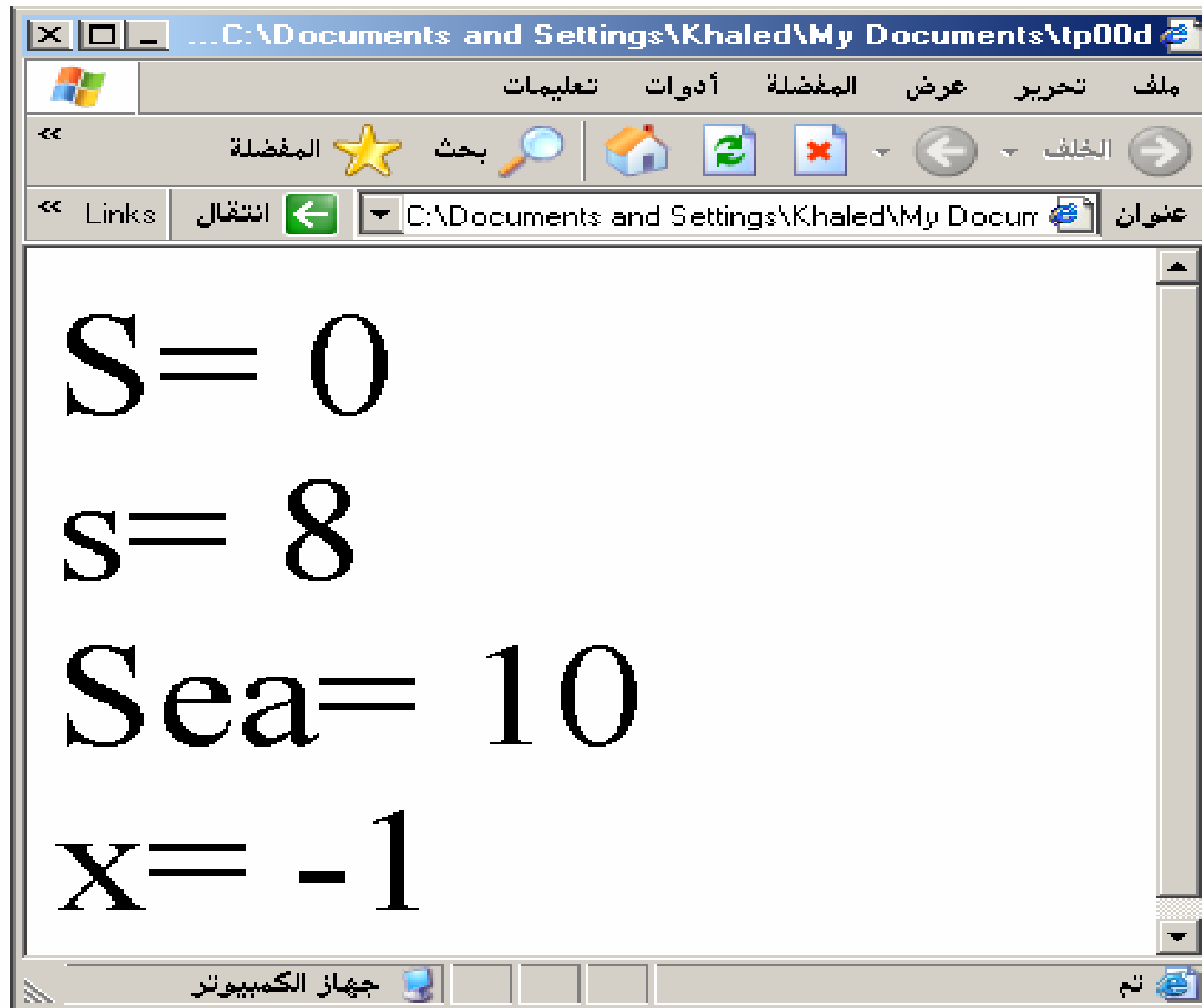


Search() method

This method returns an integer if the string contains some specified characters, if not it returns -1

```
<Script Language="JavaScript">  
var shels="She Sells Sea Shells by Seashore ";  
S=shels.search("S");  
s=shels.search("s");  
Sea=shels.search("Sea");  
x=shels.search("x");  
document.write("<font size=8>S= "+S + "<BR>"  
+"s= "+s+"<BR>" + "Sea= " + Sea+"<BR>x= "+x);  
</Script>
```

Output



...C:\Documents and Settings\Khaled\My Documents\tp00d

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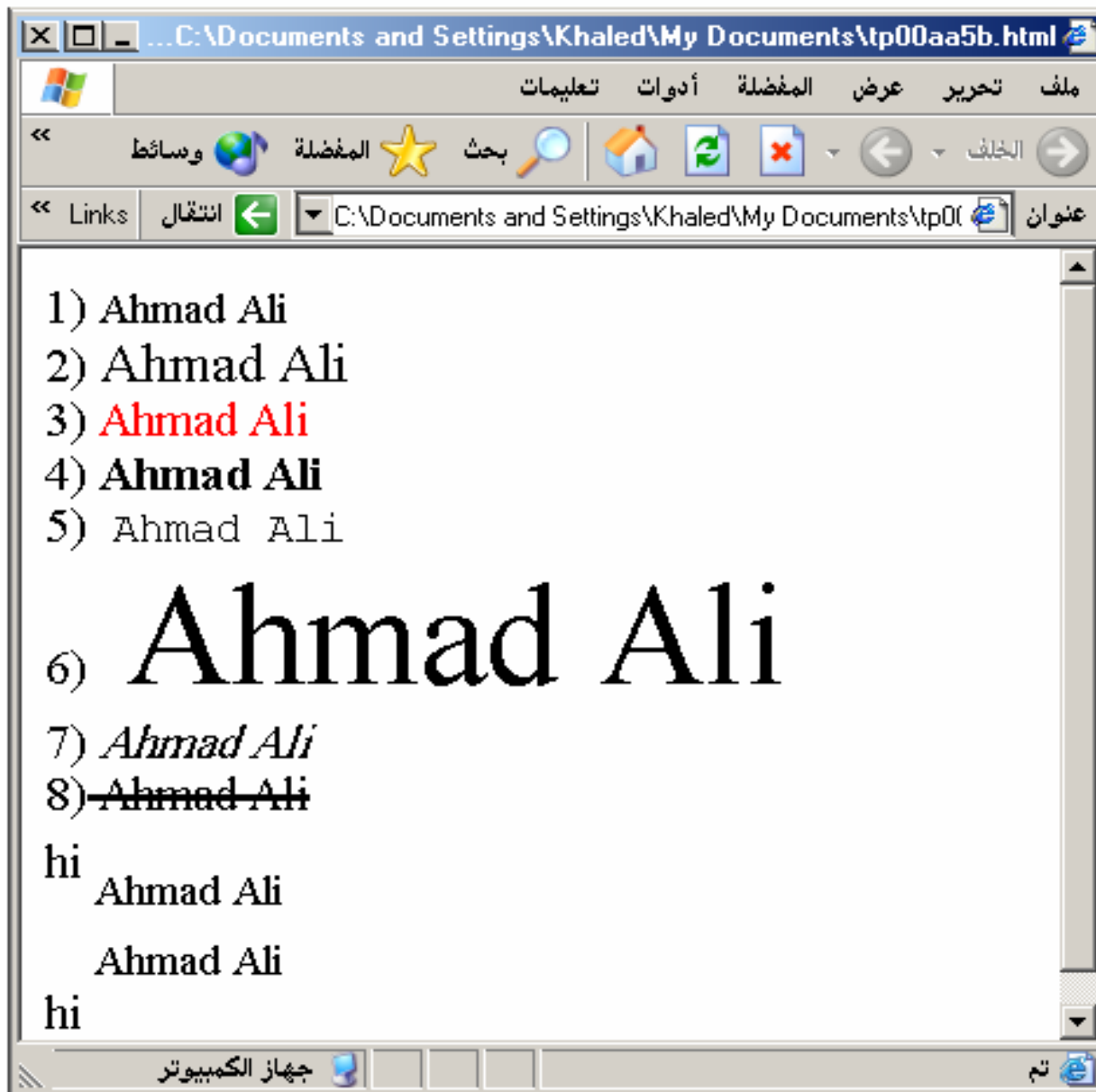
```
S= 0
s= 8
Sea= 10
x= -1
```

جهاز الكمبيوتر

some String documents methods

```
<script language="javascript">
var myname=" Ahmad Ali";
document.write("1")+myname.small());
document.write("<BR>2")+myname.big());
document.write("<BR>3")+myname.fontcolor("red"));
document.write("<BR>4")+myname.bold());
document.write("<BR>5")+myname.fixed());
document.write("<BR>6")+myname.fontSize(10));
document.write("<BR>7")+myname.italics());
document.write("<BR>8")+myname.strike());
document.write("<BR>hi")+myname.sub());
document.write("<BR>hi")+myname.sup());
</SCRIPT>
```

Output



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

```
var txt="College of IT at the University of Al  
alBayt is great"
```

```
document.write("<h1>" + txt.fontcolor("gold")  
+ "</h1>")
```

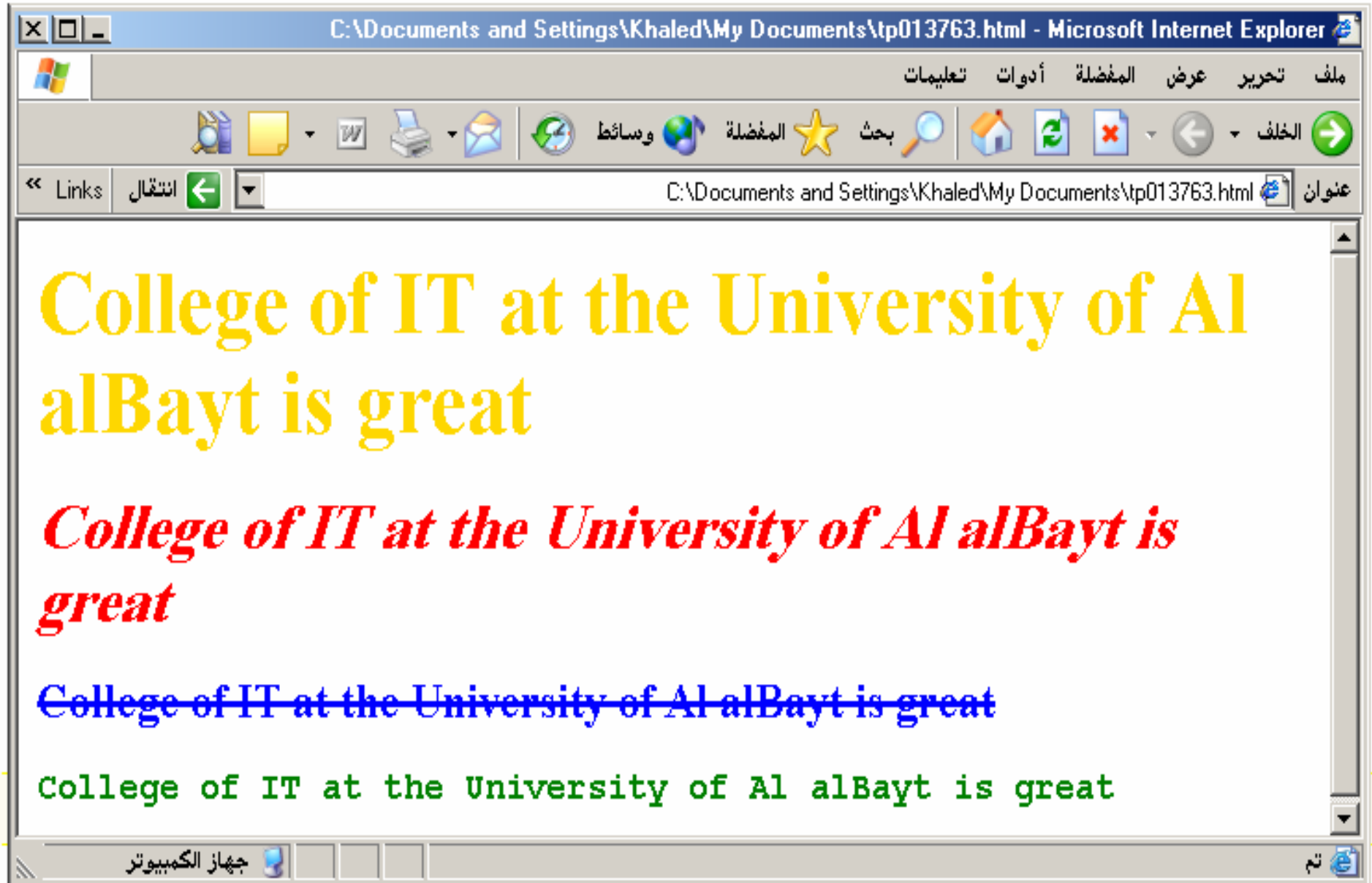
```
document.write("<h2>" +  
txt.fontcolor("red").italics() + "</h2>")
```

```
document.write("<h3>" +  
txt.fontcolor("blue").strike() + "</h3>")
```

```
document.write("<h4>" +  
txt.fontcolor("green").fixed() + "</h4>")
```

```
</script>
```

Output



Example

```
<script LANGUAGE="JAVASCRIPT">  
var x = "test";  
window.alert(x.bold().italics().strike().link(  
"special.html"));  
</script>
```



Example

```
<Script Language="JavaScript">  
window.alert(location.HREF)  
</Script>
```

