Khoa Công Nghệ Thông Tin
Trường Đại Học Cần Thơ

Lập Trình JavaScript

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Cần Thơ
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Nội dung

- Giới thiệu về JavaScript
- Biến, kiểu dữ liệu, phép toán
- Lệnh điều khiển
- Popup
- Sử dụng các đối tượng

- **Giới thiệu về JavaScript**
- Biến, kiểu dữ liệu, phép toán
- Lệnh điều khiển
- Popup
- Sử dụng các đối tượng

Giới thiệu về JavaScript

- JavaScript là gì ?
  - JavaScript được thiết kế để cùng với HTML tạo trang Web sinh động
  - JavaScript là ngôn ngữ script, hướng đối tượng, chứa các dòng lệnh thực thi được
  - JavaScript được viết trực tiếp vào trang HTML
  - Javascript là ngôn ngữ thông dịch
  - Javascript khác với Java

Giới thiệu về JavaScript

- JavaScript dùng làm gì ?
  - Người thiết kế Web có thể học kỹ năng lập trình đơn giản của JavaScript để viết các trang HTML sinh động
  - JavaScript xuất những text một cách động cho các trang HTML
  - JavaScript bắt và xử lý các sự kiện từ giao tiếp của người sử dụng Webbrowser
  - JavaScript có thể đọc và viết các phần tử cơ bản hay nội dung của trang HTML
  - JavaScript có thể được sử dụng để kiểm tra dữ liệu trước khi submit
  - JavaScript có thể cung cấp thông tin về browser
  - Tạo cookies

Ví dụ 1 về JavaScript

```
<html>
<body>

<script type="text/javascript">
document.write("Hello World!")
</script>

</body>
</html>
```

Hello World!

Ví dụ 2 về JavaScript

```
<html>
<body>

<script type="text/javascript">
document.write("<h1>Hello World!</h1>")
</script>

</body>
</html>
```

Hello World!

Ví dụ 3 về JavaScript

```
<html>
<head>
<script type="text/javascript">
function message()
{
alert("This alert box was called with the
onload event")
}
</script>
</head>

<body onload="message()">

</body>
</html>
```

Ví dụ 4 về JavaScript

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

<body>

<script type="text/javascript">
document.write("This message is written
when the page loads")
</script>

</body>
</html>
```

This message is written when the page loads

Ví dụ 5 về JavaScript

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

<script src="xxx.js">
</script>

<p>
The actual script is in an external
script file called "xxx.js".
</p>

</body>
</html>
```

This script is external !!!

The actual script is in an external script file called "xxx.js".

- Giới thiệu về JavaScript
- **Biến, kiểu dữ liệu, phép toán**
- Lệnh điều khiển
- Popup
- Sử dụng các đối tượng

Biến

- Biến
  - Chứa dữ liệu
  - Phân biệt giữa ký tự thường và hoa
  - Khai báo :

  var strname = some value

  strname = some value
  - Gán giá trị :

  var strname = "Hege"

  strname = "Hege"
  - Phạm vi sử dụng biến : cục bộ và toàn cục

Ví dụ

```
<html>
<body>

<script type="text/javascript">
var name = "Hege"
document.write(name)
document.write("<h1>"+name+"</h1>")
</script>

<p>This example declares a variable,
assigns a value to it, and then displays
the variable.</p>

<p>Then the variable is displayed one
more time, only this time as a
heading.</p>

</body>
</html>
```

Hege

Hege

This example declares a variable, assigns a value to it, and then displays the variable.

Then the variable is displayed one more time, only this time as a heading.

Kiểu dữ liệu

- Kiểu dữ liệu
  - Số nguyên : 10, -301, 1974, etc.
  - Số thực và số chấm động : 13.5, 1.35E1
  - Luận lý : true, false
  - Chuỗi : “do thanh nghi”, “sinh nam 1974”, \b, \n, \r, \t, \\

var quote = "He read \"The Cremation of Sam McGee\" by R.W. Service."
document.write(quote)

Kết quả sẽ là :
He read "The Cremation of Sam McGee" by R.W. Service.

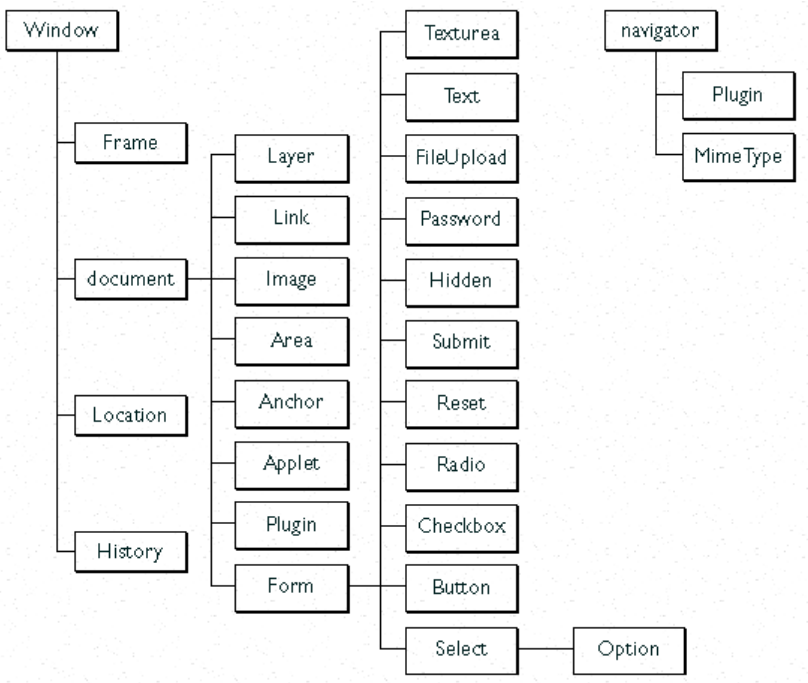
Kiểu dữ liệu

- Kiểu dữ liệu
  - Mảng :

myArray = new Array(10); foo = new Array(5);
myArray[0] = 56; myArray[9] = 44;
colors = new Array();
colors[99] = "midnightblue";
numberOfElements = myArray.length;

Kiểu dữ liệu

- Kiểu dữ liệu
  - Đối tượng :



Chuyển kiểu dữ liệu

- Kiểu dữ liệu
  - Được chuyển tự động :

var answer = 42

answer = "Thanks for all the fish..."

x = "The answer is " + 42

  - Chuyển chuỗi sang số : ParseInt(), ParseFloat()

Phép toán

- Phép toán
  - Gán : =
  - Phép tăng hoặc giảm 1 : ++, --
  - Gán rút gọn : +=, -=, *=, /=, %=
  - So sánh : ==, !=, <, <=, >, >=
  - Phép tính số học : +, -, *, /, %
  - Phép toán luận lý : &&, ||, !,
  - Phép : (cond) ? Expr1:Expr2

Phép toán

Operator	Description	Example	Result
+	Addition	x=2 y=2 x+y	4
-	Subtraction	x=5 y=2 x-y	3
*	Multiplication	x=5 y=4 x*y	20
/	Division	15/5 5/2	3 2.5
%	Modulus (division remainder)	5%2 10%8 10%2	1 2 0
++	Increment	x=5 x++	x=6
--	Decrement	x=5 x--	x=4

Phép toán

Operator	Example	Is The Same As
=	x=y	x=y
+=	x+=y	x=x+y
-=	x-=y	x=x-y
*=	x*=y	x=x*y
/=	x/=y	x=x/y
%=	x%=y	x=x%y

Phép toán

Operator	Description	Example
==	is equal to	5==8 returns false
===	is equal to (checks for both value and type)	x=5 y="5" x==y returns true x===y returns false
!=	is not equal	5!=8 returns true
>	is greater than	5>8 returns false
<	is less than	5<8 returns true
>=	is greater than or equal to	5>=8 returns false
<=	is less than or equal to	5<=8 returns true

Phép toán

Operator	Description	Example
&&	and	x=6 y=3 (x < 10 && y > 1) returns true
||	or	x=6 y=3 (x==5 || y==5) returns false
!	not	x=6 y=3 !(x==y) returns true

Phép toán

```
txt1="What a very"
txt2="nice day!"
txt3=txt1+txt2

txt1="What a very"
txt2="nice day!"
txt3=txt1+" "+txt2

txt1="What a very "
txt2="nice day!"
txt3=txt1+txt2
```


Định nghĩa hàm

- Định nghĩa

```
function functionname(var1,var2,...,varX)
{
some code
}
```

Định nghĩa hàm

- Ví dụ

```
function total(a,b)
{
x=a*b
return x
}

product=total(2,3)
```


Định nghĩa hàm

- Ví dụ

```
<html> <head>
<script type="text/javascript">
function displaymessage()
{
alert("Hello World!")
}
</script>
</head><body>
<form>
<input type="button" value="Click me!"
onclick="displaymessage()" >
</form>
</body>
</html>
```

Định nghĩa hàm

```
<html>
<head>

<script type="text/javascript">
function myFunction()
{
return ("Hello, have a nice day!")
}
</script>

</head>
<body>

<script type="text/javascript">
document.write(myFunction())
</script>

<p>The script in the body section calls
a function.</p>

<p>The function returns a text.</p>

</body>
</html>
```

Hello, have a nice day!

The script in the body section calls a function.

The function returns a text.

Định nghĩa hàm

```
<html>
<head>
<script type="text/javascript">
function total(a,b)
{
return a*b
}
</script>
</head>

<body>
<script type="text/javascript">
document.write(total(4,3))
</script>
<p>The script in the body section calls a
function with two parameters (4 and 3).</p>
<p>The function will return the product of
these two parameters.</p>
</body>
</html>
```

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The script in the body section calls a function with two parameters (4 and 3).

The function will return the product of these two parameters.

- Giới thiệu về JavaScript
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- **Lệnh điều khiển**
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Cấu trúc IF-ELSE

- Cú pháp

```
if (condition) {
    statements1
}
Hay
if (condition) {
    statements1
}
else {
    statements2
}
```

Cấu trúc IF-ELSE

```
<script type="text/javascript">
var d = new Date()
var time = d.getHours()

if (time < 10)
{
document.write("<b>Good morning</b>")
}
else
{
document.write("<b>Good day</b>")
}
</script>

<p>
This example demonstrates the If...Else
statement.
</p>

<p>
If the time on your browser is less than
10,
you will get a "Good morning" greeting.
Otherwise you will get a "Good day"
greeting.
```

Good day

This example demonstrates the If...Else statement.

If the time on your browser is less than 10, you will get a "Good morning" greeting. Otherwise you will get a "Good day" greeting.

Cấu trúc IF-ELSE

```
<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='http://www.refsnesdata.no'>Visit
Refsnes Data!</a>")
}
</script>

</body>
</html>
```

Learn Web Development!

Cấu trúc lựa chọn switch-case

- Cú pháp

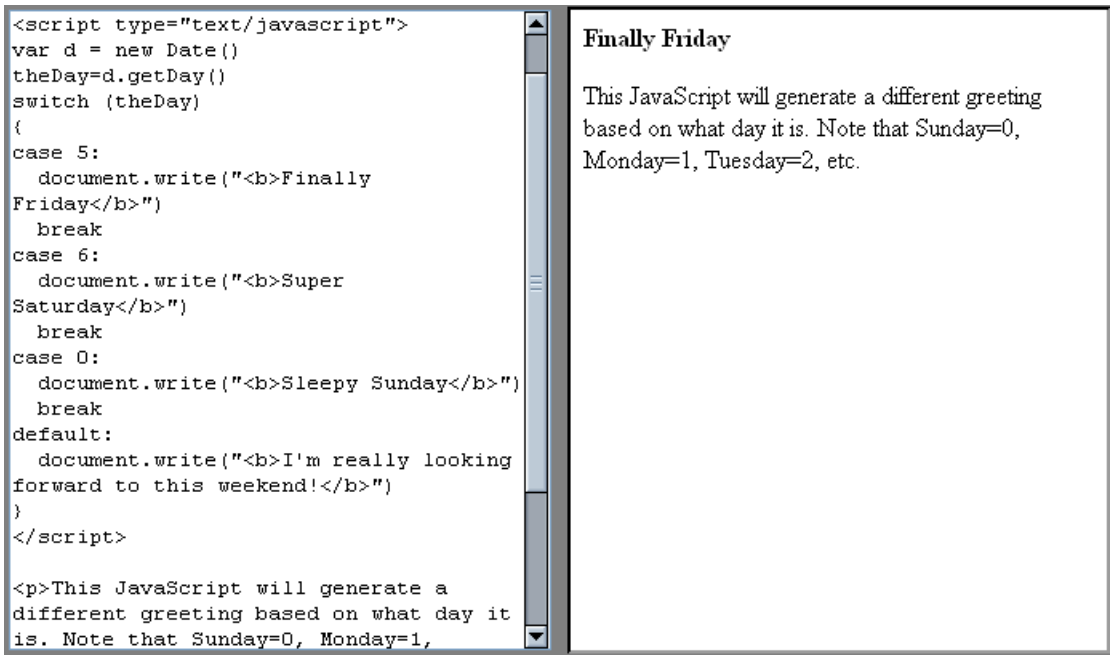
```
switch(n) {
case 1:
  execute code block 1
  break
case 2:
  execute code block 2
  break
default:
  code to be executed if n is
  different from case 1 and 2
}
```


Cấu trúc lựa chọn switch-case

- Ví dụ

```
<script type="text/javascript">
theDay=d.getDay()
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>
```

Cấu trúc lựa chọn switch-case



```
<script type="text/javascript">
var d = new Date()
theDay=d.getDay()
switch (theDay)
{
case 5:
  document.write("<b>Finally
Friday</b>")
  break
case 6:
  document.write("<b>Super
Saturday</b>")
  break
case 0:
  document.write("<b>Sleepy Sunday</b>")
  break
default:
  document.write("<b>I'm really looking
forward to this weekend!</b>")
}
</script>

<p>This JavaScript will generate a
different greeting based on what day it
is. Note that Sunday=0, Monday=1,
```

Finally Friday

This JavaScript will generate a different greeting based on what day it is. Note that Sunday=0, Monday=1, Tuesday=2, etc.

Cấu trúc lặp for

- Cú pháp

```
for (initial-expression; condition; increment-expression) {
    statements
}
```

Ví dụ:

```
var n = 0;
for (var i = 0; i < 3; i++) {
    n += i;
    alert("The value of n is now " + n);
}
```

Cấu trúc lặp for

```
<html>
<body>

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

<p>Explanation:</p>

<p>This for loop starts with i=0.</p>

<p>As long as <b>i</b> is less than, or
equal to 5, the loop will continue to
run.</p>

<p><b>i</b> will increase by 1 each time
the loop runs.</p>

</body>
</html>
```

The number is 0
The number is 1
The number is 2
The number is 3
The number is 4
The number is 5

Explanation:

This for loop starts with i=0.

As long as **i** is less than, or equal to 5, the loop will continue to run.

i will increase by 1 each time the loop runs.

Cấu trúc lặp for

```
<html>
<body>

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

</body>
</html>
```

This is header 1

This is header 2

This is header 3

This is header 4

This is header 5

This is header 6

Cấu trúc lặp while, do-while

- Cú pháp

```
while (var<=endvalue)
{
   code to be executed
}

do
{
   code to be executed
}
while (var<=endvalue)
```


Cấu trúc lặp while, do-while

- Ví dụ

```
<html>
<body>
<script type="text/javascript">
var i=0
while (i<=10)
{
document.write("The number is " + i)
document.write("<br />")
i=i+1
}
</script>
</table>
</body>
</html>
```

Cấu trúc lặp while, do-while

- Ví dụ

```
<html>
<body>
<script type="text/javascript">
var i=0
do {
document.write("The number is " + i)
document.write("<br />")
i=i+1
}
while (i<0)
</script>
</table>
</body>
</html>
```


Cấu trúc lặp while, do-while

```
<body>

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

<p>Explanation:</p>

<p><b>i</b>  equal to 0.</p>

<p>While <b>i</b> is less than , or
equal to, 5, the loop will continue to
run.</p>

<p><b>i</b> will increase by 1 each
time the loop runs.</p>
```

The number is 0
The number is 1
The number is 2
The number is 3
The number is 4
The number is 5

Explanation:

i equal to 0.

While **i** is less than , or equal to, 5, the loop will continue to run.

i will increase by 1 each time the loop runs.

Cấu trúc lặp while, do-while

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

<p>Explanation:</p>

<p><b>i</b>  equal to 0.</p>

<p>The loop will run</p>

<p><b>i</b> will increase by 1 each time
the loop runs.</p>

<p>While <b>i</b> is less than , or
equal to, 5, the loop will continue to
run.</p>
```

The number is 0
The number is 1
The number is 2
The number is 3
The number is 4
The number is 5

Explanation:

i equal to 0.

The loop will run

i will increase by 1 each time the loop runs.

While **i** is less than , or equal to, 5, the loop will continue to run.

break trong cấu trúc lặp

```
<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>
</table>

<p>Explanation: The loop will break when
i=3.</p>

</body>
</html>
```

The number is 0
The number is 1
The number is 2

Explanation: The loop will break when i=3.

continue trong cấu trúc lặp

```
<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>
</table>

<p>Explanation: The loop will break the
current loop and continue with the next
value when i=3.</p>

</body>
</html>
```

The number is 0
The number is 1
The number is 2
The number is 4
The number is 5
The number is 6
The number is 7
The number is 8
The number is 9
The number is 10

Explanation: The loop will break the current loop and continue with the next value when i=3.

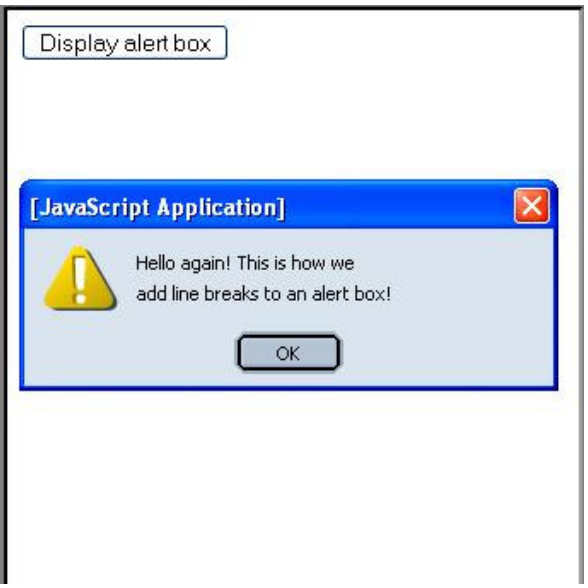
- Giới thiệu về JavaScript
- Biến, kiểu dữ liệu, phép toán
- Lệnh điều khiển
- **Popup**
- Sử dụng các đối tượng

Popup

- Các lọai
  - Alert box
  - Confirm box
  - Prompt box

alert("sometext")

```
<html>
<head>
<script type="text/javascript">
function disp_alert()
{
alert("Hello again! This is how we" +
'\n' + "add line breaks to an alert
box!")
}
</script>
</head>

<body>
<form>
<input type="button"
onclick="disp_alert()" value="Display
alert box">
</form>
</body>

</html>
```



confirm("sometext")

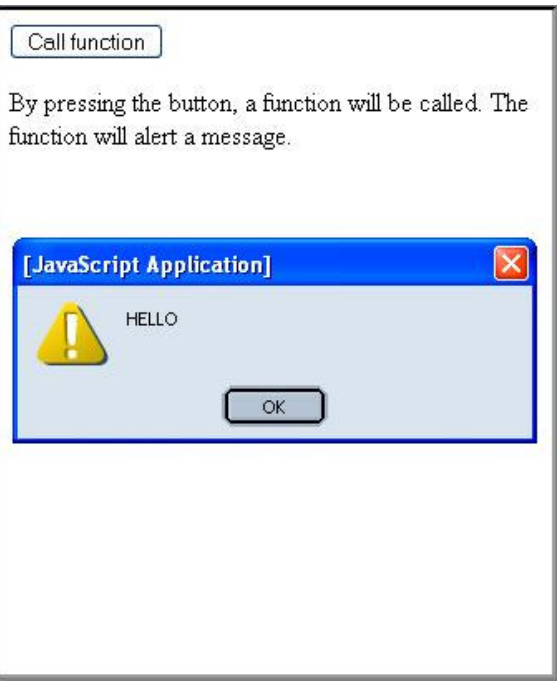
```
<script type="text/javascript">
function disp_confirm()
{
var name=confirm("Press a button")
if (name==true)
{
document.write("You pressed the OK
button!")
}
else
{
document.write("You pressed the Cancel
button!")
}
}
</script>
</head>

<body>
<form>
<input type="button"
onclick="disp_confirm()" value="Display
a confirm box">
</form>
</body>
```

prompt("sometext","defaultvalue")

```
<html>
<head>
<script type="text/javascript">
function disp_prompt()
{
var name=prompt("Please enter your
name","")
if (name!=null && name!="")
{
document.write("Hello " + name + "! How
are you today?")
}
}
</script>
</head>

<body>
<form>
<input type="button"
onclick="disp_prompt()" value="Display a
prompt box">
</form>
</body>

</html>
```

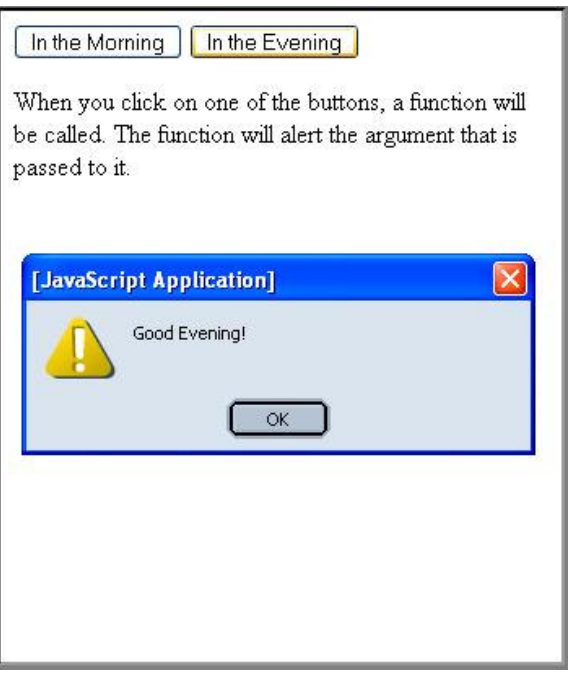
Kết hợp với form

```
<html>
<head>

<script type="text/javascript">
function myfunction()
{
alert("HELLO")
}
</script>

</head>
<body>

<form>
<input type="button"
onclick="myfunction()"
value="Call function">
</form>

<p>By pressing the button, a function
will be called. The function will alert
a message.</p>

</body>
</html>
```



Kết hợp với form

```
<script type="text/javascript">
function myfunction(txt)
{
alert(txt)
}
</script>
</head>

<body>
<form>
<input type="button"
onclick="myfunction('Good Morning!')"
value="In the Morning">

<input type="button"
onclick="myfunction('Good Evening!')"
value="In the Evening">
</form>

<p>
When you click on one of the buttons, a
function will be called. The function
will alert
the argument that is passed to it.
</p>
```



- Giới thiệu về JavaScript
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- **Sử dụng các đối tượng**

Đối tượng

- Các đối tượng
  - String
  - Date
  - Array
  - Boolean
  - Math
  - HTML DOM

Đối tượng string

String Object Methods

FF: Firefox, N: Netscape, **IE**: Internet Explorer

Method	Description	FF	N	IE
anchor()	Creates an HTML anchor	1	2	3
big()	Displays a string in a big font	1	2	3
blink()	Displays a blinking string	1	2	
bold()	Displays a string in bold	1	2	3
charAt()	Returns the character at a specified position	1	2	3
charCodeAt()	Returns the Unicode of the character at a specified position	1	4	4
concat()	Joins two or more strings	1	4	4
fixed()	Displays a string as teletype text	1	2	3
fontcolor()	Displays a string in a specified color	1	2	3
fontsize()	Displays a string in a specified size	1	2	3
fromCharCode()	Takes the specified Unicode values and returns a string	1	4	4
indexOf()	Returns the position of the first occurrence of a specified string value in a string	1	2	3
italics()	Displays a string in italic	1	2	3
lastIndexOf()	Returns the position of the last occurrence of a specified string value, searching backwards from the specified position in a string	1	2	3
link()	Displays a string as a hyperlink	1	2	3
match()	Searches for a specified string value in a string	1	4	4
replace()	Replaces some characters with some other characters in a string	1	4	4
search()	Searches a string for a specified value	1	4	4

Đối tượng string

slice()	Extracts a part of a string and returns the extracted part in a new string	1	4	4
small()	Displays a string in a small font	1	2	3
split()	Splits a string into an array of strings	1	4	4
strike()	Displays a string with a strikethrough	1	2	3
sub()	Displays a string as subscript	1	2	3
substr()	Extracts a specified number of characters in a string, from a start index	1	4	4
substring()	Extracts the characters in a string between two specified indices	1	2	3
sup()	Displays a string as superscript	1	2	3
toLowerCase()	Displays a string in lowercase letters	1	2	3
toUpperCase()	Displays a string in uppercase letters	1	2	3
toSource()	Represents the source code of an object	1	4	-
valueOf()	Returns the primitive value of a String object	1	2	4

String Object Properties

Property	Description	FF	N	IE
constructor	A reference to the function that created the object	1	4	4
length	Returns the number of characters in a string	1	2	3
prototype	Allows you to add properties and methods to the object	1	2	4

Đối tượng string

- Ví dụ

```
var txt="Hello world!"
document.write(txt.length)
document.write(txt.toUpperCase())
document.write(txt.substring(4, 8))
document.write(txt.small())
document.write(txt.strike())
document.write(txt.charAt(8))
```


Đối tượng Date

Date Object Methods

FF: Firefox, **N**: Netscape, **IE**: Internet Explorer

Method	Description	FF	N	IE
Date()	Returns today's date and time	1	2	3
getDate()	Returns the day of the month from a Date object (from 1-31)	1	2	3
getDay()	Returns the day of the week from a Date object (from 0-6)	1	2	3
getMonth()	Returns the month from a Date object (from 0-11)	1	2	3
getFullYear()	Returns the year, as a four-digit number, from a Date object	1	4	4
getYear()	Returns the year, as a two-digit or a four-digit number, from a Date object. Use getFullYear() instead !!	1	2	3
getHours()	Returns the hour of a Date object (from 0-23)	1	2	3
getMinutes()	Returns the minutes of a Date object (from 0-59)	1	2	3
getSeconds()	Returns the seconds of a Date object (from 0-59)	1	2	3
getMilliseconds()	Returns the milliseconds of a Date object (from 0-999)	1	4	4
getTime()	Returns the number of milliseconds since midnight Jan 1, 1970	1	2	3
getTimezoneOffset()	Returns the difference in minutes between local time and Greenwich Mean Time (GMT)	1	2	3
getUTCDate()	Returns the day of the month from a Date object according to universal time (from 1-31)	1	4	4

Đối tượng Date

getUTCDay()	Returns the day of the week from a Date object according to universal time (from 0-6)	1	4	4
getUTCMonth()	Returns the month from a Date object according to universal time (from 0-11)	1	4	4
getUTCFullYear()	Returns the four-digit year from a Date object according to universal time	1	4	4
getUTCHours()	Returns the hour of a Date object according to universal time (from 0-23)	1	4	4
getUTCMinutes()	Returns the minutes of a Date object according to universal time (from 0-59)	1	4	4
getUTCSeconds()	Returns the seconds of a Date object according to universal time (from 0-59)	1	4	4
getUTCMilliseconds()	Returns the milliseconds of a Date object according to universal time (from 0-999)	1	4	4
parse()	Takes a date string and returns the number of milliseconds since midnight of January 1, 1970	1	2	3
setDate()	Sets the day of the month in a Date object (from 1-31)	1	2	3
setMonth()	Sets the month in a Date object (from 0-11)	1	2	3
setFullYear()	Sets the year in a Date object (four digits)	1	4	4
setYear()	Sets the year in the Date object (two or four digits). Use setFullYear() instead !!	1	2	3
setHours()	Sets the hour in a Date object (from 0-23)	1	2	3
setMinutes()	Set the minutes in a Date object (from 0-59)	1	2	3
setSeconds()	Sets the seconds in a Date object (from 0-59)	1	2	3
setMilliseconds()	Sets the milliseconds in a Date object (from 0-999)	1	4	4
setTime()	Calculates a date and time by adding or subtracting a specified number of milliseconds to/from midnight January 1, 1970	1	2	3

Đối tượng Date

setUTCDate()	Sets the day of the month in a Date object according to universal time (from 1-31)	1	4	4
setUTCMonth()	Sets the month in a Date object according to universal time (from 0-11)	1	4	4
setUTCFullYear()	Sets the year in a Date object according to universal time (four digits)	1	4	4
setUTCHours()	Sets the hour in a Date object according to universal time (from 0-23)	1	4	4
setUTCMinutes()	Set the minutes in a Date object according to universal time (from 0-59)	1	4	4
setUTCSeconds()	Set the seconds in a Date object according to universal time (from 0-59)	1	4	4
setUTCMilliseconds()	Sets the milliseconds in a Date object according to universal time (from 0-999)	1	4	4
toSource()	Represents the source code of an object	1	4	-
toString()	Converts a Date object to a string	1	2	4
toGMTString()	Converts a Date object, according to Greenwich time, to a string. Use toUTCString() instead !!	1	2	3
toUTCString()	Converts a Date object, according to universal time, to a string	1	4	4
toLocaleString()	Converts a Date object, according to local time, to a string	1	2	3
UTC()	Takes a date and returns the number of milliseconds since midnight of January 1, 1970 according to universal time	1	2	3
valueOf()	Returns the primitive value of a Date object	1	2	4

Date Object Properties

Property	Description	FF	N	IE
constructor	A reference to the function that created the object	1	4	4
prototype	Allows you to add properties and methods to the object	1	3	4

Đối tượng Date

- Ví dụ

```
var myDate=new Date()
myDate.setFullYear(2010,0,14)
myDate.setDate(myDate.getDate()+5)
myDate.setFullYear(2010,0,14)

var today = new Date()
if (myDate>today)
  alert("Today is before 14th January 2010")
else
  alert("Today is after 14th January 2010")
```


Đối tượng Array

Array Object Methods

FF: Firefox, N: Netscape, **IE**: Internet Explorer

Method	Description	FF	N	IE
concat()	Joins two or more arrays and returns the result	1	4	4
join()	Puts all the elements of an array into a string. The elements are separated by a specified delimiter	1	3	4
pop()	Removes and returns the last element of an array	1	4	5.5
push()	Adds one or more elements to the end of an array and returns the new length	1	4	5.5
reverse()	Reverses the order of the elements in an array	1	3	4
shift()	Removes and returns the first element of an array	1	4	5.5
slice()	Returns selected elements from an existing array	1	4	4
sort()	Sorts the elements of an array	1	3	4
splice()	Removes and adds new elements to an array	1	4	5.5
toSource()	Represents the source code of an object	1	4	-
toString()	Converts an array to a string and returns the result	1	3	4
unshift()	Adds one or more elements to the beginning of an array and returns the new length	1	4	-
valueOf()	Returns the primitive value of an Array object	1	2	4

Array Object Properties

Property	Description	FF	N	IE
constructor	A reference to the function that created the object	1	2	4
index		1	3	4
input		1	3	4
length	Sets or returns the number of elements in an array	1	2	4
prototype	Allows you to add properties and methods to the object	1	2	4

Đối tượng Array

- Ví dụ

```
var mycars=new Array()
mycars[0]="Saab"
mycars[1]="Volvo"
mycars[2]="BMW“

var mycars=new Array("Saab","Volvo","BMW")

var mycars=new Array(3)
mycars[0]="Saab"
mycars[1]="Volvo"
mycars[2]="BMW"
```


Đối tượng Array

- Ví dụ

```
var arr = new Array(3)
arr[0] = "Jani"
arr[1] = "Tove"
arr[2] = "Hege"
var arr2 = new Array(3)
arr2[0] = "John"
arr2[1] = "Andy"
arr2[2] = "Wendy"
document.write(arr.concat(arr2))
```

Đối tượng Array

- Ví dụ

```
var arr = new Array(6)
arr[0] = "Jani"
arr[1] = "Hege"
arr[2] = "Stale"
arr[3] = "Kai Jim"
arr[4] = "Borge"
arr[5] = "Tove"
document.write(arr + "<br />")
document.write(arr.sort())
```


Đối tượng Boolean

Boolean Object Methods

FF: Firefox, **N**: Netscape, **IE**: Internet Explorer

Method	Description	FF	N	IE
toSource()	Represents the source code of an object	1	4	-
toString()	Converts a Boolean value to a string and returns the result	1	4	4
valueOf()	Returns the primitive value of a Boolean object	1	4	4

Boolean Object Properties

Property	Description	FF	N	IE
constructor	A reference to the function that created the object	1	2	4
prototype	Allows you to add properties and methods to the object	1	2	4

Đối tượng Boolean

- Ví dụ

```
var myBoolean=new Boolean()
var myBoolean=new Boolean(0)
var myBoolean=new Boolean(null)
var myBoolean=new Boolean("")
var myBoolean=new Boolean(false)
var myBoolean=new Boolean(NaN)
var myBoolean=new Boolean(true)
var myBoolean=new Boolean("true")
var myBoolean=new Boolean("false")
var myBoolean=new Boolean("Richard")
```


Đối tượng Math

Math Object Methods

FF: Firefox, N: Netscape, **IE**: Internet Explorer

Method	Description	FF	N	IE
abs(x)	Returns the absolute value of a number	1	2	3
acos(x)	Returns the arccosine of a number	1	2	3
asin(x)	Returns the arcsine of a number	1	2	3
atan(x)	Returns the arctangent of x as a numeric value between -PI/2 and PI/2 radians	1	2	3
atan2(y,x)	Returns the angle theta of an (x,y) point as a numeric value between -PI and PI radians	1	2	3
ceil(x)	Returns the value of a number rounded upwards to the nearest integer	1	2	3
cos(x)	Returns the cosine of a number	1	2	3
exp(x)	Returns the value of E^x	1	2	3
floor(x)	Returns the value of a number rounded downwards to the nearest integer	1	2	3
log(x)	Returns the natural logarithm (base E) of a number	1	2	3
max(x,y)	Returns the number with the highest value of x and y	1	2	3
min(x,y)	Returns the number with the lowest value of x and y	1	2	3
pow(x,y)	Returns the value of x to the power of y	1	2	3
random()	Returns a random number between 0 and 1	1	2	3
round(x)	Rounds a number to the nearest integer	1	2	3
sin(x)	Returns the sine of a number	1	2	3
sqrt(x)	Returns the square root of a number	1	2	3
tan(x)	Returns the tangent of an angle	1	2	3
toSource()	Represents the source code of an object	1	4	-
valueOf()	Returns the primitive value of a Math object	1	2	4

Đối tượng Math

Math Object Properties

Property	Description	FF	N	IE
constructor	A reference to the function that created the object	1	2	4
E	Returns Euler's constant (approx. 2.718)	1	2	3
LN2	Returns the natural logarithm of 2 (approx. 0.693)	1	2	3
LN10	Returns the natural logarithm of 10 (approx. 2.302)	1	2	3
LOG2E	Returns the base-2 logarithm of E (approx. 1.442)	1	2	3
LOG10E	Returns the base-10 logarithm of E (approx. 0.434)	1	2	3
PI	Returns PI (approx. 3.14159)	1	2	3
prototype	Allows you to add properties and methods to the object	1	2	4
SQRT1_2	Returns the square root of 1/2 (approx. 0.707)	1	2	3
SQRT2	Returns the square root of 2 (approx. 1.414)	1	2	3

Đối tượng Math

- Ví dụ

```
Math.E
Math.PI
Math.SQRT2
Math.SQRT1_2
Math.LN2
Math.LN10
Math.LOG2E
Math.LOG10E
document.write(Math.round(4.7))
document.write(Math.random())
document.write(Math.floor(Math.random()*11))
document.write(Math.round(-4.60))
```

Đối tượng HTML DOM

Object	Description
Anchor	Represents an HTML a element (a hyperlink)
Applet	Represents an HTML applet element. The applet element is used to place executable content on a page
Area	Represents an area of an image-map. An image-map is an image with clickable regions
Base	Represents an HTML base element
Basefont	Represents an HTML basefont element
Body	Represents the body of the document (the HTML body)
Button	Represents a push button on an HTML form. For each instance of an HTML <input type="button"> tag on an HTML form, a Button object is created
Checkbox	Represents a checkbox on an HTML form. For each instance of an HTML <input type="checkbox"> tag on an HTML form, a Checkbox object is created
Document	Used to access all elements in a page
Event	Represents the state of an event, such as the element in which the event occurred, the state of the keyboard keys, the location of the mouse, and the state of the mouse buttons
FileUpload	For each instance of an HTML <input type="file"> tag on a form, a FileUpload object is created
Form	Forms are used to prompt users for input. Represents an HTML form element
Frame	Represents an HTML frame
Frameset	Represents an HTML frameset
Hidden	Represents a hidden field on an HTML form. For each instance of an HTML <input type="hidden"> tag on a form, a Hidden object is created
History	A predefined object which can be accessed through the history property of the Window object. This object consists of an array of URLs. These URLs are all the URLs the user has visited within a browser window

Đối tượng HTML DOM

Iframe	Represents an HTML inline-frame
Image	Represents an HTML img element
Link	Represents an HTML link element. The link element can only be used within the <head> tag
Location	Contains information about the current URL
Meta	Represents an HTML meta element
Navigator	Contains information about the client browser
Option	Represents an option in a selection list on an HTML form. For each instance of an HTML <option> tag in a selection list on a form, an Option object is created
Password	Represents a password field on an HTML form. For each instance of an HTML <input type="password"> tag on a form, a Password object is created
Radio	Represents radio buttons on an HTML form. For each instance of an HTML <input type="radio"> tag on a form, a Radio object is created
Reset	Represents a reset button on an HTML form. For each instance of an HTML <input type="reset"> tag on a form, a Reset object is created
Screen	Automatically created by the JavaScript runtime engine and it contains information about the client's display screen
Select	Represents a selection list on an HTML form. For each instance of an HTML <select> tag on a form, a Select object is created

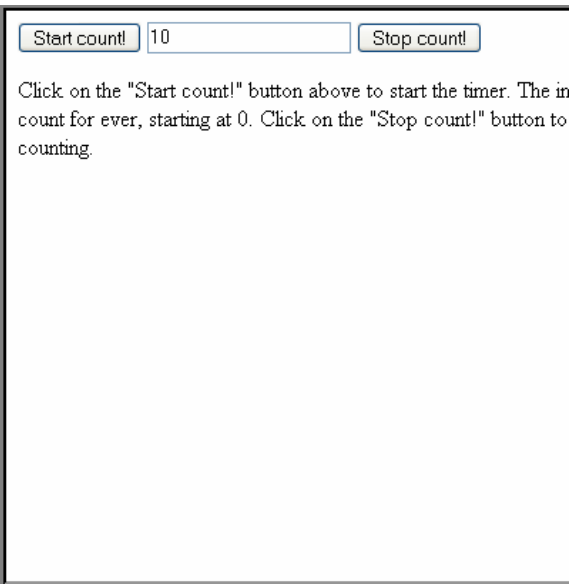
Đối tượng HTML DOM

Submit	Represents a submit button on an HTML form. For each instance of an HTML <input type="submit"> tag on a form, a Submit object is created
Table	Represents an HTML table element
TableData	Represents an HTML td element
TableHeader	Represents an HTML th element
TableRow	Represents an HTML tr element
Text	Represents a text field on an HTML form. For each instance of an HTML <input type="text"> tag on a form, a Text object is created
Textarea	Represents an HTML textarea element
Window	Corresponds to the browser window. A Window object is created automatically with every instance of a <body> or <frameset> tag


```
<html>
<body>

<script type="text/javascript">

personObj=new Object()
personObj.firstname="John"
personObj.lastname="Doe"
personObj.age=50
personObj.eyecolor="blue"

document.write(personObj.firstname + " is " + personObj.age +
" years old.")

</script>

</body>
</html>
```

John is 50 years old.

```
<script type="text/javascript">
var c=0
var t
function timedCount()
{
document.getElementById('txt').value=c
c=c+1
t=setTimeout("timedCount()",1000)
}

function stopCount()
{
clearTimeout(t)
}
</script>
</head>

<body>
<form>
<input type="button" value="Start count!"
onClick="timedCount()">
<input type="text" id="txt">
<input type="button" value="Stop count!"
onClick="stopCount()">
</form>
```

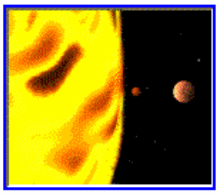



```
<html>
<head>
<script type="text/javascript">
function startTime()
{
var today=new Date()
var h=today.getHours()
var m=today.getMinutes()
var s=today.getSeconds()
// add a zero in front of numbers<10
m=checkTime(m)
s=checkTime(s)
document.getElementById('txt').innerHTML=h+":"+m+":"+s
t=setTimeout('startTime()',500)
}

function checkTime(i)
{
if (i<10)
  {i="0" + i}
  return i
}
</script>
</head>
```

```
<script type="text/javascript">
var x = navigator
document.write("CodeName=" + x.appCodeName)
document.write("<br />")
document.write("MinorVersion=" + x.appMinorVersion)
document.write("<br />")
document.write("Name=" + x.appName)
document.write("<br />")
document.write("Version=" + x.appVersion)
document.write("<br />")
document.write("CookieEnabled=" + x.cookieEnabled)
document.write("<br />")
document.write("CPUClass=" + x.cpuClass)
document.write("<br />")
document.write("OnLine=" + x.onLine)
document.write("<br />")
document.write("Platform=" + x.platform)
document.write("<br />")
document.write("UA=" + x.userAgent)
document.write("<br />")
document.write("BrowserLanguage=" + x.browserLanguage)
document.write("<br />")
document.write("SystemLanguage=" + x.systemLanguage)
document.write("<br />")
document.write("UserLanguage=" + x.userLanguage)
```

CodeName=Mozilla
MinorVersion=undefined
Name=Netscape
Version=5.0 (Windows; en-US)
CookieEnabled=true
CPUClass=undefined
OnLine=undefined
Platform=Win32
UA=Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.4)
Gecko/20030624 Netscape/7.1 (ax)
BrowserLanguage=undefined
SystemLanguage=undefined
UserLanguage=undefined

```
<script type="text/javascript">
function writeText(txt)
{
document.getElementById("desc").innerHTML=txt
}
</script>
</head>

<body>
<img src ="planets.gif" width ="145" height ="126"
alt="Planets" usemap="#planetmap" />

<map id ="planetmap" name="planetmap">
<area shape ="rect" coords ="0,0,82,126"
onMouseOver="writeText('The Sun and the gas giant planets
like Jupiter are by far the largest objects in our Solar
System.')"
href ="sun.htm" target ="_blank" alt="Sun" />

<area shape ="circle" coords ="90,58,3"
onMouseOver="writeText('The planet Mercury is very difficult
to study from the Earth because it is always so close to the
Sun.')"
href ="mercur.htm" target =" blank" alt="Mercury" />
```



The Sun and the gas giant planets like Jupiter are by far the Solar System.

Cám ơn !