

# **F.IT202 – Web Design**

**Лекц №9.**

- **Javascript.Object**

# Объект

- Шинж чанарын синтакс:  
objectName.propertyName
- Жишээ:
  - “myCar” гэсэн объект үүсгэсэн байна гэж бодвол, энэ нь 3 properties-г тухайн объектод онооно

```
myCar.make = "Ford"  
myCar.model = "Mustang"  
myCar.year = 69;
```

# Объект үүсгэх

- Объектод анхны утга олгох:  
objectName = {property1:value1, property2:value2,...,  
propertyN:valueN}

- Байгуулагч объект: *this* объект

```
function car(make, model, year) {  
  this.make = make  
  this.model = model  
  this.year = year  
}
```

- Ийнхүү тусар объектийг дараах байдлаар:  
mycar = new car("Eagle", "Talon TSi", 1993)

# Example:

Зарлах:

```
var person = {  
  firstName: "John",  
  lastName : "Doe",  
  id      : 5566,  
  fullName : function() {  
    return this.firstName + " " + this.lastName;  
  }  
};
```

Дуудах:

*objectName.methodName()* → **name = person.fullName();**

*objectName.propertyName* → **name = person.LastName;**

# JavaScript Objects

## *properties*

`length`

: мөрөндөө тэмдэгтийн тоог хадгалдаг

## *methods*

- `charAt(index)` : тэмдэгт өгсөн индекс хадгалагддаг буцаана (C++/Java-тай адил 0 ээр эхлэнэ)
- `substring(start, end)` : эхлэх хоорондын string утга буцаана
- : (багтаасан), эцсийн (онцгой) индекс
- `toUpperCase()` : string-ийн том тэмдэгтүүдийн хуулбарыг буцаана
- `toLowerCase()` : string-ийн жижиг тэмдэгтүүдийн хуулбарыг буцаана

Шинэ **string** үүсгэх, шинэ эсвэл (энэ тохиолдолд) зүгээр л шууд даалгавраа гүйцэтгэх ашиглан зааж (шинээр далд)

```
word = new String("foo");
```

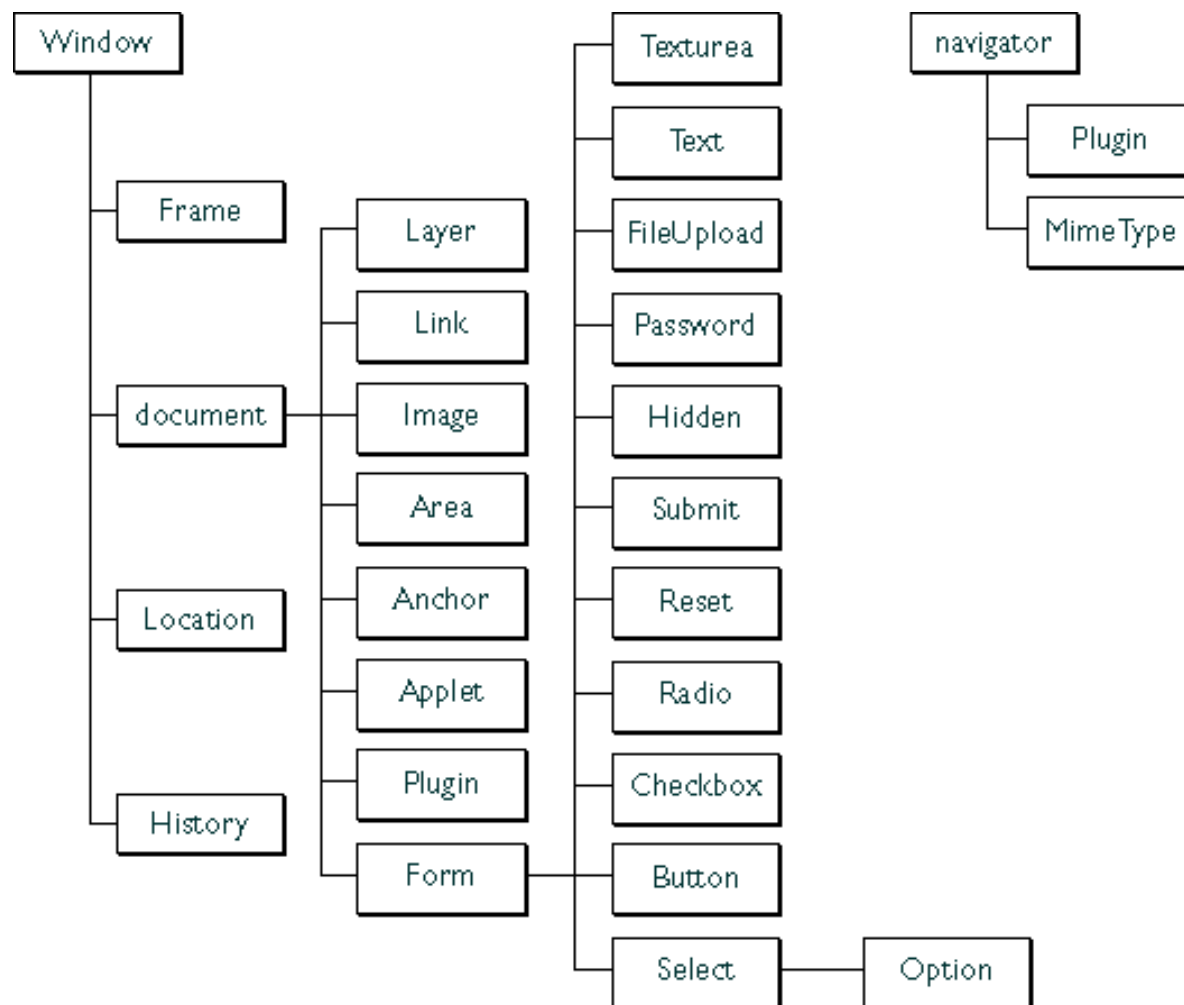
```
word = "foo";
```

properties/methods нь C++/Java-тай ижил дуудагдана.

```
• word.length
```

```
word.charAt(0)
```

# Netscape Navigator объектийн шатлал



# “else if” нөхцөл

```
if (condition) { statement; }  
else if (condition) { statement; }  
else { statement; }
```

- Танд нэг жинхэнэ утга нь олон нөхцөл илэрхийлэх тест зөвшөөрдөг болон кодын тухайн блок ажиллуулдаг.

“if/if...else” нөхцөлийн жишээ:

```
<script language="JavaScript">
var chr;
chr = prompt("Please enter a character : ","");
if (chr >= 'A'){
    if (chr <= 'Z')
        alert("Uppercase");
    else if (chr >= 'a'){
        alert("Lowercase");
    }
}
</script>
```



# “switch”

```
switch (expression) {  
    case label1:  
        statements; break;  
    default:  
        statements;  
}
```

- Нэг блок болгон нэг хувьсагч хэд хэдэн үнэлгээний тест нийлүүлэх боломжийг олгодог.

## “switch” жишээ:

```
<script language="JavaScript">
var chr;
chr = prompt("Pls enter a character in lowercase:", "");
switch(chr){
    case 'a' :
        alert("Vowel a"); break;
    case 'e' :
        alert("Vowel e"); break;
    default :
        alert("Not a vowel");
}
</script>
```

```
1 <?xml version = "1.0"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
3     "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
4
5 <!-- Fig. 9.7: SwitchTest.html -->
6 <!-- Using the switch statement -->
7
8 <html xmlns = "http://www.w3.org/1999/xhtml">
9     <head>
10         <title>Switching between XHTML List Formats</title>
11
12         <script type = "text/javascript">
13             <!--
14             var choice,           // user's choice
15                 startTag,        // starting list item tag
16                 endTag,          // ending list item tag
17                 validInput = true, // indicates if input is valid
18                 listType;        // list type as a string
19
20             choice = window.prompt( "Select a list style:\n" +
21                                     "1 (bullet), 2 (numbered), 3 (lettered)", "1" );
```

```
switch ( choice ) {
```

```
case "1":
```

```
    startTag = "<ul>";
```

```
    endTag = "</ul>";
```

```
    listType = "<h1>Bullet List</h1>";
```

```
    break;
```

```
case "2":
```

```
    startTag = "<ol>";
```

```
    endTag = "</ol>";
```

```
    listType = "<h1>Ordered List: Numbered</h1>";
```

```
    break;
```

```
case "3":
```

```
    startTag = "<ol type = \"A\">";
```

```
    endTag = "</ol>";
```

```
    listType = "<h1>Ordered List: Lettered</h1>";
```

```
    break;
```

```
default:
```

```
    validInput = false;
```

```
}
```

```
if ( validInput == true ) {
```

```
    document.writeln( listType + startTag );
```

```
    for ( var i = 1; i <= 3; ++i )
```

```
        document.writeln( "<li>List item " + i + "</li>" );
```

```
    document.writeln( endTag );
```

```
}
```

```
else
```

```
    document.writeln( "Invalid choice: " + choice );
```

```
// -->
```

```
</script>
```

```
</head>
```

```
<body>
```

```
    <p>Click Refresh (or Reload) to run the script again</p>
```

```
</body>
```

Explorer User Prompt

Script Prompt:

Select a list style:

1 (bullet), 2 (numbered), 3 (lettered)

OK

Cancel

## Bullet List

- List item 1
- List item 2
- List item 3

Click Refresh (or Reload) to run the script again

Explorer User Prompt

Script Prompt:

Select a list style:

1 (bullet), 2 (numbered), 3 (lettered)

OK

Cancel

## Ordered List: Numbered

1. List item 1
2. List item 2
3. List item 3

Click Refresh (or Reload) to run the script again

Explorer User Prompt

Script Prompt:

Select a list style:

1 (bullet), 2 (numbered), 3 (lettered)

OK

Cancel

## Ordered List: Lettered

- A. List item 1
- B. List item 2
- C. List item 3

Click Refresh (or Reload) to run the script again

# Давталт

- “for” давталт
- “for/in” давталт
- “while” давталт
- “do ... while” давталт
- “break”
- “continue”

# “for” давталт

```
for (initial_expression; test_exp; change_exp)
{ statements; }
```

- Хамгийн их ашиглагддаг, танил давталтыг нэг нь for давталт юм.
- Энэ нь нөхцөл ашиглан, түүний тоо бүрээр хяналтыг хэд дахин шалгах дэс дараалал юм.
- Change\_exp нь хэр их нэмэгдсэн эсвэл сөрөг хувьсагчид хасагдаж байна гэдгийг тодорхойлдог.

“for” давталтын жишээ:

```
<script language="JavaScript">
var counter;
for (counter = 1; counter <= 10; counter++)
{
    document.write(counter*counter + " ");
}
</script>
```

- Тоонуудын квадрат зэргийг харуулна.
- Үр дүн: 1 4 9 16 25 36 49 64 81 100

# “for/in” давталт

```
for (counter_variable in object)  
{ statements; }
```

- for/in давталт ашиглагдаж байгаа бол тоолуур болон нөхцөл шалгагч нь тухайн объектийн уртаас хамаарна.
- Давталт нь тоолуурын 0-ээр эхлэж, тухайн нөхцөл дуустал давтдаг.
  - Массив → дахин өөр элемент олдсонгүй



“for/in” давталтын жишээ:

```
<script language="JavaScript">  
var book; (What is the difference if "var book="";)  
var booklist = new Array("Chinese", "English", "Jap");  
for (var counter in booklist) {  
    book += booklist[counter] + " ";  
}  
alert(book);  
</script>
```



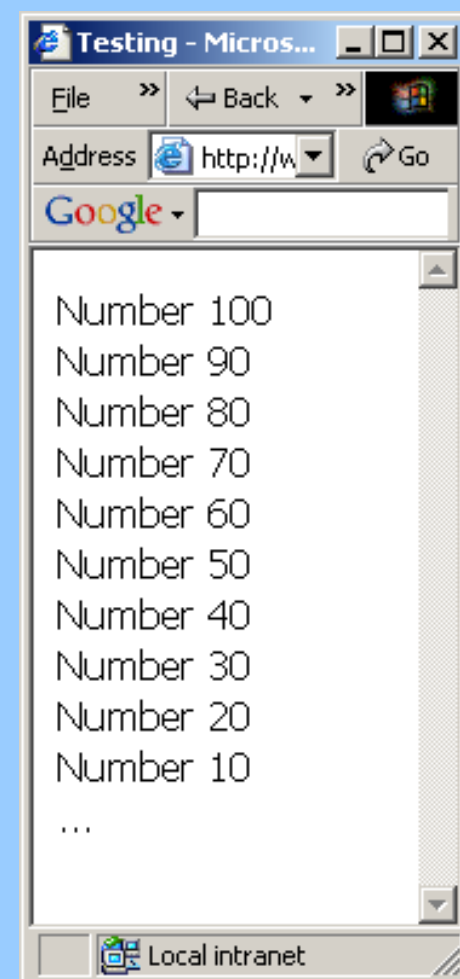
# “while” давталт

```
initial value declaration;  
while (condition) {  
    statements;  
    increment/decrement statement;  
}
```

- while давталт нь цуцлах нөхцөл эхэлж, цуцлах нөхцөл хангагдсан хүртэл давтдаг.

# “While” давталтын жишээ

```
<html>
<head>
<title>While loop example</title>
<script language="JavaScript">
var counter = 100;
var numberlist = "";
while (counter > 0) {
    numberlist += "Number " + counter + "<br>";
    counter -= 10;
}
document.write(numberlist);
</script> <body> ... </body>
</html>
```



# “do ... while” давталт

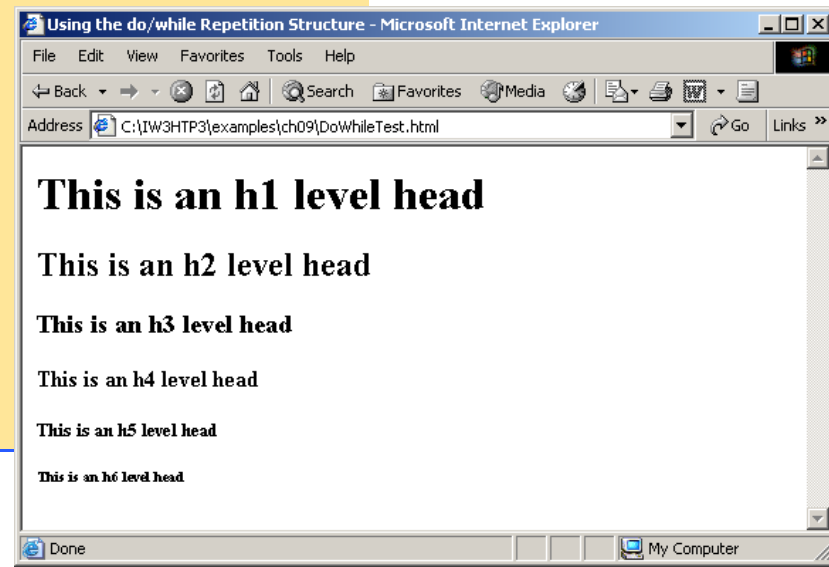
```
do {  
    statements;  
    counter increment/decrement;  
} while (termination condition)
```

- do/while давталт нь үргэлж давталтын эхний шугам хүртэл давтдаг.
- Цуцлах нөхцөл давталтын доод хэсэгт байрлуулсан байна.

```

1 <?xml version = "1.0"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
3   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
4
5 <!-- Fig. 9.9: DOWhileTest.html -->
6 <!-- Using the do...while statement -->
7
8 <html xmlns = "http://www.w3.org/1999/xhtml">
9   <head>
10     <title>Using the do...while Repetition Statement</title>
11
12     <script type = "text/javascript">
13       <!--
14       var counter = 1;
15
16       do {
17         document.writeln( "<h" + counter + ">This is " +
18           "an h" + counter + " level head" + "</h" +
19           counter + ">" );
20
21         ++counter;
22       } while ( counter <= 6 );
23       // -->
24     </script>
25
26   </head><body></body>
27 </html>

```



```

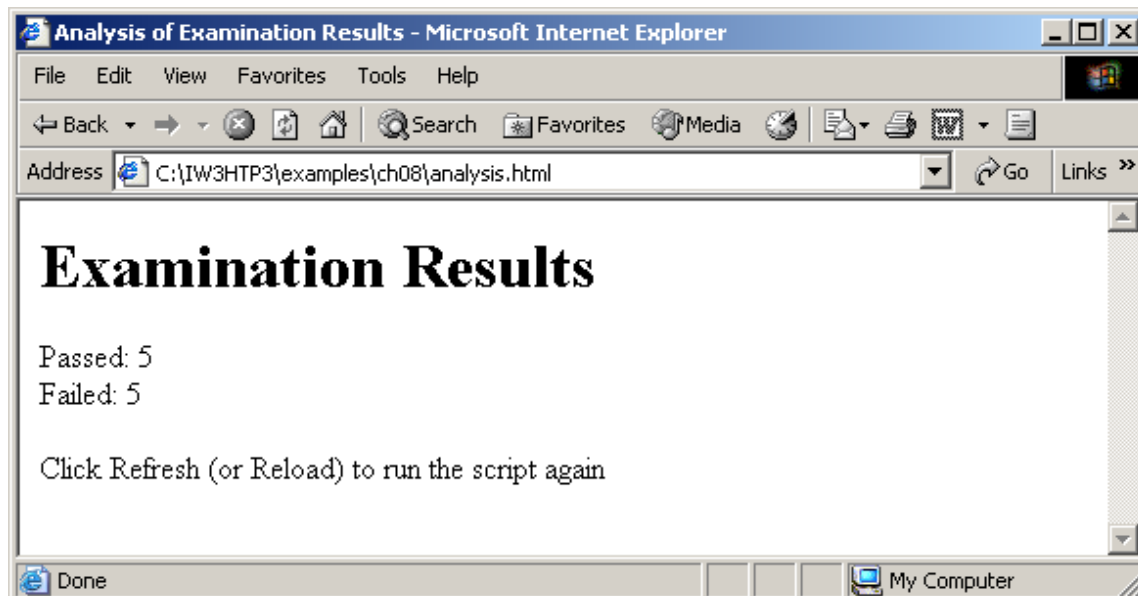
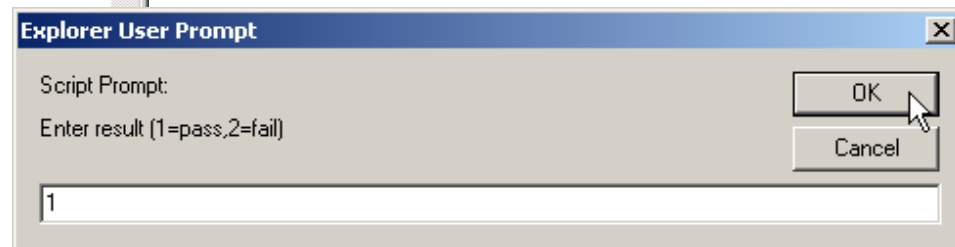
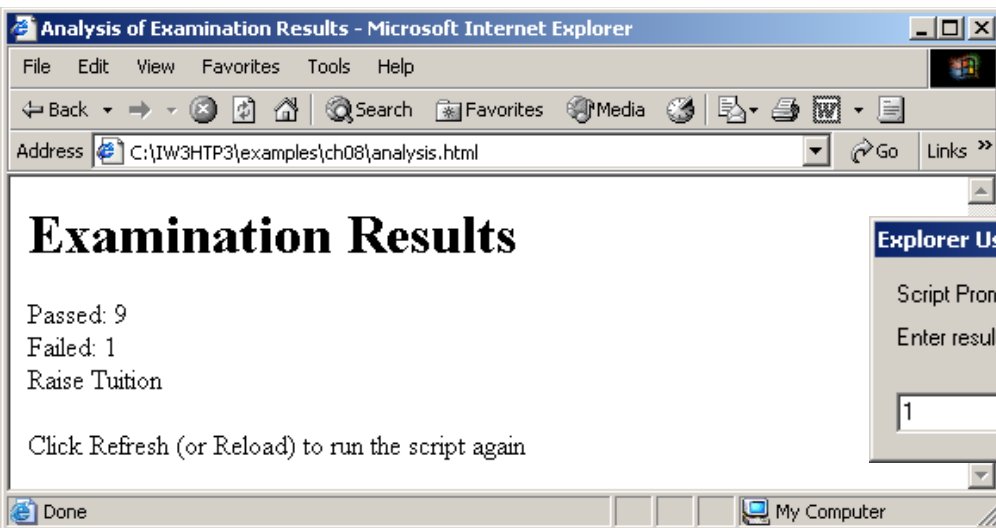
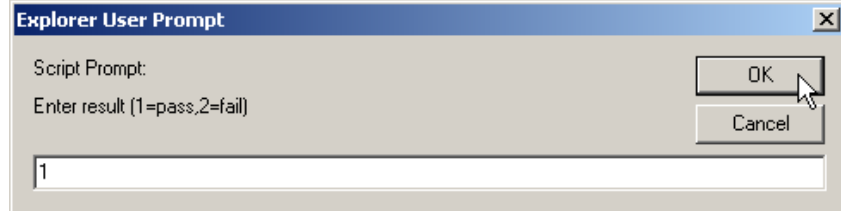
1 <?xml version = "1.0"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
3 "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
4
5 <!-- Fig. 8.11: analysis.html -->
6 <!-- Analyzing Exam Results -->
7
8 <html xmlns = "http://www.w3.org/1999/xhtml">
9   <head>
10     <title>Analysis of Examination Results</title>
11
12     <script type = "text/javascript">
13       <!--
14       // initializing variables in declarations
15       var passes = 0,      // number of passes
16           failures = 0,    // number of failures
17           student = 1,     // student counter
18           result;         // one exam result
19
20       // process 10 students; counter-controlled loop
21       while ( student <= 10 ) {
22         result = window.prompt(
23           "Enter result (1=pass,2=fail)", "0" );
24

```

```

25         if ( result == "1" )
26           passes = passes + 1;
27         else
28           failures = failures + 1;
29
30         student = student + 1;
31       }
32
33       // termination phase
34       document.writeln( "<h1>Examination Results</h1>" );
35       document.writeln(
36         "Passed: " + passes + "<br />Failed: " + failures );
37
38       if ( passes > 8 )
39         document.writeln( "<br />Raise Tuition" );
40       // -->
41     </script>
42
43   </head>
44   <body>
45     <p>Click Refresh (or Reload) to run the script again</p>
46   </body>
47 </html>

```



# break / continue

- break

- Програмаас нэн даруй гарах үед
- Давталтаас эрт гарах үед
- Switch-ийг алгасах

- continue

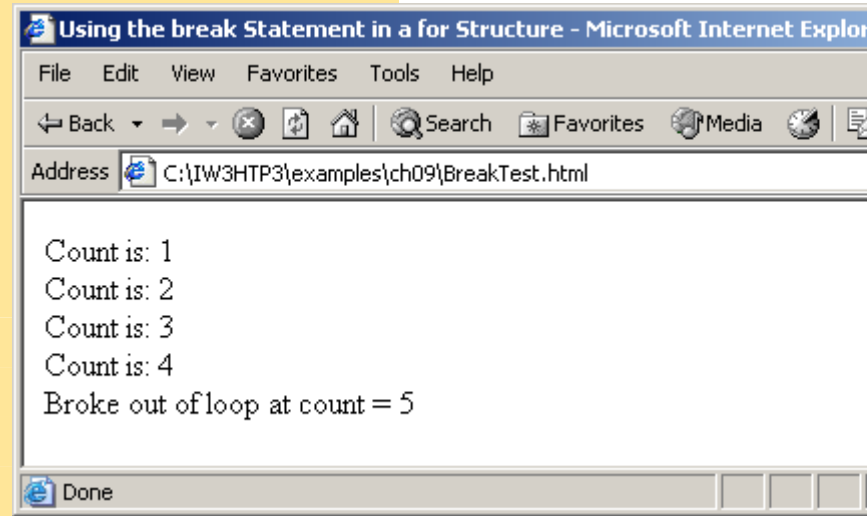
- Програмыг үргэлжлүүлэх үед
- Давталтын дараагийн давтаж байгаа үе рүү орох



```

1 <?xml version = "1.0"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
3   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
4
5 <!-- Fig. 9.11: BreakTest.html -->
6 <!-- Using the break statement -->
7
8 <html xmlns = "http://www.w3.org/1999/xhtml">
9   <head>
10     <title>
11       Using the break Statement in a for Structure
12     </title>
13
14     <script type = "text/javascript">
15       <!--
16       for ( var count = 1; count <= 10; ++count ) {
17         if ( count == 5 )
18           break; // break loop only if count == 5
19
20         document.writeln( "Count is: " + count + "<br />" );
21       }
22
23       document.writeln(
24         "Broke out of loop at count = " + count );
25       // -->
26     </script>
27
28   </head><body></body>
29 </html>

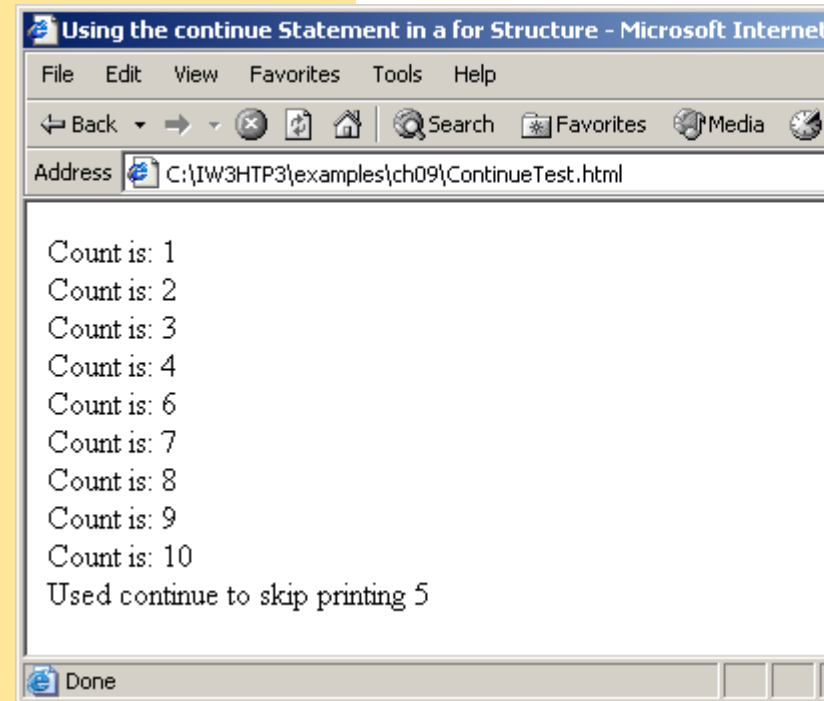
```



```

1 <?xml version = "1.0"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
3   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
4
5 <!-- Fig. 9.12: ContinueTest.html -->
6 <!-- Using the break statement -->
7
8 <html xmlns = "http://www.w3.org/1999/xhtml">
9   <head>
10     <title>
11       Using the continue Statement in a for Structure
12     </title>
13
14     <script type = "text/javascript">
15       <!--
16       for ( var count = 1; count <= 10; ++count ) {
17         if ( count == 5 )
18           continue; // skip remaining code in loop
19                     // only if count == 5
20
21         document.writeln( "Count is: " + count + "<br />" );
22       }
23
24       document.writeln( "Used continue to skip printing 5" );
25       // -->
26     </script>
27
28   </head><body></body>
29 </html>

```



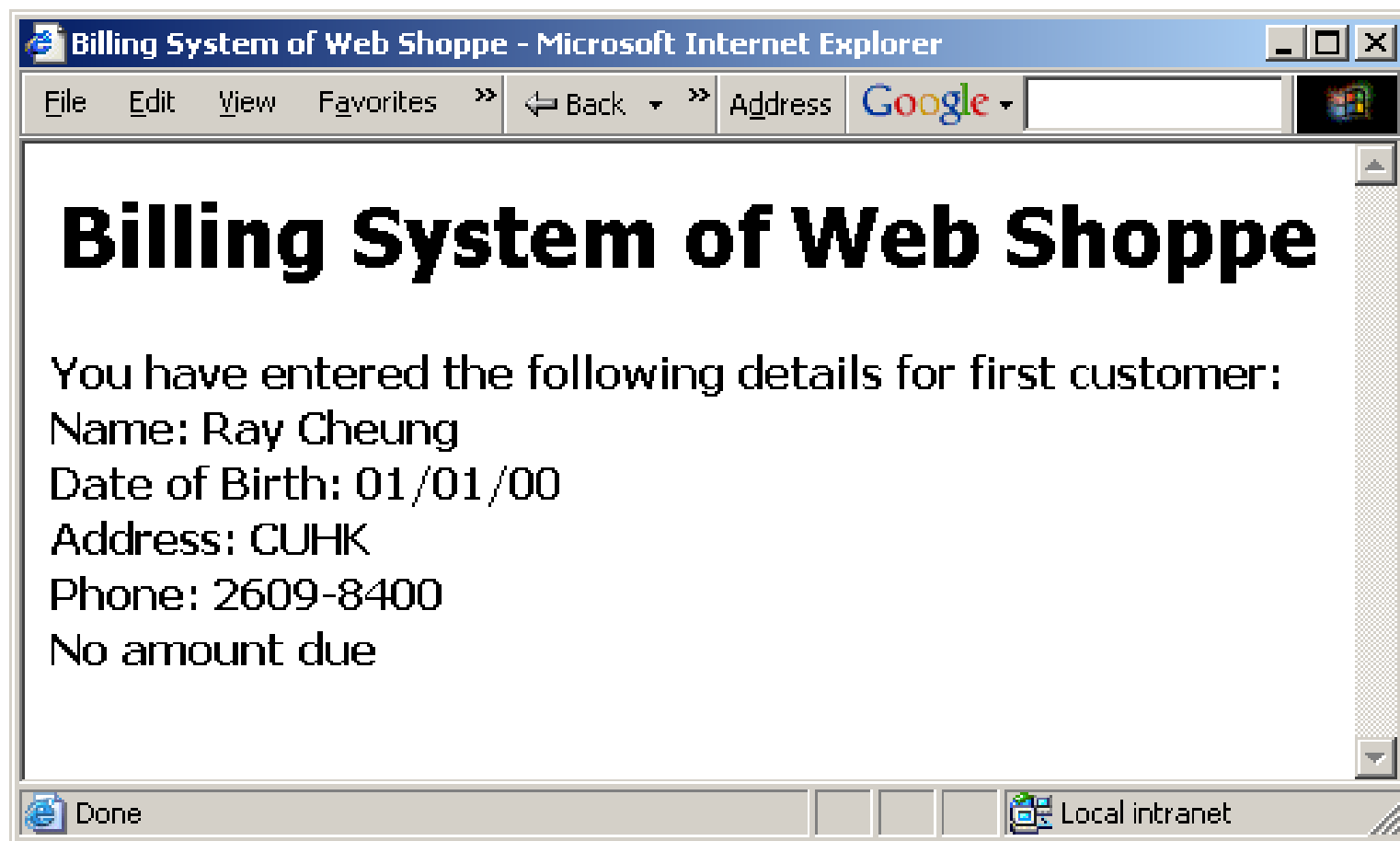
# Javascript library

- <http://javascriptlibraries.com/>

# Хувьсагч, өгөгдлийн төрлийн жишээ:

```
<html><head><title> Billing System of Web Shoppe </title></head><body>
<h1 align="center"> Billing System of Web Shoppe </h1>
<script language="JavaScript">
firstCustomer = new Array();
billDetails = new Array(firstCustomer);
var custName, custDob, custAddress, custCity, custPhone;
var custAmount, custAmountPaid, custBalAmount;
custName=prompt("Enter the first customer's name:", "");
custDob=prompt("Enter the first customer's date of birth:", "");
custAddress=prompt("Enter the first customer's address:", "");
custPhone=prompt("Enter the first customer's phone number:", "");
custAmount=prompt("Enter the total bill amount of the first customer:", "");
custAmountPaid=prompt("Enter the amount paid by the first customer:", "");
custBalAmount = custAmount - custAmountPaid;
firstCustomer[0]=custName;
firstCustomer[1]=custDob;
firstCustomer[2]=custAddress;
firstCustomer[3]=custPhone;
firstCustomer[4]=custBalAmount;
document.write("<B>" + "You have entered the following details for first customer:" + "<BR>");
document.write("Name: " + billDetails[0][0] + "<BR>");
document.write("Date of Birth: " + billDetails[0][1] + "<BR>");
document.write("Address: " + billDetails[0][2] + "<BR>");
document.write("Phone: " + billDetails[0][3] + "<BR>");
    (custBalAmount == 0) ? document.write("Amount Outstanding: " + custBalAmount):document.write("No amount due")
</script></body></html>
```

Үр дүн:



# Жишээ:

- [http://www.jsmadeeasy.com/javascripts/Math%20Related/list\\_test.asp](http://www.jsmadeeasy.com/javascripts/Math%20Related/list_test.asp)