Introduction To JavaScript

Dr. Magdi AMER

JavaScript

- Inline

  <a href="evil.html" **onclick="*JavaScript code here*">**

- Embedded

  <script type="text/javascript“><!--JavaScript code here --></script>

- Outside File

  <script type="text/javascript" src="script.js"></script>
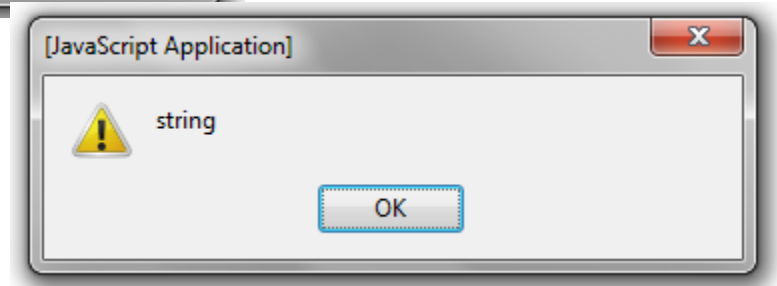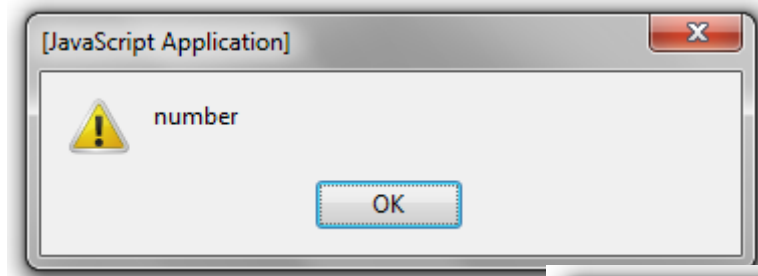
Introduction

```
<script type='text/javascript' >
var x=1;
var  X = 'Bye'; //another variable
function  f1() {}
</script>
```

- Semi-columns are separators.
- Same control structure as Java

Loosely typed variables

var t =3 ;

var x = typeof t;

alert(x);

t = "a"+ t;

x = typeof t;

alert(x);

```
[JavaScript Application]                    x

   ⚠   number

              OK
```

```
[JavaScript Application]                    x

   ⚠   string

              OK
```

You can type JavaScript code directly in console

```
🐞 🖱 < ≫ ≡  ▾  Console ▾  HTML  CSS  Script  DOM  Net                    🔍
▌⊘   Clear  Persist  Profile  All  Errors  Warnings  Info  Debug Info
>>> var t =3 ; var x = typeof t; alert(x); t = "a"+ t; x = typeof t; alert(x);
```

```
var t =3 ;
var x = typeof t;
alert(x);
t = "a"+ t;
x = typeof t;
alert(x);
```
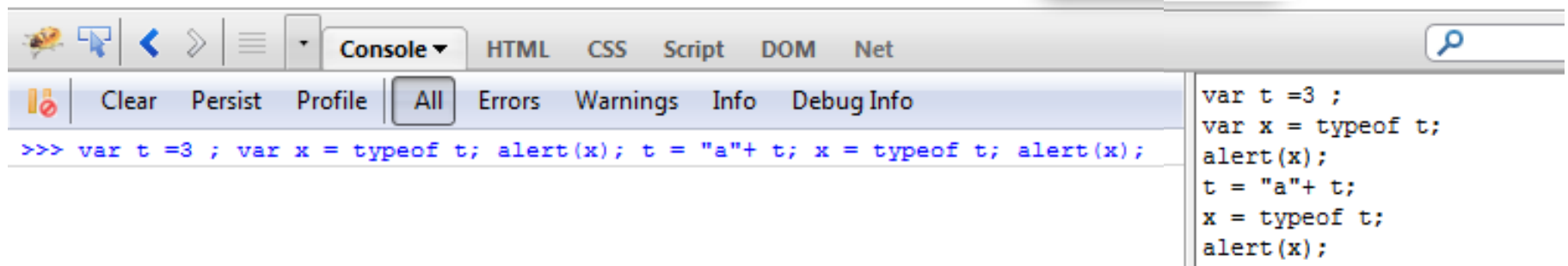
JavaScript Intro

- Variable names: alpha, numbers, &, _
- Case sensitive: m, M different variables
- Does not require to be declared, but may generate errors
- A variable that is not declared becomes a global variable
- A function that takes parameters may or may not have parameter declared.

JavaScript Intro

Using var

```html
<!DOCTYPE html>
    <html lang="en">
    <head>
      <meta charset="UTF-8">
      <title>Global Variable Example 1</title>
    </head>
    <body>
```

```html
<script type='text/javascript' >
 function count()
 {
   var stock = 5;
  var sales = 3;
   return stock - sales;
 }
 var stock = 0;
 var c = count();
 alert(stock);
</script>
</body>
</html>
```

localhost:63342 says

0

OK

JavaScript Intro

This example shows the effect of bad programming

Stock will be 5, not 0 after this code.

All variable should have been declared **var stock**

Otherwise, they are global and shared with all the other functions

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Global Variable Example 1</title>
</head>
<body>
```

```
<script type='text/javascript' >
 function count()
 {
    stock = 5;
    sales = 3;
    return stock - sales;
 }
 stock = 0;
 c = count();
 alert(stock);
</script>
</body>
</html>
```
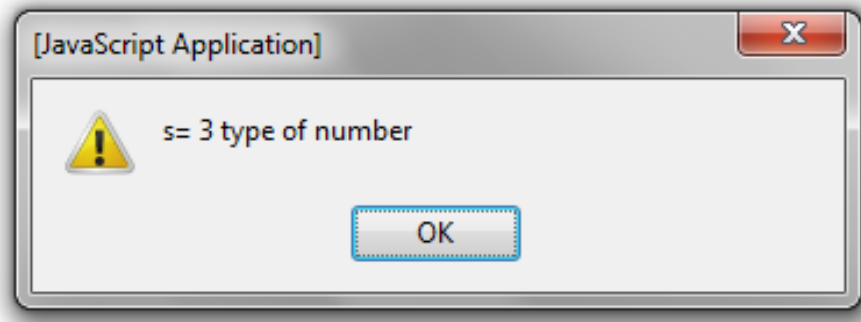
localhost:63342 says

5

OK

Loosely typed variables

```
var s = '1'; s = 3 * s;
alert("s= "+s+" type of "+(typeof s));
```

[JavaScript Application]

⚠ s= 3 type of number

OK

Primitive data types

- Number

- String

- Boolean

- Undefined

- Null

- All other variables are objects

===

=== is true if equal value and type

```
>>> 1 == 1
true
>>> 1 == 2
false
>>> 1 == '1'
true
>>> 1 === '1'
false
>>> 1 === 1
true
```

String

```
var s = 'I don't know';        ⟹   *Error*

var s = 'I don\'t know';
var s = "I don\'t know";
var s = "I don't know";
var s = '"Hello", he said.';
var s = "\"Hello\", he said.";
 var s = "1\\2";
```
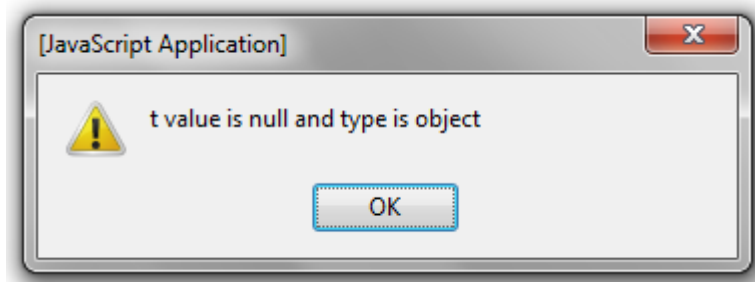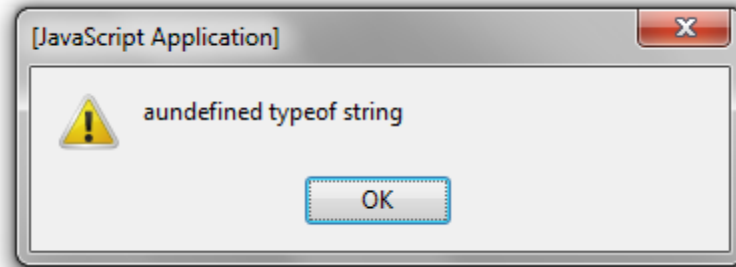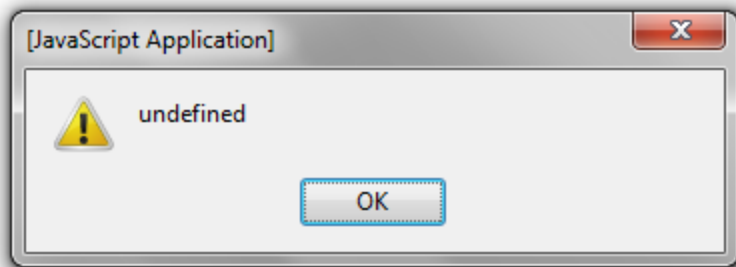
null

```
var t = null;
alert("t value is "+t+" and type is "+(typeof t));
```

[JavaScript Application]

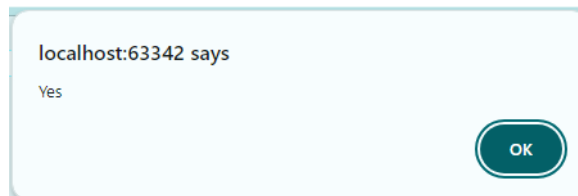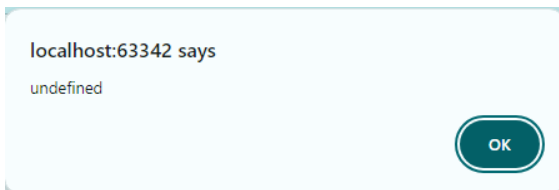⚠ t value is null and type is object

OK

undefined

```
var v1  ;
var x = typeof v1;
alert(x);
v1 = "a"+ v1;
x = typeof v1;
alert(v1+" typeof "+x);
```
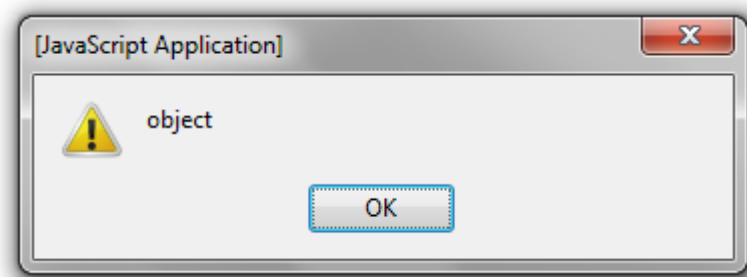

[JavaScript Application]

⚠ undefined

OK

[JavaScript Application]

⚠ aundefined typeof string

OK

```
var somevar ;
if (typeof somevar == "undefined"){alert('yes');}
else {alert('no');}
```


localhost:63342 says

undefined

OK

localhost:63342 says

Yes

OK

array

```
var a = [1,2,3];
alert(a[0]+" and length "+a.length);
alert(typeof a);
```

[JavaScript Application]

⚠ 1 and length 3

OK

[JavaScript Application]

⚠ object

OK
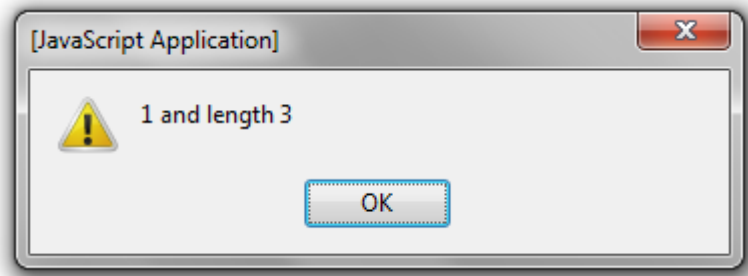
array

```javascript
var x = new Array();
for(var i=0; i<5;i++)
{
  x[i] = i;
}
var total = 0;
for(var i=0; i<x.length;i++)
{
  total = total+ x[i];
}
console.log(total);
```

Arrays as hashtable

```
var x = new Array();
x["E100"] = "Java";
x["E102"] = "OOP";
x["E103"] = "DB";

console.log(x["E100"]);
console.log(x["E102"]);
console.log(x.E103);

for (var key in x)
{
   console.log(key+" ==> "+x[key]);
}
```

```
>>> var x = new A
"+x[key]); }

Java

OOP

DB

E100 ==> Java

E102 ==> OOP

E103 ==> DB
```