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## **Software Construction and User Interface (SE/ComS 319)**

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# **JAVASCRIPT SPOTLIGHTS**

# How to add js to html file

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// how to include in html file

**<script>** your javascript code goes in here **</script>**

// can also include from a separate file

**<script src="./01\_example.js"></script>**

// can include from a remote site

**<script src="http://.../a.js"></script>**

# JavaScript Syntax

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The JavaScript syntax is similar to C# and Java

- Operators (+, \*, =, !=, &&, ++, ...)
- Variables (typeless)
- Conditional statements (if, else)
- Loops (for, while)
- Arrays (my\_array[])
- Associative arrays (my\_array['abc'])
- Functions

# Data Types

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JavaScript data types:

- Numbers (integer, floating-point)
- Boolean (true / false)

String type – string of characters

```
var myName = "You can use both single or double  
quotes for strings";
```

Arrays

```
var my_array = [1, 5.3, "aaa"];
```

Associative arrays (hash tables)

```
var my_hash = {a:2, b:3, c:"text"};
```

# String Operations

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The + operator joins strings

```
string1 = "fat ";  
string2 = "cats";  
alert(string1 + string2); // fat cats
```

What is "9" + 9?

```
alert("9" + 9); // 99
```

Converting string to number:

```
alert(parseInt("9") + 9); // 18
```

# Arrays Operations and Properties

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Declaring new empty array:

```
var arr = new Array();
```

Declaring an array holding few elements:

```
var arr = [1, 2, 3, 4, 5];
```

Appending an element / getting the last element:

```
arr.push(3);  
var element = arr.pop();
```

Reading the number of elements (array length):

```
arr.length;
```

# Everything is Object

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Every variable can be considered as object

- For example strings and arrays have member functions:

```
var test = "some string";  
alert(test.charAt(5)); // shows letter 's'  
alert("test".charAt(1)); //shows letter 'e'  
alert("test".substring(1,3)); //shows 'es'
```

```
var arr = [1,3,4];  
alert (arr.length); // shows 3  
arr.push(7); // appends 7 to end of array  
alert (arr[3]); // shows 7
```

## Sum of Numbers – Example

sum-of-numbers.html

```
<html>

<head>
  <title>JavaScript Demo</title>
  <script type="text/javascript">
    function calcSum() {
      value1 =
        parseInt(document.mainForm.textBox1.value);
      value2 =
        parseInt(document.mainForm.textBox2.value);
      sum = value1 + value2;
      document.mainForm.textBoxSum.value = sum;
    }
  </script>
</head>
```



# Switch Statement

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The switch statement works like in C# / Java:

```
switch (variable) {  
    case 1:  
        // do something  
        break;  
    case 'a':  
        // do something else  
        break;  
    case 3.14:  
        // another code  
        break;  
    default:  
        // something completely different  
}
```

# Loops

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Like in C# / Java / C++

- for loop
- while loop
- do ... while loop

```
var counter;  
for (counter=0; counter<4; counter++) {  
    alert(counter);  
}  
while (counter < 5) {  
    alert(++counter);  
}
```

# Functions

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```
function average(a, b, c)
{
    var total;
    total = a+b+c;
    return total/3;
}
```

Parameters come in here.

Declaring variables is optional. Type is never declared.

Value returned here.

# Function Arguments and Return Value

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- Functions are not required to return a value
- When calling function it is not obligatory to specify all of its arguments
  - The function has access to all the arguments passed via arguments array

```
function sum() {  
    var sum = 0;  
    for (var i = 0; i < arguments.length; i ++)  
        sum += parseInt(arguments[i]);  
    return sum;  
}  
alert(sum(1, 2, 4));
```

# Standard Popup Boxes

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- Alert box with text and [OK] button
  - Just a message shown in a dialog box:

```
alert("Some text here");
```

- Confirmation box
  - Contains text, [OK] button and [Cancel] button:

```
confirm("Are you sure?");
```

- Prompt box
  - Contains text, input field with default value:

```
prompt ("enter amount", 10);
```

# Calling a JavaScript Function from Event Handler – Example

```
<html>
<head>
<script type="text/javascript">
  function test (message) {
    alert(message);
  }
</script>
</head>

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

