

# Introduction to Javascript

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The LINGUIST List

# Overview

- Javascript != Java (but it can talk to it)
- Client-side
- It is an interpreted language but also very powerful
- Fully supports Unicode

# Basic Syntax

- Javascript is case sensitive: FOO, Foo and foo are all different identifiers
- Statements should end with a semicolon
- Whitespace and line breaks are (mostly) ignored
- Supports “C++ style” comments: `/* */`, `//`

# Literals

- Numbers can be written in decimal, octal or hexadecimal: 42, 42.0, 052, 0x2A
- Strings can be enclosed in single or double quotes: “hello”, 'hello'
- Boolean values are written as “true” or “false” (without the quotes)
- Be wary of whether you want a string or a number. “42” does not always equal 42...

# Data Types

- Strings
- Numbers
- Boolean (true/false)
- Arrays
- Objects (also called associative arrays or hashes)
- Javascript is “loosely typed”

# Variables

- Declared with the `var` keyword.
- Variables do not need to be explicitly declared, but you should always declare them to make debugging easier
- Variables can have global or function scope depending on where they are declared
- Variables that are not explicitly declared are assumed to be global

# Variable Scope Example

```
var x = 42;
var y = "pigmeat";

function scopey() {
    var y = "meatpig";

    x = 23;

    alert("in scopey, x = " + x + ", y = " + y);
}

scopey();
alert("outside scopey, x = " + x + ", y = " + y);
```

# Arrays

- An array is a variable that can hold a list of values, instead of a single value. Each value is called an **element** of the array. Elements are numbered starting with zero
- Arrays are declared and accessed using square brackets:

```
var a = [ 4, 8, 15, 16, 23, 42 ];
```

```
alert("the value of element 2 is " + a[2]);
```

# Objects

- An object is a collection of **properties**. Each property has a name and a value.
- You can think of an object as an array where the elements are named instead of numbered (though this not entirely accurate).
- Objects can also have **methods**, but that's an entire tutorial by itself.

# Objects

- Objects are declared using the `{}` syntax, and can be accessed using the `.` operator or `[]`:

```
var person = { name: 'John Doe', age: 35 };  
  
if (person.age > 18) {  
    alert(person["name"] + " is an adult");  
}
```

# Operators

- Basic algebraic operations: +, -, \*, /
- String concatenation: +
- Equality testing: ==, !=, <, >, <=, >=
- Assignment: =
- Be careful not to mix up = and ==
- Operator precedence is basically the same as algebra:  $4+5*6 = 34$ , not 54
- Use parenthesis to avoid ambiguity:  $4+(5*6)$

# Functions

- Functions are declared using the `function` keyword:

```
function sayHello(name) {  
    alert("Hello, " + name + "!");  
}
```

```
sayHello("Bob");  
sayHello("Jane");
```

# Flow Control

- Javascript flow control is very similar to C-based languages such as C/C++, Java, Perl and PHP
- Basic constructs: if-else, for, while

# Flow control examples

```
if (age < 21) {  
    alert("no beer for you!");  
}  
else {  
    alert("here, have some  
beer!");  
}
```

```
for (var i = 0 ; i < 10 ; i++) {  
    a[i] = i*10;  
}
```

```
while (i >= 0) {  
    alert("i = " + i);  
  
    i--;  
}
```

# Future Tutorials

- The Document Object Model (DOM)
- Form Validation
- Objects & Methods