

# Javascript

## CS 360 Internet Programming

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# Why Javascript?

- web database applications provide dynamic server-side content
- Javascript provides dynamic client-side content
  - more responsive web user interface
  - avoid latency of talking to server
  - dynamically change HTML being displayed by browser

# Features

- interpreted
- dynamic typing (delays binding of types until they are used)
- first-class functions (can take functions as arguments and return functions)
- prototypes (objects based on prototypes instead of inheritance)

See: <http://www.ibm.com/developerworks/java/library/j-cb12196/>

# Examples

```
1 alert("Hello world!");
```

# Examples

---

```
1 function factorial(n) {  
2   if (n === 0) {  
3     return 1;  
4   }  
5   return n * factorial(n - 1);  
6 }
```

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# Examples

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```
1 function displayClosure() {  
2     var count = 0;  
3     return function () {  
4         return ++count;  
5     };  
6 }  
7 var inc = displayClosure();  
8 inc(); // returns 1  
9 inc(); // returns 2  
10 inc(); // returns 3
```

---

# Examples

```
1 <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN"
2 "http://www.w3.org/TR/html4/strict.dtd">
3 <html>
4   <head><title>simple page</title></head>
5   <body>
6     <h1 id="header">This is JavaScript</h1>
7     <script type="text/javascript">
8       document.write('Hello World!');
9       // holds a reference to the <h1> tag
10      var h1 = document.getElementById("header");
11      // accessing the same <h1> element
12      h1 = document.getElementsByTagName("h1")[0];
13    </script>
14    <noscript>
15      Your browser either does not support JavaScript,
16      or has JavaScript turned off.
17    </noscript>
18  </body>
19 </html>
```

# Javascript vs Java

- JavaScript has no relationship to Java
- Javascript cannot draw, is not multi-threaded, cannot use network or other I/O
- Javascript is becoming what Java meant to be
  - lightweight, downloadable program that runs in browser and is compatible across many platforms
  - does much of what Java applets do, with a fraction of the resources



# Variables

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```
1 // local variable
2 var x = 12;
3 // global variable
4 y = 12;
```

---

# Operators

- comparison

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```
1 >
2 <
3 >=
4 <=
5 !=
6 ==
7 !
8 ||
9 &&
```

---

# Operators

- assignment

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1	+
2	-
3	*
4	/
5	%
6	=
7	+=
8	-=
9	++
10	--

---

# Control

---

```
1  if ( boolean statement ) {  
2    ...  
3  } else {  
4  }
```

---

# Control

---

```
1  switch (variable) {  
2      case 1:  
3      case 2:  
4      case default:  
5  }
```

---

# Control

---

```
1 while (boolean condition)
2 {
3   ...
4 }
5
6 do
7 {
8   ...
9 }
10 while (boolean condition);
```

---

# Functions

---

```
1 function add(a,b) {  
2   return a + b;  
3 }  
4  
5 a(5,3);
```

---

# Objects

---

```
1 function Person(name,age) {  
2     this.name = name;  
3     this.age = age;  
4 }  
5  
6 var p = new Person('Annie',23);  
7 document.write('Name: ' + p.name);
```

---



# Functions

---

```
1  function show() {  
2      document.write('Name: ' + this.name);  
3  }  
4  
5  function Person(name,age) {  
6      this.name = name;  
7      this.age = age;  
8      this.show = show();  
9  }  
10  
11  var p = new Person('Annie',23);  
12  p.show();
```

---

# Functions

---

```
1 function Person(name,age) {  
2     this.name = name;  
3     this.age = age;  
4     this.show = function () { document.write('Name: ' + this.name); }  
5 }  
6  
7 var p = new Person('Annie',23);  
8 p.show();
```

---

# window

---

```
1 window.location.href
2 window.location.hostname
3
4 window.history.length
5 window.history.back()
```

---

# document

---

```
1 document.getElementById("header");  
2 document.getElementsByTagName("h1");
```

---

# Event Handlers

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```
1 <input type="button" onclick="javascript:doButton()">
2 <select onChange="javascript:doChange()">
3 <a onClick="javascript:activate()">
4 <form onSubmit="javascript:validate()">
5 <body onLoad="javascript:init()">
```

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