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# JavaScript

JavaScript in Browsers: a Very Brief Intro

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## A Simple Example of Embedded JavaScript

```
<p>
  <script>
    var today = new Date();
    document.write("Current date: ");
    document.write(today.toDateString());
  </script>
</p>
<p>
  <script>
    var today = new Date();
    document.write("&copy; &nbsp;");
    document.write(today.getFullYear());
    document.write(", San Joaquin Valley Town Hall")
  </script>
</p>
```

The  
Output

Current date: Thu Jan 08 2015

© 2015, San Joaquin Valley Town Hall

# Some JavaScript Embedded in an HTML Page

```
<head>
  ...
  <script>
    var $ = function (id) {
      return document.getElementById(id);
    }
    window.onload = function() {
      var today = new Date();
      $("date").firstChild.nodeValue =
        "Current date: " + today.toDateString();
    }
  </script>
</head>
```

JavaScript  
can also be  
embedded  
in the body

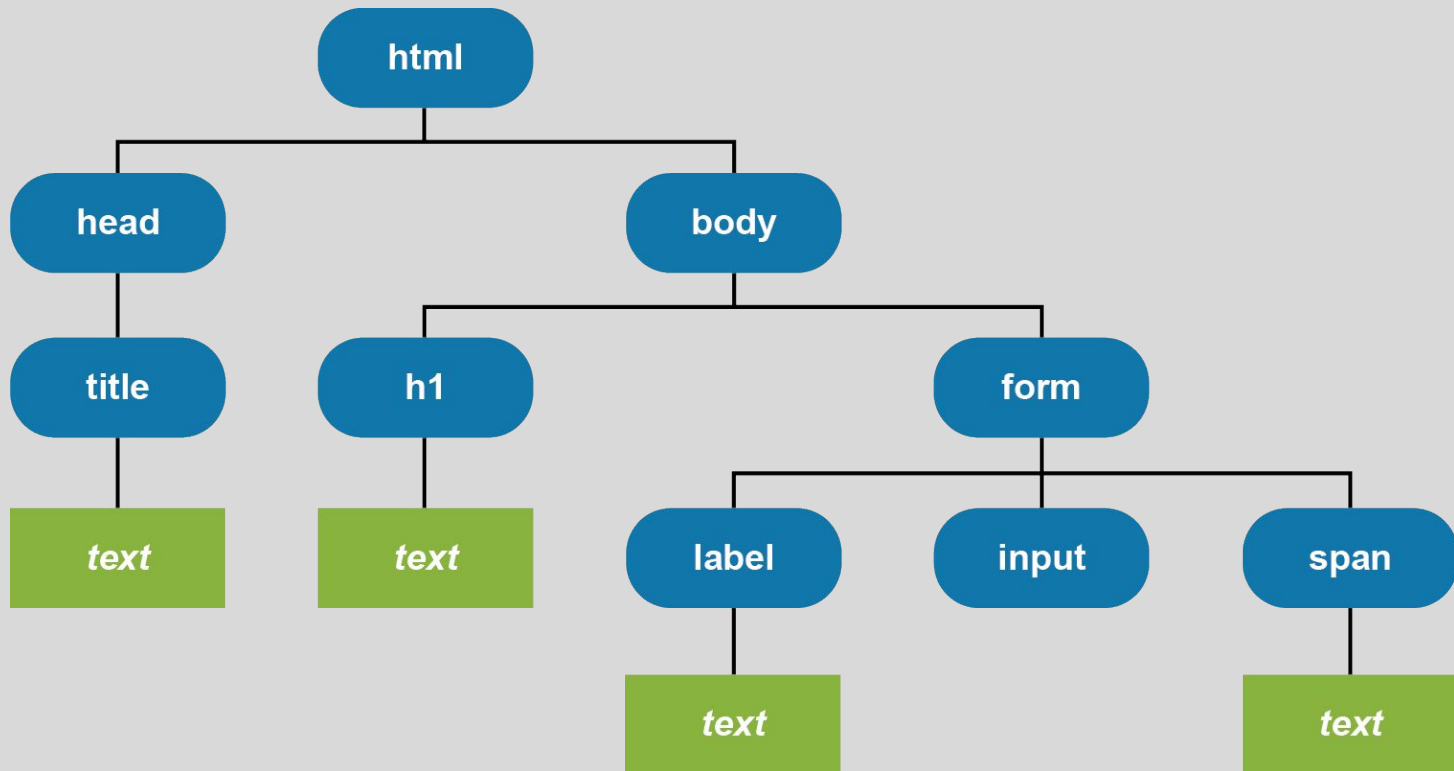
## Using an External JavaScript File

```
<script src="set_date.js"></script>
```

# JavaScript in a Full Web Page Using a Form

```
<!DOCTYPE html>
<html>
<head>
  <title>Join Email List</title>
</head>
<body>
  <h1>Please join our email list</h1>
  <form id="email_form" name="email_form"
    action="join.html" method="get">
    <label for="email_address">Email Address:</label>
    <input type="text" id="email_address">
    <span id="email_error">*</span>
  </form>
</body>
</html>
```

# The DOM for the web page



## DOM nodes commonly used in DOM scripting

- Element
- Attr
- Text

## Two methods of the document object

- `getElementById(id)`
- `write(string)`

## Examples of document methods

```
// returns the object for the HTML element
var rateBox = document.getElementById("rate");

// writes a string into the document
document.write("Today is " + today.toDateString());
```

## Three properties for scripting the DOM

- value
- firstChild
- nodeValue

# A page that uses a JavaScript button for printing

Print the Page

## *Murach's JavaScript and jQuery*

### **Section 1     A subset of JavaScript for jQuery programmers**

Chapter 1	Introduction to web development	3
Chapter 2	A starting subset of JavaScript	43
Chapter 3	How to work with objects, functions, and events	89

## The JavaScript in an external file named printPage.js

```
var $ = function (id) {  
    // this function returns the object for the HTML element  
    return document.getElementById(id);  
}  
var printPage = function() {  
    // the event handler for the click event of the button  
    window.print();  
}  
window.onload = function() {  
    // the event handler for the onload event  
    $("#printButton").onclick = printPage;  
}
```

## HTML that includes the file in the head section

```
<script src="printPage.js"></script>
```

## HTML for the button in the body section

```
<input type="button" id="printButton" value="Print the Page">
```



# Event Handlers

JavaScript can respond to events: pieces of code that responds to events are called *event handlers*

Common events: loading a web page, clicking a button or html element

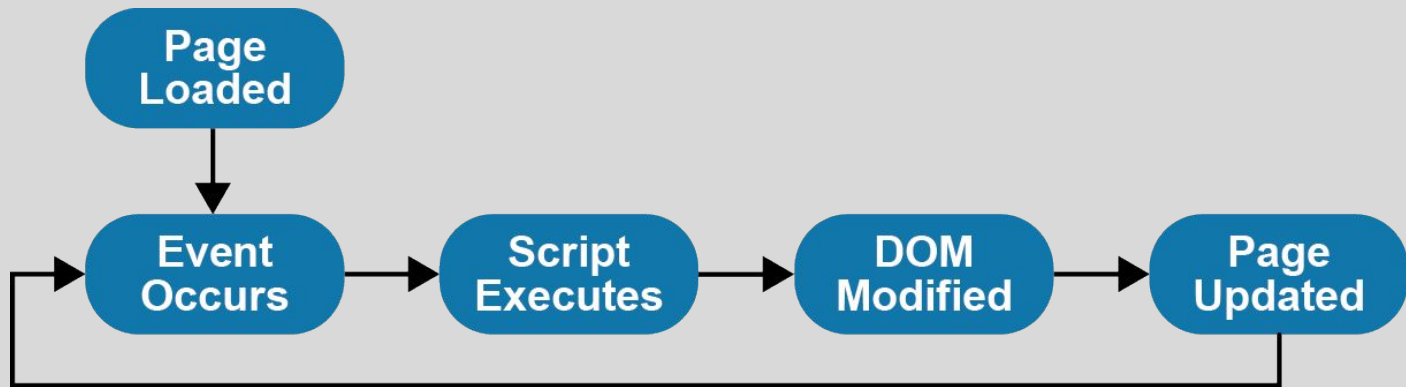
```
<!DOCTYPE html>
<html>
<body>

<h1 onclick="changeText(this)">Click on this text!</h1>

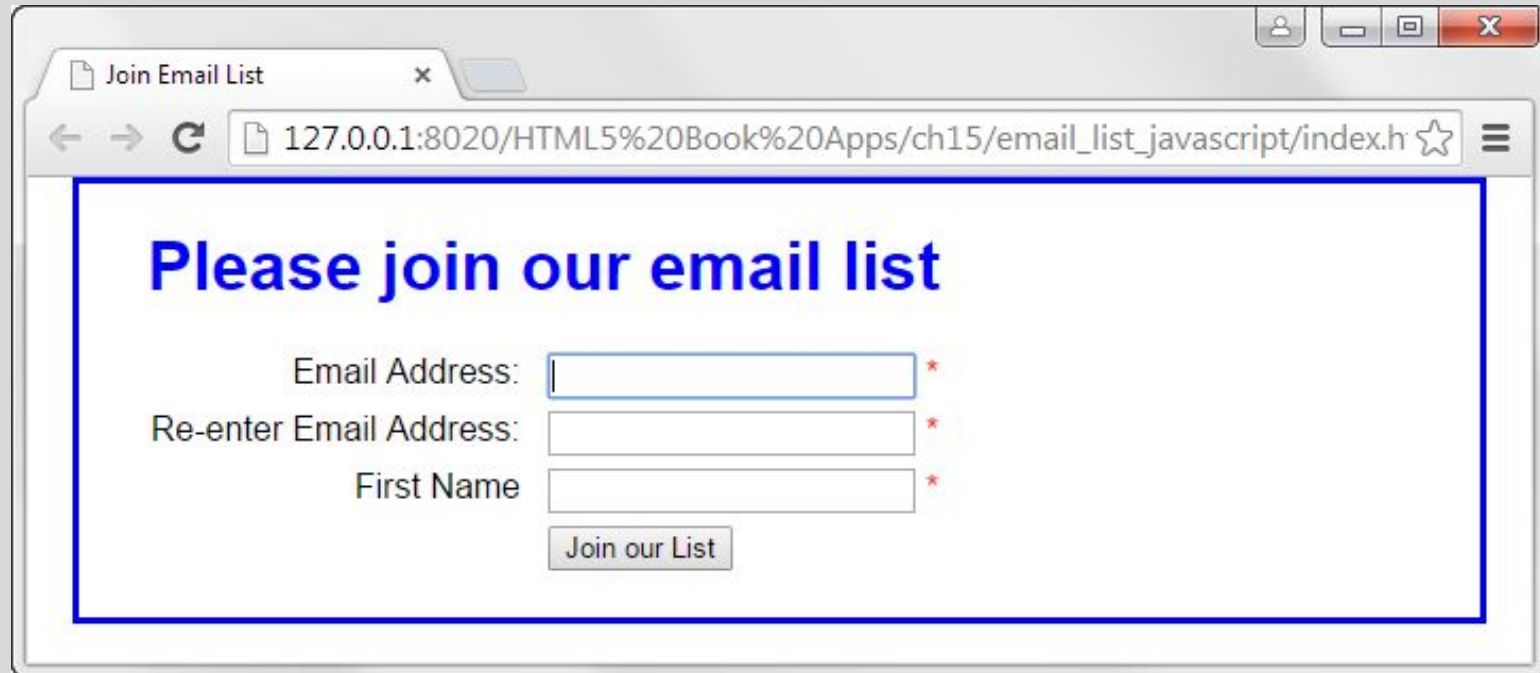
<script>
function changeText(id) {
    id.innerHTML = "Ooops!";
}
</script>

</body>
</html>
```

# The Event Cycle



# Code Example: JavaScript Error Checking with a Form



The screenshot shows a web browser window with a single tab titled "Join Email List". The address bar displays the URL "127.0.0.1:8020/HTML5%20Book%20Apps/ch15/email\_list\_javascript/index.h". The main content area features a blue border and the heading "Please join our email list". Below the heading are three input fields, each with a red asterisk to its right, indicating required fields. The first field is labeled "Email Address:", the second is labeled "Re-enter Email Address:", and the third is labeled "First Name". A "Join our List" button is positioned below the "First Name" field.

**Please join our email list**

Email Address:  \*

Re-enter Email Address:  \*

First Name  \*

## The code for the HTML file

```
<!DOCTYPE html>
<html>
<head>
  <meta charset="UTF-8">
  <title>Join Email List</title>
  <link rel="stylesheet" href="email_list.css">
  <script src="email_list.js"></script>
</head>
<body>
  <main>
    <h1>Please join our email list</h1>
    <form id="email_form" name="email_form"
      action="join.html" method="get">
      <label for="email_address1">
        Email Address:</label>
      <input type="text" id="email_address1"
        name="email_address1">
      <span id="email_address1_error">*</span><br>
```

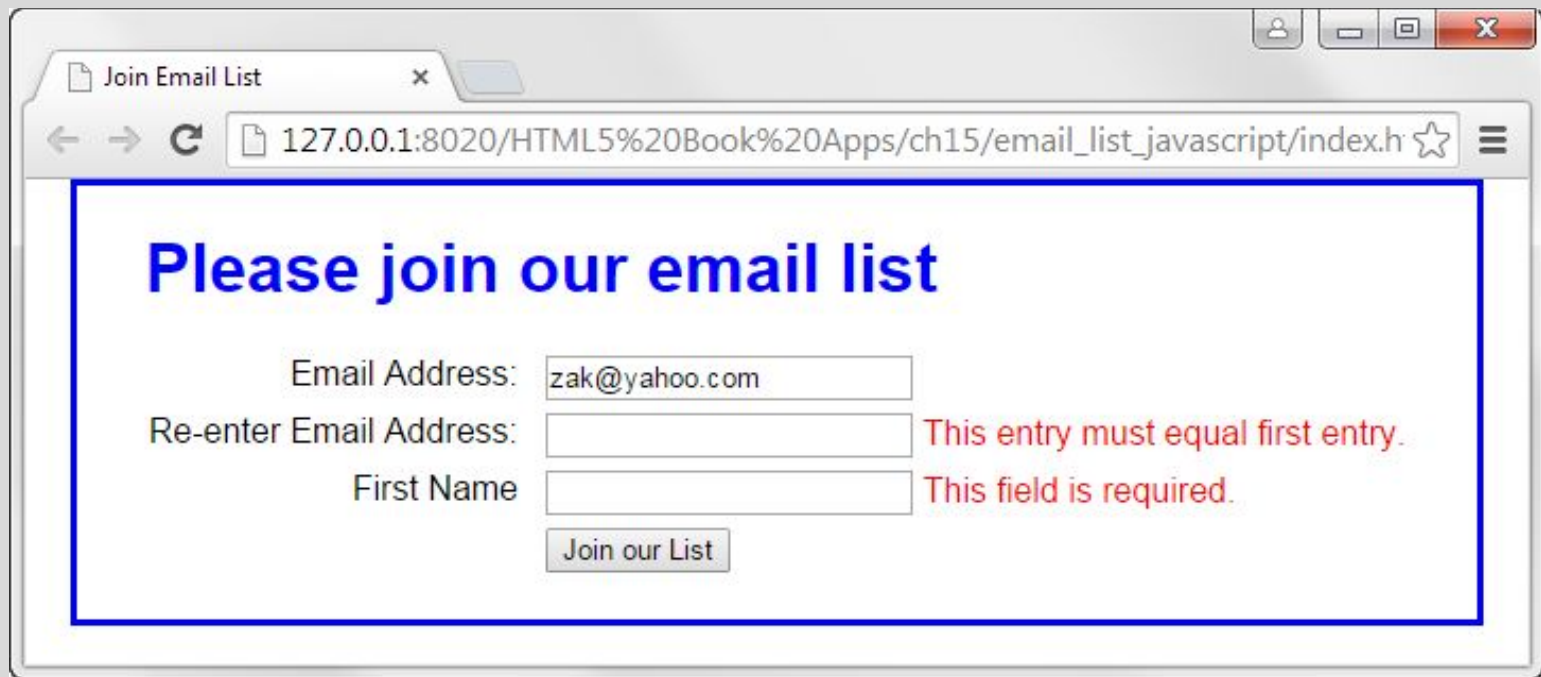
## The code for the HTML file (cont.)

```
<label for="email_address2">
    Re-enter Email Address:</label>
<input type="text" id="email_address2"
        name="email_address2">
<span id="email_address2_error">*</span><br>
```

```
<label for="first_name">First Name</label>
<input type="text" id="first_name"
        name="first_name">
<span id="first_name_error">*</span><br>
```

```
<label>&nbsp;</label>
<input type="button" id="join_list"
        value="Join our List">
    </form>
</main>
</body>
</html>
```

# What Happens When No Input Is Entered



The screenshot shows a web browser window with the title 'Join Email List'. The address bar displays the URL '127.0.0.1:8020/HTML5%20Book%20Apps/ch15/email\_list\_javascript/index.h'. The main content area is titled 'Please join our email list' in blue text. Below the title, there are three input fields: 'Email Address' (containing 'zak@yahoo.com'), 'Re-enter Email Address' (empty), and 'First Name' (empty). To the right of the 'Re-enter Email Address' field, there is a red error message: 'This entry must equal first entry.' To the right of the 'First Name' field, there is a red error message: 'This field is required.' Below the input fields is a button labeled 'Join our List'.

**Please join our email list**

Email Address:

Re-enter Email Address:  This entry must equal first entry.

First Name  This field is required.

We'll use JavaScript to implement this behavior

# The JavaScript Code for the Email Form

```
var $ = function (id) {  
    return document.getElementById(id);  
}  
var joinList = function () {  
    var emailAddress1 = $("email_address1").value;  
    var emailAddress2 = $("email_address2").value;  
    var isValid = true;  
  
    if (emailAddress1 == "") {  
        $("email_address1_error").firstChild.nodeValue =  
            "This field is required.";  
        isValid = false;  
    }  
    else { $("email_address1_error").firstChild.nodeValue = ""; }  
}
```

```
if (emailAddress1 !== emailAddress2) {  
    $("email_address2_error").firstChild.nodeValue =  
        "This entry must equal first entry.";   
    isValid = false;  
}  
else { $("email_address2_error").firstChild.nodeValue = ""; }
```

```
if ($("#first_name").value == "") {  
    $("first_name_error").firstChild.nodeValue =  
        "This field is required.";   
    isValid = false;  
}  
else { $("first_name_error").firstChild.nodeValue = ""; }
```

```
    if (isValid) {  
        // submit the form if all entries are valid  
        $("email_form").submit();  
    }  
}  
window.onload = function () {  
    $("join_list").onclick = joinList;  
}
```