



Introduction to jQuery

SENG 4640
Software Engineering for Web Apps
Winter 2023

Sina Keshvadi
Thompson Rivers University

Review

- Previously we've seen how to use JavaScript, the DOM, and event-driven programming to modify HTML based on user activity
- However...
 - different browsers may work in different manners
 - the syntax can be a bit clunky
 - many features are hard to implement
- Is there an easier way?

jQuery

- Simplifies JavaScript usage on webapps
- More intuitive way of DOM manipulation
- Great cross-browser support (Except IE6)
- Additional Utilities
- Effects and Animations
- Customizable plugins

Using jQuery

- Download the latest version of jQuery from jquery.com
- Add the downloaded .js file to your HTML webpage using a script tag

- `<script src="jQueryFile.js"></script>`

- Or add this line to head

```
<script src="https://code.jquery.com/jquery-3.5.0.js"></script>
```

or

```
<script src="https://code.jquery.com/jquery-3.6.3.min.js"></script>
```

visit Google's Hosted Libraries for a list of available jQuery libs:

<https://developers.google.com/speed/libraries#jquery>

Selecting DOM Elements

- In jQuery, `$` is used to select DOM elements for manipulation, along with basic CSS element syntax

Selecting DOM Elements

- In jQuery, `$` is used to select DOM elements for manipulation, along with basic CSS element syntax
 - `$("*")` **selects all elements**

Selecting DOM Elements

- In jQuery, `$` is used to select DOM elements for manipulation, along with basic CSS element syntax
 - `$("* ")` selects all elements
 - **`$(this)` selects the current element**

Selecting DOM Elements

- In jQuery, `$` is used to select DOM elements for manipulation, along with basic CSS element syntax
 - `$("*")` selects all elements
 - `$(this)` selects the current element
 - **`$("div")` selects all `<div>` elements**

Selecting DOM Elements

- In jQuery, `$` is used to select DOM elements for manipulation, along with basic CSS element syntax
 - `$("*")` selects all elements
 - `$(this)` selects the current element
 - `$("div")` selects all `<div>` elements
 - **`$(".title")` selects all elements with `class="title"`**

Selecting DOM Elements

- In jQuery, `$` is used to select DOM elements for manipulation, along with basic CSS element syntax
 - `$("*")` selects all elements
 - `$(this)` selects the current element
 - `$("div")` selects all `<div>` elements
 - `$(".title")` selects all elements with `class="title"`
 - **`$("#name")` selects the element with `id="name"`**

jQuery DOM Manipulation

- To manipulate DOM contents, the general format is
 `$\$(selector).action(arguments...)$`

jQuery DOM Manipulation

- To manipulate DOM contents, the general format is `$(selector) .action(arguments...)`

```
$("#name").html("Hello");
```

jQuery DOM Manipulation

- To manipulate DOM contents, the general format is `$(selector).action(arguments...)`

```
$("#name").html("Hello");
```

jQuery DOM Manipulation

- To manipulate DOM contents, the general format is `$(selector).action(arguments...)`

```
$("#name").html("Hello");
```

jQuery DOM Manipulation

- To manipulate DOM contents, the general format is `$(selector).action(arguments...)`

```
$("#name").html("Hello");
```

jQuery DOM Manipulation

- To manipulate DOM contents, the general format is `$(selector).action(arguments...)`

```
$("#name").html("Hello");
```


jQuery DOM Manipulation

- To manipulate DOM contents, the general format is `$(selector) .action(arguments...)`

```
$("#name").html("Hello");  
$("#name").append(" World!");
```

jQuery DOM Manipulation

- To manipulate DOM contents, the general format is `$(selector).action(arguments...)`

```
$("#name").html("Hello");  
$("#name").append(" World!");  
$("#name").addClass("greeting");
```

jQuery DOM Manipulation

- To manipulate DOM contents, the general format is `$(selector).action(arguments...)`

```
$("#name").html("Hello");  
$("#name").append(" World!");  
$("#name").addClass("greeting");  
$("#name").hide();
```

jQuery DOM Manipulation

- To manipulate DOM contents, the general format is `$(selector).action(arguments...)`

```
$("#name").html("Hello");  
$("#name").append(" World!");  
$("#name").addClass("greeting");  
$("#name").hide();  
$("#name").show();
```

jQuery DOM Manipulation

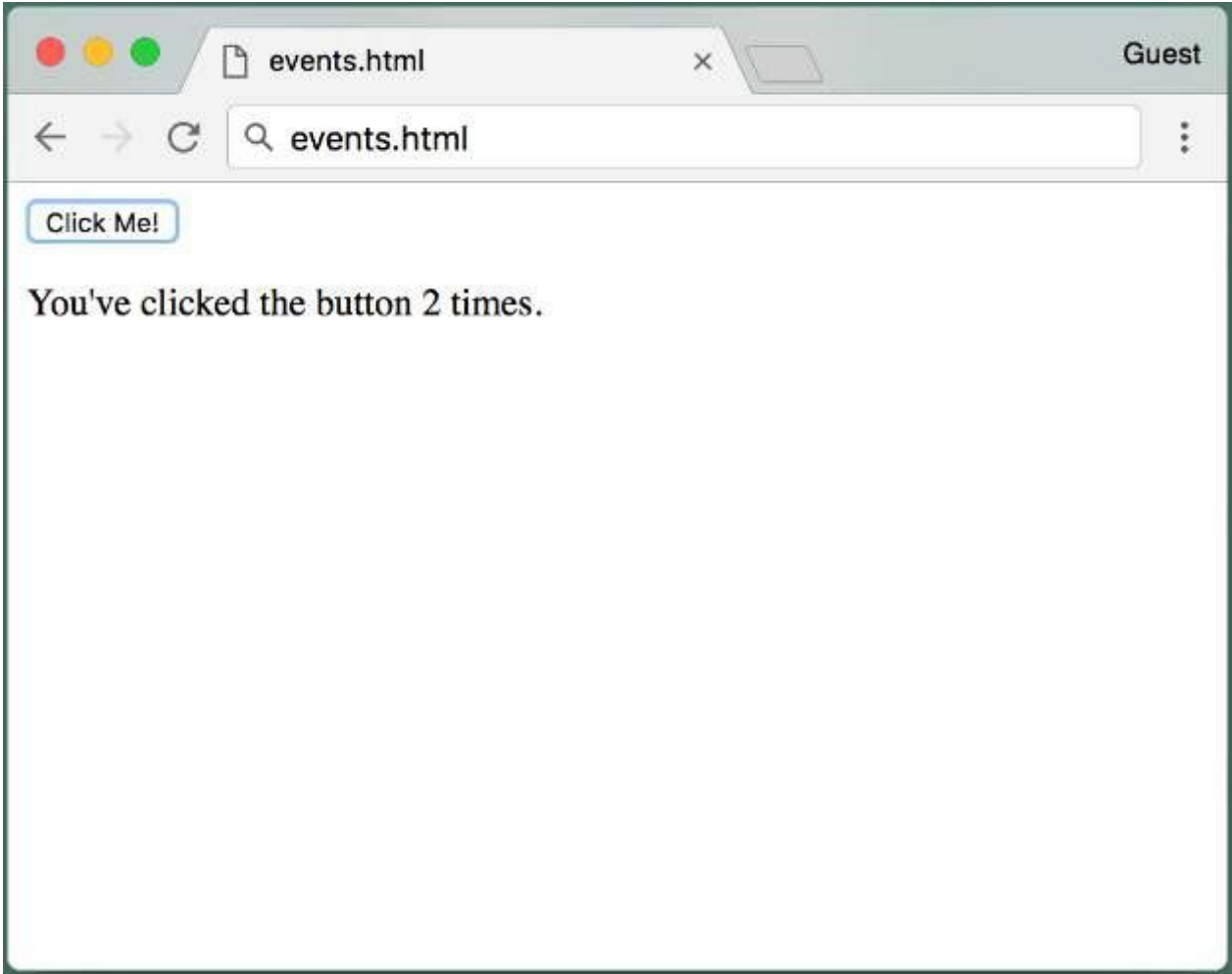
- To manipulate DOM contents, the general format is `$(selector).action(arguments...)`

```
$("#name").html("Hello");  
$("#name").append(" World!");  
$("#name").addClass("greeting");  
$("#name").hide();  
$("#name").show();
```

- To add an event listener to an element, the general format is `$(selector).event(callback)`

jQuery

Example - Click Counter



```
<html>
<head><script src="https://code.jquery.com/jquery-3.5.0.js"></script></head>
<body>
<button id="clickMe">Click Me!</button>
<p>
You've clicked the button <span id="numClicks">0 times</span>.

<script>
var clicks = 0;

function clickHandler() {
    clicks++;
    var numClicksSpan = document.getElementById('numClicks');
    if (clicks == 1)
        numClicksSpan.innerHTML = 'once';
    else
        numClicksSpan.innerHTML = clicks + ' times';
}

var button = document.getElementById('clickMe');
button.addEventListener('click', clickHandler);

</script>

</body>
</html>
```



```
<html>
<head><script src="jquery.js"></script></head>
<body>
<button id="clickMe">Click Me!</button>
<p>
You've clicked the button <span id="numClicks">0 times</span>.

<script>
var clicks = 0;

function clickHandler() {
    clicks++;
    var numClicksSpan = document.getElementById('numClicks');
    if (clicks == 1)
        numClicksSpan.innerHTML = 'once';
    else
        numClicksSpan.innerHTML = clicks + ' times';
}

var button = document.getElementById('clickMe');
button.addEventListener('click', clickHandler);

</script>

</body>
</html>
```

```
<html>
<head><script src="jquery.js"></script></head>
<body>
<button id="clickMe">Click Me!</button>
<p>
You've clicked the button <span id="numClicks">0 times</span>.

<script>
var clicks = 0;

function clickHandler() {
    clicks++;
    var numClicksSpan = document.getElementById('numClicks');
    if (clicks == 1)
        numClicksSpan.innerHTML = 'once';
    else
        numClicksSpan.innerHTML = clicks + ' times';
}

var button = document.getElementById('clickMe');
button.addEventListener('click', clickHandler);

</script>

</body>
</html>
```

```
<html>
<head><script src="jquery.js"></script></head>
<body>
<button id="clickMe">Click Me!</button>
<p>
You've clicked the button <span id="numClicks">0 times</span>.
```

```
<script>
var clicks = 0;

function clickHandler() {
  clicks++;
  var numClicksSpan = document.getElementById('numClicks');
  if (clicks == 1)
    numClicksSpan.innerHTML = 'once';
  else
    numClicksSpan.innerHTML = clicks + ' times';
}
```

```
var button = document.getElementById('clickMe');
button.addEventListener('click', clickHandler);
```

```
</script>
```

```
</body>
```

```
</html>
```

```
<html>
<head><script src="jquery.js"></script></head>
<body>
<button id="clickMe">Click Me!</button>
<p>
You've clicked the button <span id="numClicks">0 times</span>.

<script>
var clicks = 0;

function clickHandler() {
    clicks++;
    var numClicksSpan = document.getElementById('numClicks');
    if (clicks == 1)
        numClicksSpan.innerHTML = 'once';
    else
        numClicksSpan.innerHTML = clicks + ' times';
}

var button = document.getElementById('clickMe');
button.addEventListener('click', clickHandler);

</script>

</body>
</html>
```

```
<html>
<head><script src="jquery.js"></script></head>
<body>
<button id="clickMe">Click Me!</button>
<p>
You've clicked the button <span id="numClicks">0 times</span>.

<script>
var clicks = 0;

function clickHandler() {
  clicks++;
  var numClicksSpan = document.getElementById('numClicks');
  if (clicks == 1)
    numClicksSpan.innerHTML = 'once';
  else
    numClicksSpan.innerHTML = clicks + ' times';
}

var button = document.getElementById('clickMe');
button.addEventListener('click', clickHandler);

</script>

</body>
</html>
```

```
<html>
<head><script src="jquery.js"></script></head>
<body>
<button id="clickMe">Click Me!</button>
<p>
You've clicked the button <span id="numClicks">0 times</span>.
```

```
<script>
var clicks = 0;

function clickHandler() {
  clicks++;
  var numClicksSpan = $('#numClicks');
  if (clicks == 1)
    numClicksSpan.innerHTML = 'once';
  else
    numClicksSpan.innerHTML = clicks + ' times';
}
```

```
var button = document.getElementById('clickMe');
button.addEventListener('click', clickHandler);
```

```
</script>
```

```
</body>
```

```
</html>
```

```
<html>
<head><script src="jquery.js"></script></head>
<body>
<button id="clickMe">Click Me!</button>
<p>
You've clicked the button <span id="numClicks">0 times</span>.
```

```
<script>
var clicks = 0;

function clickHandler() {
  clicks++;
  var numClicksSpan = $('#numClicks');
  if (clicks == 1)
    numClicksSpan.innerHTML = 'once';
  else
    numClicksSpan.innerHTML = clicks + ' times';
}
```

```
var button = document.getElementById('clickMe');
button.addEventListener('click', clickHandler);
```

```
</script>
```

```
</body>
```

```
</html>
```

```
<html>
<head><script src="jquery.js"></script></head>
<body>
<button id="clickMe">Click Me!</button>
<p>
You've clicked the button <span id="numClicks">0 times</span>.
```

```
<script>
var clicks = 0;

function clickHandler() {
  clicks++;
  var numClicksSpan = $('#numClicks');
  if (clicks == 1)
    numClicksSpan.html('once');
  else
    numClicksSpan.html(clicks + ' times');
}

var button = document.getElementById('clickMe');
button.addEventListener('click', clickHandler);

</script>

</body>
</html>
```



```
<html>
<head><script src="jquery.js"></script></head>
<body>
<button id="clickMe">Click Me!</button>
<p>
You've clicked the button <span id="numClicks">0 times</span>.
```

```
<script>
var clicks = 0;

function clickHandler() {
  clicks++;
  var numClicksSpan = $('#numClicks');
  if (clicks == 1)
    numClicksSpan.html('once');
  else
    numClicksSpan.html(clicks + ' times');
}
```

```
var button = document.getElementById('clickMe');
button.addEventListener('click', clickHandler);
```

```
</script>
```

```
</body>
```

```
</html>
```

```
<html>
<head><script src="jquery.js"></script></head>
<body>
<button id="clickMe">Click Me!</button>
<p>
You've clicked the button <span id="numClicks">0 times</span>.

<script>
var clicks = 0;

function clickHandler() {
    clicks++;
    var numClicksSpan = $('#numClicks');
    if (clicks == 1)
        numClicksSpan.html('once');
    else
        numClicksSpan.html(clicks + ' times');
}

var button = $('#clickMe');
button.addEventListener('click', clickHandler);

</script>

</body>
</html>
```

```
<html>
<head><script src="jquery.js"></script></head>
<body>
<button id="clickMe">Click Me!</button>
<p>
You've clicked the button <span id="numClicks">0 times</span>.
```

```
<script>
var clicks = 0;

function clickHandler() {
    clicks++;
    var numClicksSpan = $('#numClicks');
    if (clicks == 1)
        numClicksSpan.html('once');
    else
        numClicksSpan.html(clicks + ' times');
}

var button = $('#clickMe');
button.addEventListener('click', clickHandler);

</script>

</body>
</html>
```

```
<html>
<head><script src="jquery.js"></script></head>
<body>
<button id="clickMe">Click Me!</button>
<p>
You've clicked the button <span id="numClicks">0 times</span>.

<script>
var clicks = 0;

function clickHandler() {
    clicks++;
    var numClicksSpan = $('#numClicks');
    if (clicks == 1)
        numClicksSpan.html('once');
    else
        numClicksSpan.html(clicks + ' times');
}

var button = $('#clickMe');
button.click(clickHandler);

</script>

</body>
</html>
```

```
<html>
<head><script src="jquery.js"></script></head>
<body>
<button id="clickMe">Click Me!</button>
<p>
You've clicked the button <span id="numClicks">0 times</span>.
```

```
<script>
var clicks = 0;

function clickHandler() {
    clicks++;
    var numClicksSpan = $('#numClicks');
    if (clicks == 1)
        numClicksSpan.html('once');
    else
        numClicksSpan.html(clicks + ' times');
}
```

```
$('#clickMe').click(clickHandler);
```

```
</script>
```

```
</body>
```

```
</html>
```

Elements Console Sources Network Performance Memory Application Security Lighthouse

Page >> jquery-3.5.0.js x

```
1  /*!
2  * jQuery JavaScript Library v3.5.0
3  * https://jquery.com/
4  *
5  * Includes Sizzle.js
6  * https://sizzlejs.com/
7  *
8  * Copyright JS Foundation and other contributors
9  * Released under the MIT license
10 * https://jquery.org/license
11 *
12 * Date: 2020-04-10T15:07Z
13 */
14 ( function( global, factory ) {
15
16     "use strict";
17
18     if ( typeof module === "object" && typeof module.exports === "object" ) {
19
20         // For CommonJS and CommonJS-like environments where a proper `window`
21         // is present, execute the factory and get jQuery.
22         // For environments that do not have a `window` with a `document`
23         // (such as Node.js), expose a factory as module.exports.
24         // This accentuates the need for the creation of a real `window`.
25         // e.g. var jQuery = require("jquery")(window);
26         // See ticket #14549 for more info.
27         module.exports = global.document ?
28             factory( global, true ) :
29             function( w ) {
30                 if ( !w.document ) {
31                     throw new Error( "jQuery requires a window with a document"
32                 );
33                 return factory( w );
34             };
35     } else {
36
37         // ...
38     }
39 } ( window, function( window, noGlobal ) {
40     // ...
41 } )
```

Watch
Breakpoints
No breakpoints
Scope
Not paused
Call Stack
Not paused
XHR/fetch Breakpoints
DOM Breakpoints
Global Listeners
Event Listener Breakpoints
CSP Violation Breakpoints


Coverage: n/a

Console What's New x

Highlights from the Chrome 109 update

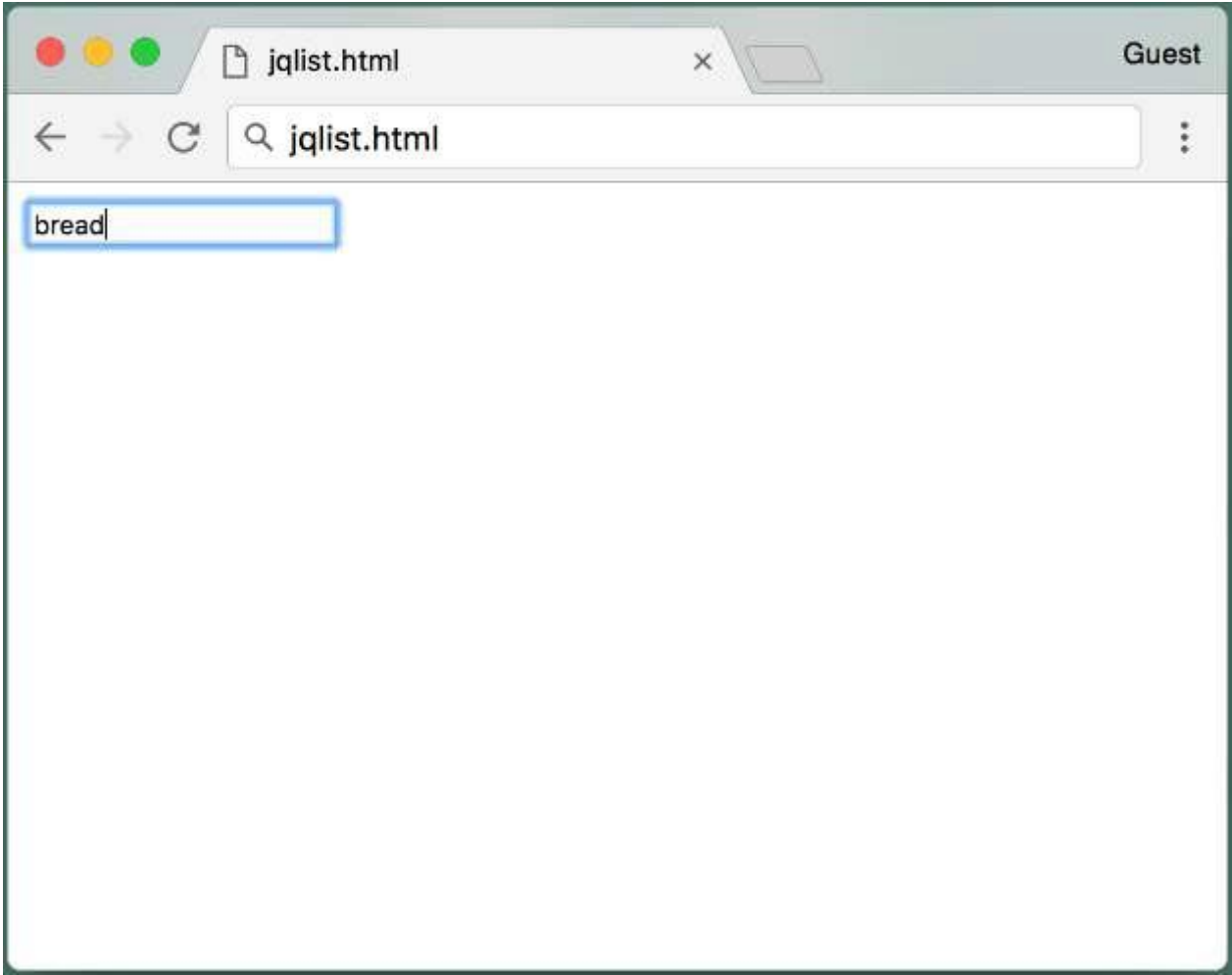
[Recorder panel updates](#)

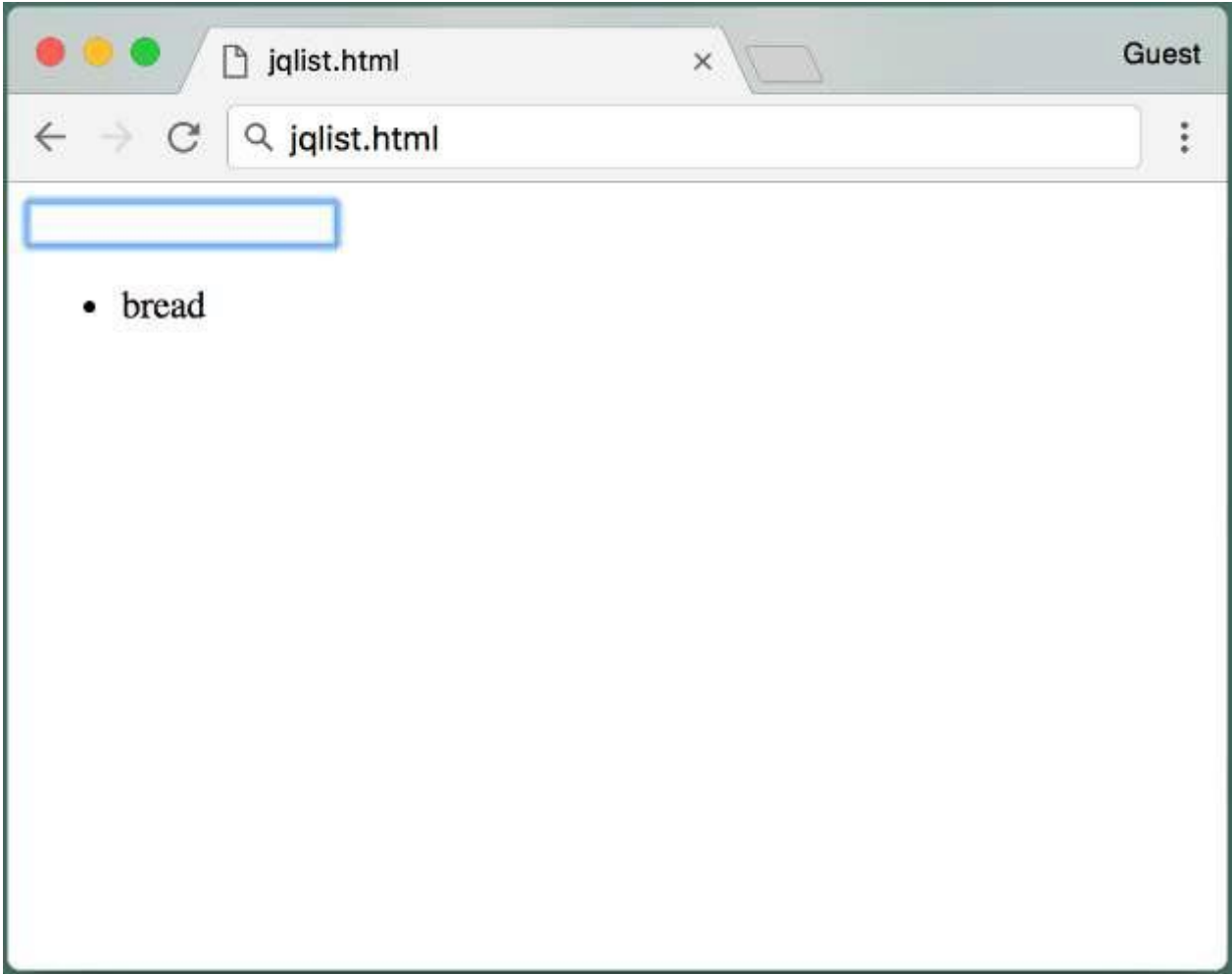
New step context menu, option to copy a single step from a script, remove the first navigation step, and more.

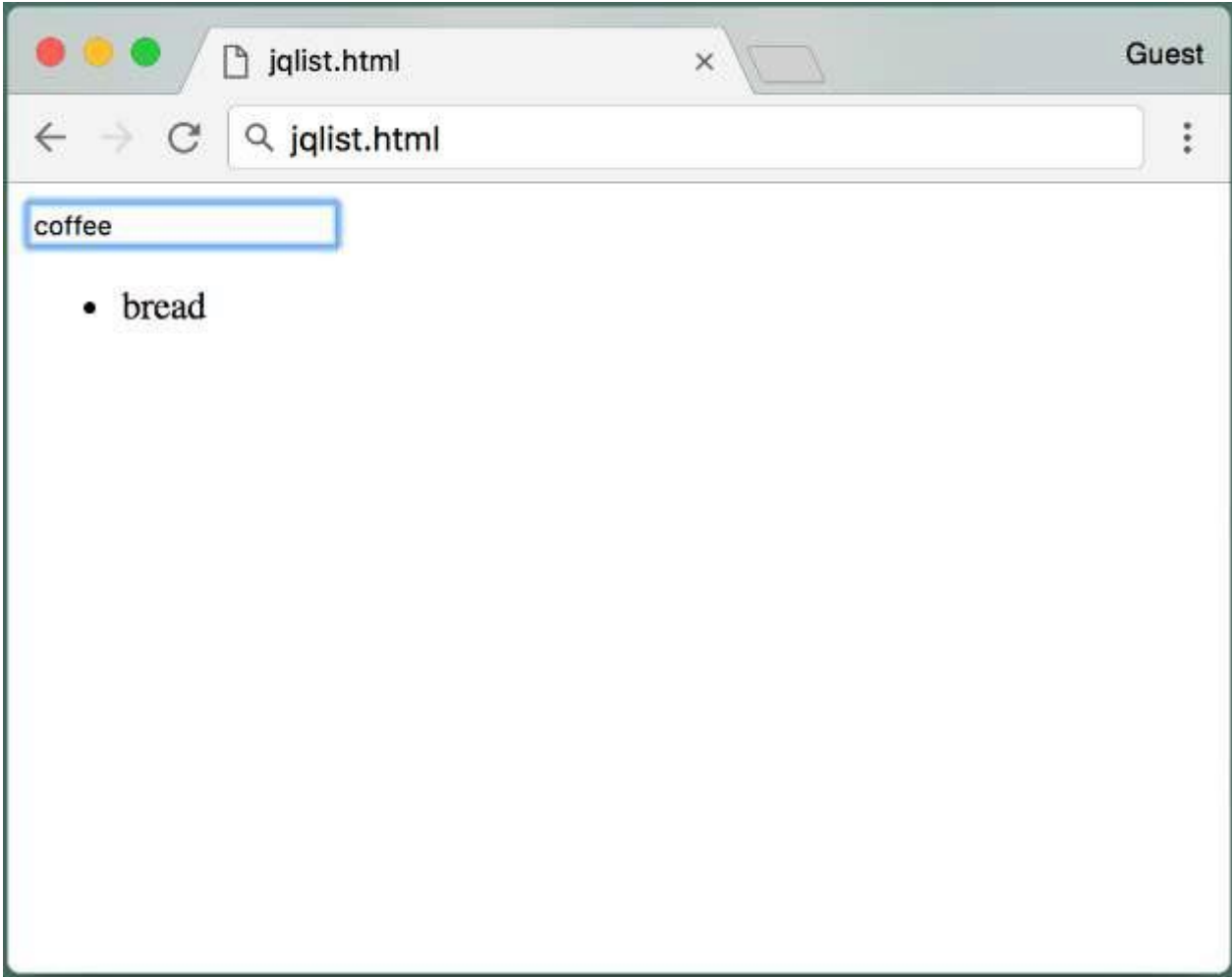


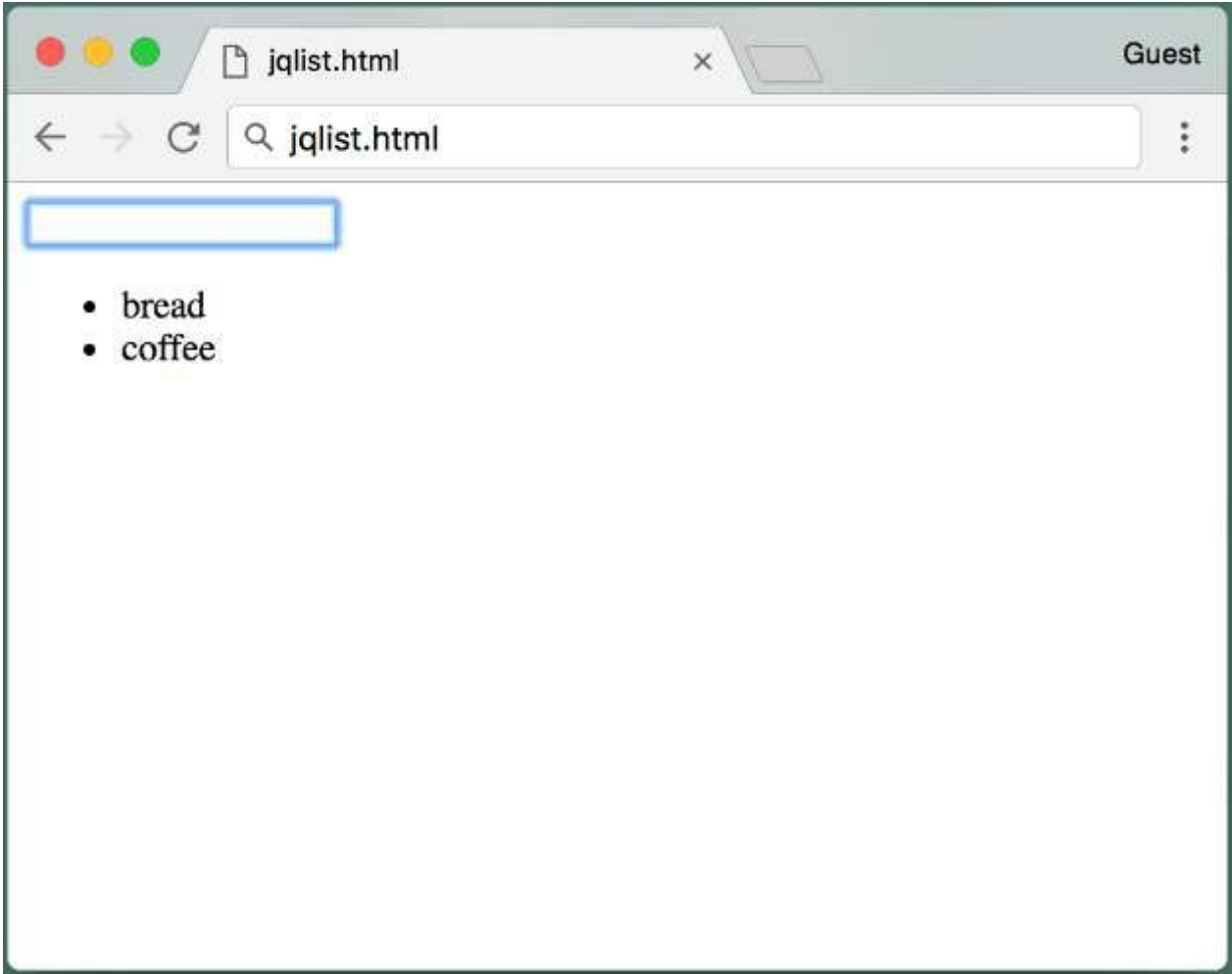
jQuery

Example - Shopping List









- bread
- coffee

```
<html>
<head><script src="jquery.js"></script></head>

<body>
<input id="itemField"></input>
<p>

<ul>
<span id="list"></span>
</ul>
<script>
function keyPressHandler(e) {
    if (e.keyCode == 13) {
        $('#list').append('<li>' + $('#itemField').val() + '</li>');
        $('#itemField').val('');
    }
}
$('#itemField').keyup(keyPressHandler);

</script>

</body>
</html>
```

Here is how we can build this Web page!

```
<html>
<head><script src="jquery.js"></script></head>

<body>
<input id="itemField"></input>
<p>

<ul>
<span id="list"></span>
</ul>
<script>
function keyPressHandler(e) {
    if (e.keyCode == 13) {
        $('#list').append('<li>' + $('#itemField').val() + '</li>');
        $('#itemField').val('');
    }
}
$('#itemField').keyup(keyPressHandler);

</script>

</body>
</html>
```

Remember to add jQuery

```
<html>
<head><script src="jquery.js"></script></head>

<body>
<input id="itemField"></input>
<p>

<ul>
<span id="list"></span>
</ul>
<script>
function keyPressHandler(e) {
    if (e.keyCode == 13) {
        $('#list').append('<li>' + $('#itemField').val() + '</li>');
        $('#itemField').val('');
    }
}
$('#itemField').keyup(keyPressHandler);

</script>

</body>
</html>
```

input field to add new item

```
<html>
<head><script src="jquery.js"></script></head>

<body>
<input id="itemField"></input>
<p>

<ul>
<span id="list"></span>
</ul>
<script>
function keyPressHandler(e) {
  if (e.keyCode == 13) {
    $('#list').append('<li>' + $('#itemField').val() + '</li>');
    $('#itemField').val('');
  }
}
$('#itemField').keyup(keyPressHandler);

</script>

</body>
</html>
```

un-order list to keep items

```
<html>
<head><script src="jquery.js"></script></head>

<body>
<input id="itemField"></input>
<p>

<ul>
<span id="list"></span>
</ul>
<script>
function keyPressHandler(e) {
  if (e.keyCode == 13) {
    $('#list').append('<li>' + $('#itemField').val() + '</li>');
    $('#itemField').val('');
  }
}
$('#itemField').keyup(keyPressHandler);

</script>

</body>
</html>
```

an span to add items


```
<html>
<head><script src="jquery.js"></script></head>

<body>
<input id="itemField"></input>
<p>

<ul>
<span id="list"></span>
</ul>
<script>
function keyPressHandler(e) {
    if (e.keyCode == 13) {
        $('#list').append('<li>' + $('#itemField').val() + '</li>');
        $('#itemField').val('');
    }
}
$('#itemField').keyup(keyPressHandler);

</script>

</body>
</html>
```

an event handler. e is the current event when this function is called

```
<html>
<head><script src="jquery.js"></script></head>

<body>
<input id="itemField"></input>
<p>

<ul>
<span id="list"></span>
</ul>
<script>
function keyPressHandler(e) {
    if (e.keyCode == 13) {
        $('#list').append('<li>' + $('#itemField').val() + '</li>');
        $('#itemField').val('');
    }
}
$('#itemField').keyup(keyPressHandler);

</script>

</body>
</html>
```

keyCode 13 is the Enter Key

```
<html>
<head><script src="jquery.js"></script></head>

<body>
<input id="itemField"></input>
<p>

<ul>
<span id="list"></span>
</ul>
<script>
function keyPressHandler(e) {
  if (e.keyCode == 13) {
    $('#list').append('<li>' + $('#itemField').val() + '</li>');
    $('#itemField').val('');
  }
}
$('#itemField').keyup(keyPressHandler);

</script>

</body>
</html>
```

selector selects the span list item to append
html text to that span

```
<html>
<head><script src="jquery.js"></script></head>

<body>
<input id="itemField"></input>
<p>

<ul>
<span id="list"></span>
</ul>
<script>
function keyPressHandler(e) {
  if (e.keyCode == 13) {
    $('#list').append('<li>' + $('#itemField').val() + '</li>');
    $('#itemField').val('');
  }
}
$('#itemField').keyup(keyPressHandler);

</script>

</body>
</html>
```

to add a item

```
<html>
<head><script src="jquery.js"></script></head>

<body>
<input id="itemField"></input>
<p>

<ul>
<span id="list"></span>
</ul>
<script>
function keyPressHandler(e) {
  if (e.keyCode == 13) {
    $('#list').append('<li>' + $('#itemField').val() + '</li>');
    $('#itemField').val('');
  }
}
$('#itemField').keyup(keyPressHandler);

</script>

</body>
</html>
```

add the input field text to the tag

- val() gets the value of a html element

val()

Description

Get the current value of the first element in the set of matched elements or set the value of every matched element.

The `.val()` method is primarily used to get the values of form elements such as input, select and textarea. When called on an empty collection, it returns undefined.

```
// Get the value from the selected option in a dropdown  
$( "select#foo option:checked" ).val();
```

```
// Get the value from a dropdown select directly  
$( "select#foo" ).val();
```

```
// Get the value from a checked checkbox  
$( "input[type=checkbox][name=bar]:checked" ).val();
```

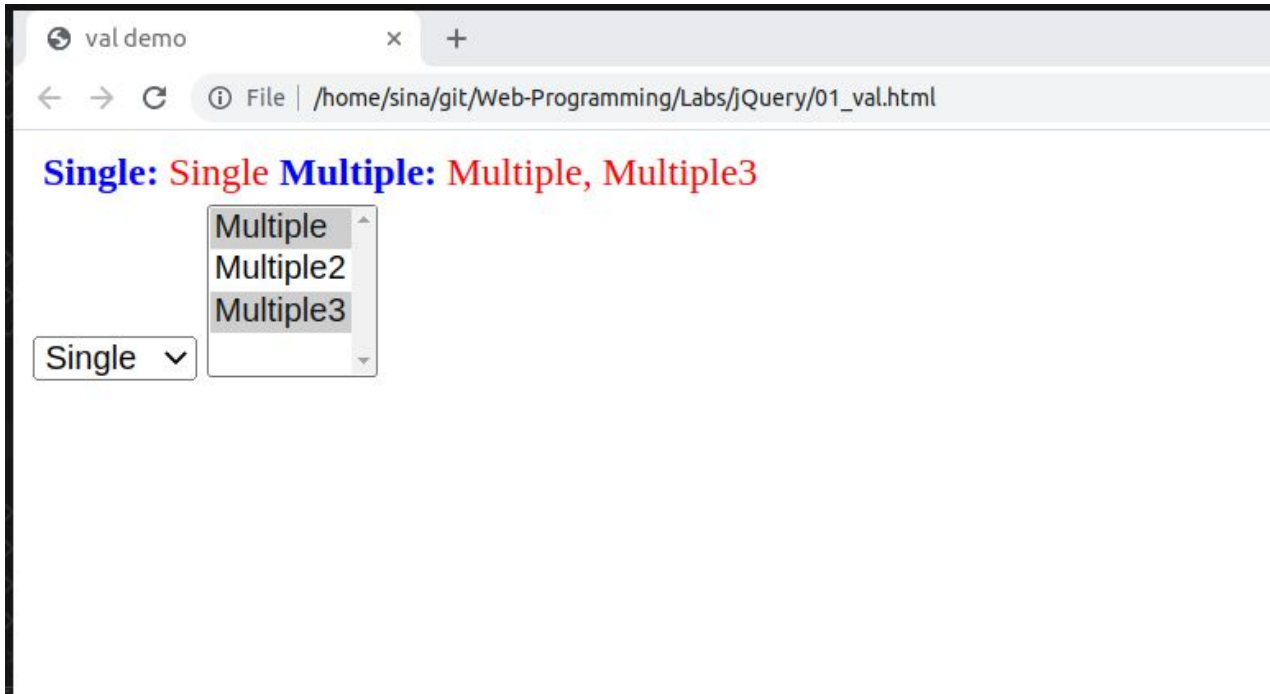
```
// Get the value from a set of radio buttons  
$( "input[type=radio][name=baz]:checked" ).val();
```

val() - Example

Description

Get the single value from a single select and an array of values from a multiple select and display their values.

Demo :



```
<html>
<head><script src="jquery.js"></script></head>

<body>
<input id="itemField"></input>
<p>

<ul>
<span id="list"></span>
</ul>
<script>
function keyPressHandler(e) {
  if (e.keyCode == 13) {
    $('#list').append('<li>' + $('#itemField').val() + '</li>');
    $('#itemField').val('');
  }
}
$('#itemField').keyup(keyPressHandler);

</script>

</body>
</html>
```

clear out the input field


```
<html>
<head><script src="jquery.js"></script></head>

<body>
<input id="itemField"></input>
<p>

<ul>
<span id="list"></span>
</ul>
<script>
function keyPressHandler(e) {
    if (e.keyCode == 13) {
        $('#list').append('<li>' + $('#itemField').val() + '</li>');
        $('#itemField').val('');
    }
}
<b>$('#itemField').keyup(keyPressHandler);</b>

</script>

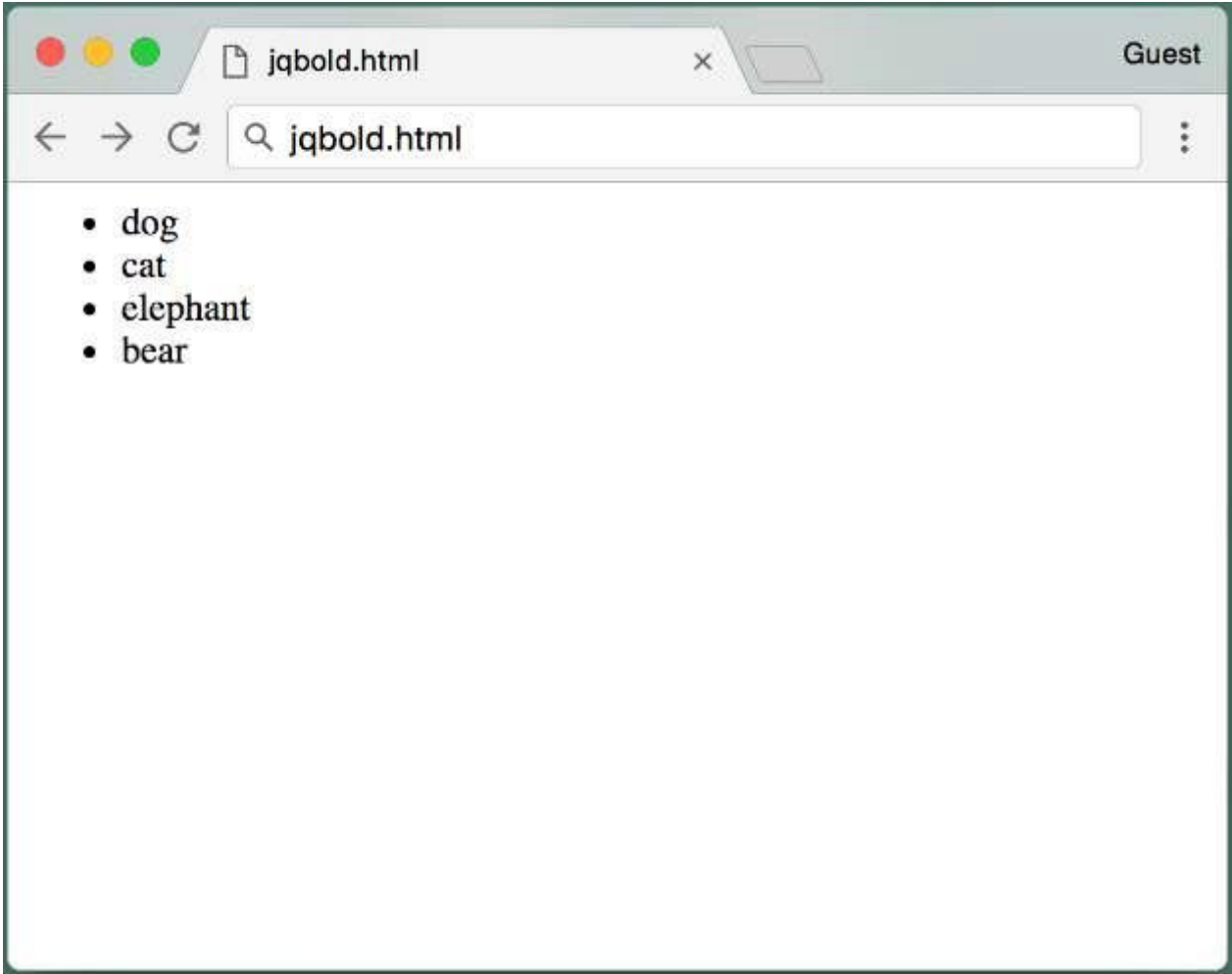
</body>
</html>
```

keyup event handler

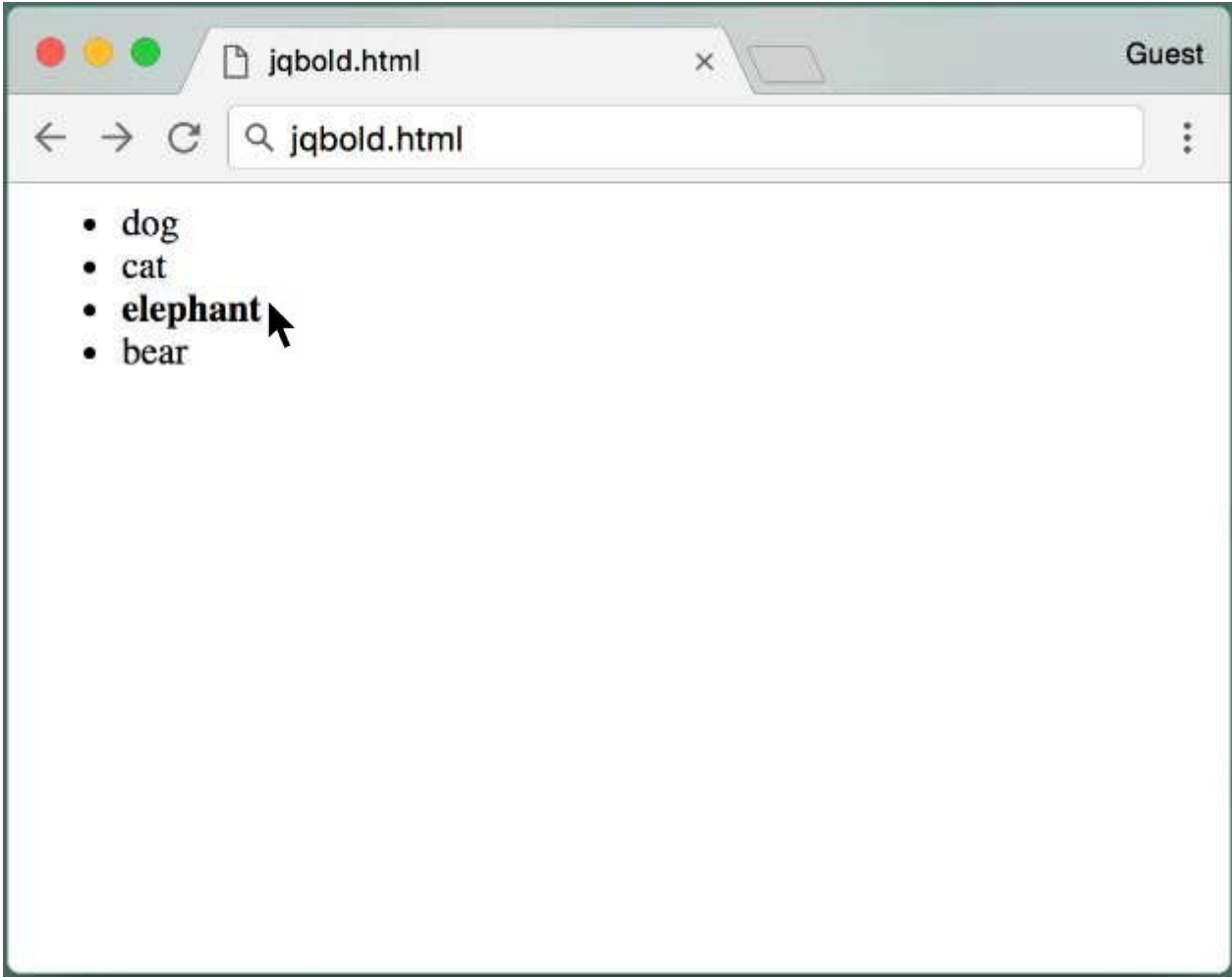
The keyup event is fired when a key is released.

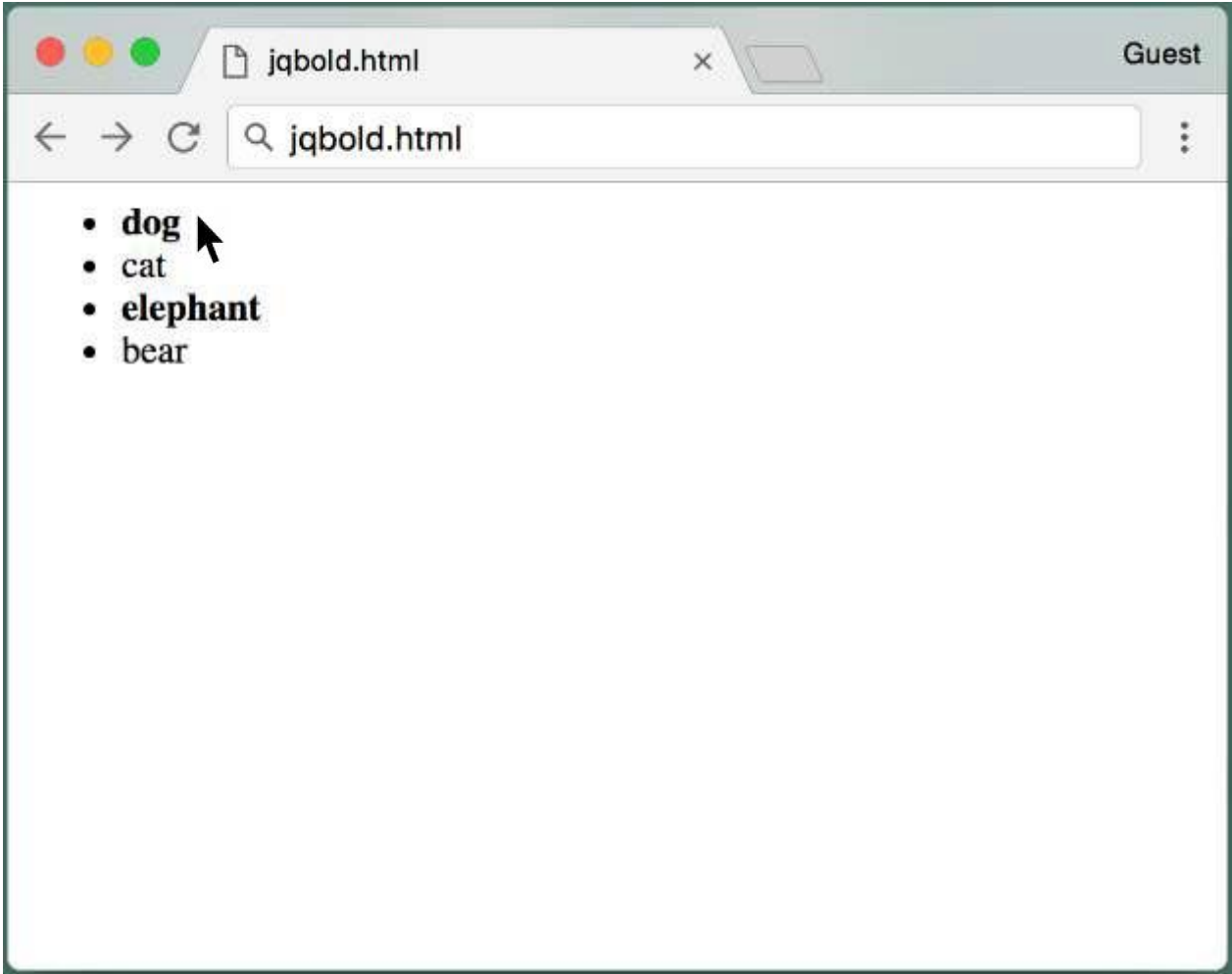
jQuery

Example - Emphasis clicked items



- dog
- cat
- elephant
- bear





```
<html>

<head><script src="jquery.js"></script></head>

<body>

<ul>
<li>dog</li>
<li>cat</li>
<li>elephant</li>
<li>bear</li>
</ul>

<script>

$('li').click(function() {
    $(this).css('font-weight', 'bold');
});

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

Here is how we can build this Web page!

```
<html>

<head><script src="jquery.js"></script></head>

<body>

<ul>
<li>dog</li>
<li>cat</li>
<li>elephant</li>
<li>bear</li>
</ul>

<script>

$('li').click(function() {
    $(this).css('font-weight', 'bold');
});

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

[Add jQuery](#)

```
<html>
```

```
<head><script src="jquery.js"></script></head>
```

```
<body>
```

```
<ul>
```

```
<li>dog</li>
```

```
<li>cat</li>
```

```
<li>elephant</li>
```

```
<li>bear</li>
```

```
</ul>
```

```
<script>
```

```
$( 'li' ).click( function () {  
    $( this ).css( 'font-weight', 'bold' );  
});
```

```
</script>
```

```
</body>
```

```
</html>
```

unordered list with its elements


```
<html>

<head><script src="jquery.js"></script></head>

<body>

<ul>
<li>dog</li>
<li>cat</li>
<li>elephant</li>
<li>bear</li>
</ul>

<script>

$('.li').click(function() {
    $(this).css('font-weight', 'bold');
});

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

add click handler to each li elements

```
<html>

<head><script src="jquery.js"></script></head>

<body>

<ul>
<li>dog</li>
<li>cat</li>
<li>elephant</li>
<li>bear</li>
</ul>

<script>

$('li').click(function() {
    $(this).css('font-weight', 'bold');
});

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

we can define the caller function as a anonymous function

```
<html>

<head><script src="jquery.js"></script></head>

<body>

<ul>
<li>dog</li>
<li>cat</li>
<li>elephant</li>
<li>bear</li>
</ul>

<script>

$('li').click(function() {
    $('this').css('font-weight', 'bold');
});

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

to select this particular element that was clicked

```
<html>

<head><script src="jquery.js"></script></head>

<body>

<ul>
<li>dog</li>
<li>cat</li>
<li>elephant</li>
<li>bear</li>
</ul>

<script>

$('li').click(function() {
    $(this).css('font-weight', 'bold');
});

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

every html element in jquery has a css function to set the style using css notation

```
<html>

<head><script src="jquery.js"></script></head>

<body>

<ul>
<li>dog</li>
<li>cat</li>
<li>elephant</li>
<li>bear</li>
</ul>

<script>

$('li').click(function() {
    $(this).css('font-weight', 'bold');
});

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

set a css feature using jQuery

Summary

- jQuery is a powerful library that allows us to select DOM elements using CSS notation
- We can then modify their content and appearance programmatically
- We can also register event listeners for different elements