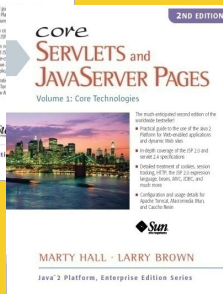
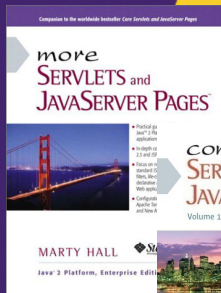




# Rich Interfaces with jQuery UI: Part I: Setup and Basic Widgets (jQuery UI 1.8, jQuery 1.4)

Originals of Slides and Source Code for Examples:  
<http://courses.coreservlets.com/Course-Materials/jquery.html>

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**For live Ajax & GWT training, see training courses at <http://courses.coreservlets.com/>.**



**Taught by the author of *Core Servlets and JSP*, *More Servlets and JSP*, and this tutorial. Available at public venues, or customized versions can be held on-site at your organization.**

- Courses developed and taught by Marty Hall
  - Java 6, servlets/JSP (intermediate and advanced), Struts, JSF 1.x, JSF 2.0, Ajax, GWT 2.0 (with GXT), custom mix of topics
  - Ajax courses can concentrate on 1 library (jQuery, Prototype/Scriptaculous, Ext-JS, Dojo, Google Closure) or survey several
- Courses developed and taught by [coreservlets.com](http://coreservlets.com) experts (edited by Marty)
  - Spring, Hibernate/JPA, EJB3, Web Services, Ruby/Rails

Contact [hall@coreservlets.com](mailto:hall@coreservlets.com) for details

# Topics in This Section

- **Overview**
- **Installation and setup**
- **Widgets**
  - Buttons that adapt to current theme (skin)
  - Dialogs (basics)
  - Static tabbed panels
  - Ajax tabbed panels
  - Accordion panels
  - Date picker
  - Slider
  - Progress bar

5

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## Introduction

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# Overview

- **Set of rich GUI elements and effects**
  - Tabbed panels, slider, etc
  - Effects similar to Scriptaculous
  - Drag and drop API
- **Pros**
  - Official part of jQuery
  - Well tested
  - Very clean design
  - Many still show meaningful results if JavaScript disabled
  - Theming framework
- **Cons**
  - Not *nearly* as extensive as Ext/JS, Dojo, or YUI

7

# Downloading

- **Download custom bundle**
  - <http://jqueryui.com/download>
  - Select widgets and effects you want
  - Press “Download” to download ZIP file of result
- **Unzip**
  - Unzip result into location of your choice
- **Bookmark the documentation**
  - <http://docs.jquery.com/UI/>
  - <http://jqueryui.com/demos/>
- **Optional: Download additional themes**
  - Deselect all widgets and options, choose different theme
    - You can also interactively build a customized theme
    - More on themes in next tutorial section
  - Unzip and copy entries in “css” folder to “css” folder of original download

8

# Planning Ahead for Updates

- **General principle**

- It is easier to *replace* many files on a Web site than to *edit* many files on a Web site.
  - So, avoid specific version numbers in names of JavaScript and CSS files
  - Rename CSS “theme” (skin) folders to generic name

- **Specific practice**

- Rename jquery-1.4.x.min.js to **jquery.js**
- Rename jquery-ui-1.8.x.custom.min.js to **jquery-ui.js**
- Rename theme (skin) folder from ui-lightness (or sunny, or blitz or whatever you chose) to **jquery-ui**
- Rename CSS file inside theme (skin) folder from jquery-ui-1.8.x.custom.css to **jquery-ui.css**

9

# Files and Folders Needed

- **js/jquery-1.4.x.min.js**

- Copy this to WebContent/scripts in your Eclipse project. For ease of later updates, rename it to **jquery.js**.

- **js/jquery-ui-1.8.x.custom.min.js**

- Copy this to WebContent/scripts in your Eclipse project. For ease of later updates, rename it to **jquery-ui.js**.

- **css/ui-lightness/**

- Copy ui-lightness folder to WebContent/css in your Eclipse project. For ease of later updates, rename folder to **jquery-ui**.

- **css/ui-lightness/jquery-ui-1.8.x.custom.css**

- For ease of later updates, rename file to **jquery-ui.css**
  - So now it is WebContent/css/jquery-ui/jquery-ui.css

10

# Setting Up Page: Overview

- **Load required jQuery UI files**
  - `<link rel="stylesheet" type="text/css" href="../../../jquery-ui/jquery-ui.css"/>`
    - Folder renamed from ui-lightness or other skin name
    - File renamed from jquery-ui-1.8.x.custom.css
  - `<script src="../../../jquery.js" ...></script>`
    - File renamed from jquery-1.4.x.min.js
  - `<script src="../../../jquery-ui.js" ...></script>`
    - File renamed from jquery-ui-1.8.x.custom.min.js
- **Load your files that use jQuery UI**
  - Any custom CSS files your app uses
  - Any custom JavaScript files your app uses

11

# Setting Up Page: Example

```
<head><title>jQuery UI</title>
<link rel="stylesheet"
      href="../../../css/jquery-ui/jquery-ui.css"
      type="text/css"/>
<link rel="stylesheet"
      href="../../../css/extra-styles.css"
      type="text/css"/>
<script src="../../../scripts/jquery.js"
        type="text/javascript"></script>
<script src="../../../scripts/jquery-ui.js"
        type="text/javascript"></script>
<script src="../../../scripts/jquery-ui-examples.js"
        type="text/javascript"></script>
</head>
```

Folder was called ui-lightness (one of the theme names) in original download

File was called jquery-ui-1.8.x.custom.css in original download

My CSS file that styles non-jQuery-UI elements. Limit custom styles so you can adapt to custom themes more easily.

File was called jquery-1.4.x.min.js in original download

File was called jquery-ui-1.8.x.custom.min.js in original download

My JavaScript file that calls jQuery and jQuery UI functions

12





# Buttons

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## Overview

- **Idea**
  - A button whose look and feel will automatically adapt to current theme (skin).
- **HTML**
  - Make any type of button or anchor
    - `<input type="submit" class="some-class".../>`
    - `<input type="button" class="some-class".../>`
    - `<button class="some-class">...</button>`
    - `<a href class="some-class" href="#">...</a>`
- **Basic JavaScript**
  - Call “button()” on each element
    - `$(".some-class").button();`

# Example: HTML

```
<div id="button-div">
  <input type="submit" class="style-test"
    value="&lt;input type='submit'...&gt;"/>
  <input type="button" class="style-test"
    value="&lt;input type='button'...&gt;"/>
  <button class="style-test">
    The &lt;button&gt; element
  </button>
  <a href="#" class="style-test">Hypertext link</a>
</div>
<hr/>
<input type="button" id="button-styler-button"
  value="Style the Buttons"/>
</fieldset>
```

15

# Example: JavaScript

```
var uiDemo = {}; // To avoid name conflicts

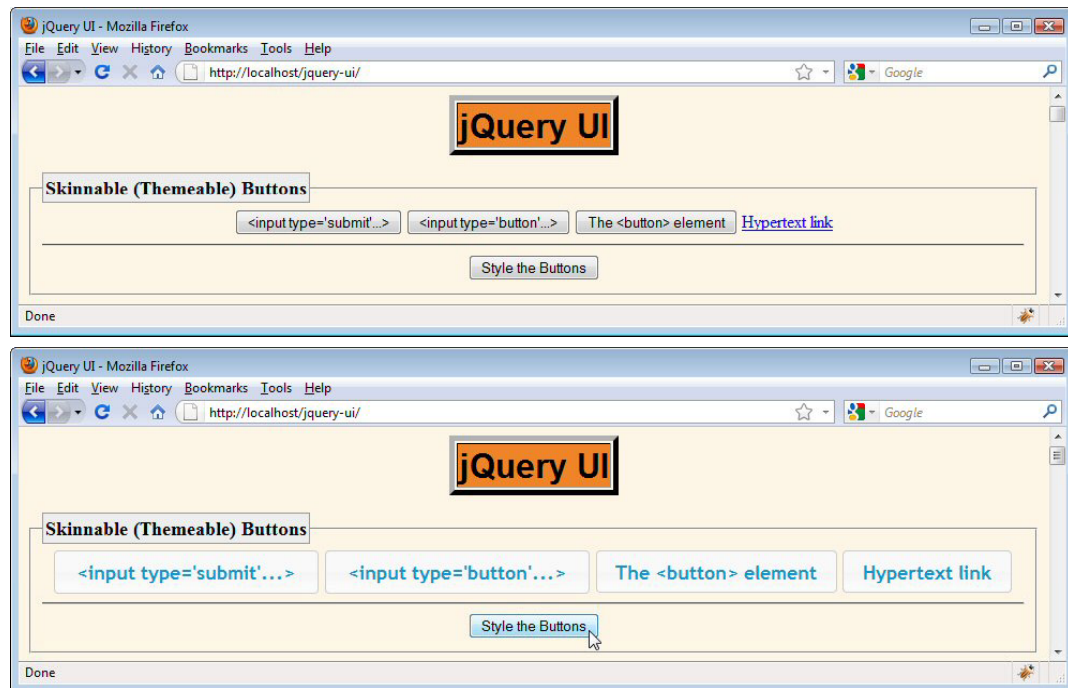
uiDemo.styleButtons = function() {
  $("#button-div .style-test").button();
};

$(function() {
  $("#button-styler-button").click(uiDemo.styleButtons);
  ...
});
```

You normally style the buttons when DOM is loaded, so you would directly call this code from the on-load function below. However, I wanted to interactively show the change, so the page will load with the buttons unstyled, and then they will become styled when the button mentioned below is pressed.

16

# Example: Results



# Options for jQuery UI Widgets

- **You can supply anonymous object**
  - Object has optional fields
  - Fields specify configuration and operational options
- **Examples**
  - `$("some-selector").button();`
  - `$("some-selector").button({ option1: "foo", option2: "bar", option3: "baz" })`

No trailing comma



# Button Options

- **Options to button function**
  - disabled
    - Is button initially grayed out?
  - icons, text
    - icons lets you set primary and secondary icon.
    - text is boolean (false if you want icons only)
  - label
    - Main text of button; usually set in HTML instead of here
- **Other elements**
  - Radio buttons and checkboxes can also become buttons
    - These turn into text with indents/outdents to show which are selected. Depending on the theme, it may be hard to see which is selected.

19

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## Dialog

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# Overview

- **Idea**
  - A popup window (really a div with absolute positioning) that contains arbitrary HTML. One of the single most common rich elements in modern applications.
- **HTML**
  - Make an initially-hidden div with content inside. Use the title attribute of div for title of dialog.
    - `<div id="some-id" title="Title" style="display:none">`  
...  
`</div>`
- **Basic JavaScript**
  - Call “dialog()” on element
    - `$("#some-id").dialog();`
      - Many options

21

# Example: HTML

```
<div id="button-div">
  ...
</div>
<hr/>
<input type="button" id="button-styler-button"
       value="Style the Buttons"/>
</fieldset>
<div id="button-dialog" title="A jQuery UI Dialog"
    style="display:none">
  <p><i>Hey!</i> You clicked a button!</p>
</div>
```

22

# Example: JavaScript

```
var uiDemo = {}; // To avoid name conflicts

uiDemo.styleButtons = function() {
    $("#button-div .style-test").button()
        .click(uiDemo.showDialog);
};

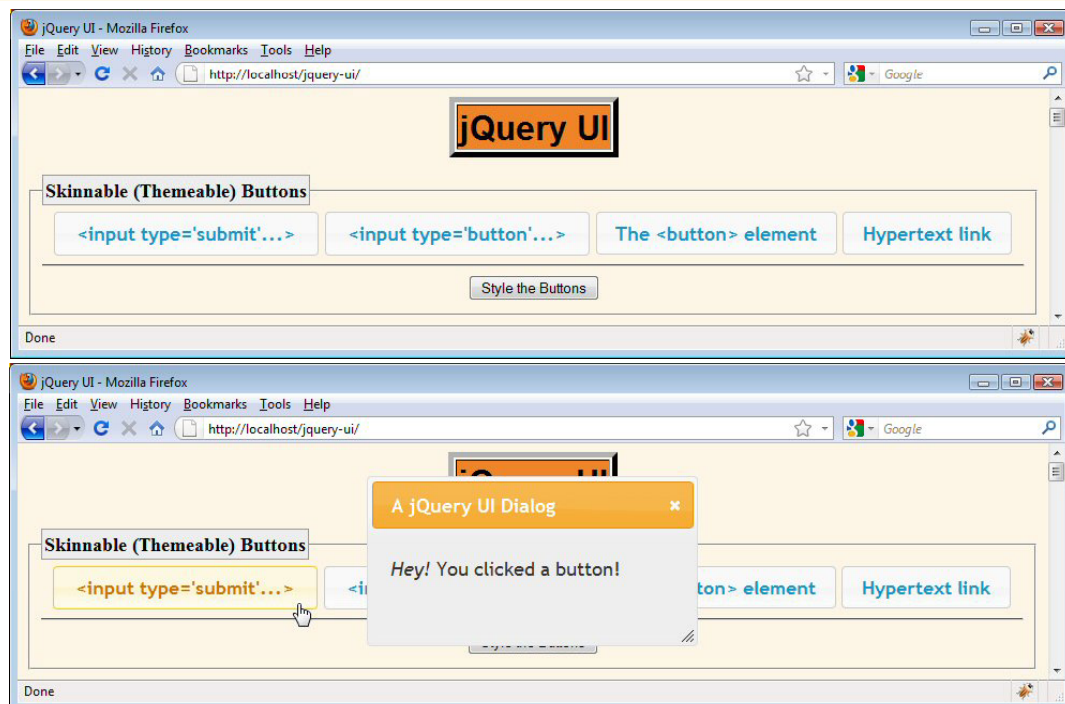
uiDemo.showDialog = function() {
    $("#button-dialog").dialog();
};

$(function() {
    $("#button-styler-button").click(uiDemo.styleButtons);
    ...
});
```

When you click one of the styled buttons, it will pop up a dialog box.

23

# Example: Results



24

# Dialog Options

- **Dialog type**
  - modal: gray out window, make controls disabled
    - `$("#some-id").dialog({ modal: true })` simulates modal dialog in classical GUI system
  - buttons: lets you specify buttons for dialog
  - draggable, resizable: (default true for both)
- **Sizing and positioning**
  - Size
    - height, width, minHeight, minWidth, maxHeight, maxWidth
  - Position
    - position, zIndex
- **Many more**
  - Dialog is very customizable with many more options

25

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## Tabbed Panels with Static Content

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# Overview

- **Idea**
  - Tabbed panel where clicking tabs changes content inside
- **HTML**
  - Make a div container to hold the tabs
    - `<div id="main-tabbed-panel-div">...</div>`
  - Include a ul list containing internal hyperlinks
    - `<ul>`
      - `<li><a href="#panel1">Go to Panel 1</a></li>`
      - `<li><a href="#panel2">Go to Panel 2</a></li>`
    - `</ul>`
  - Include divs whose ids match the href values (minus “#”)
    - `<div id="panel1">Content for panel 1</div>`
    - `<div id="panel2">Content for panel 2</div>`
- **Basic JavaScript**
  - Call “tabs()” on the div container
    - `$("#main-tabbed-panel-div").tabs();`

27

## Example: HTML

```
<div id="static-tabbed-panel-div">
  <ul>
    <li><a href="#panel1">Panel 1</a></li>
    <li><a href="#panel2">Panel 2</a></li>
    <li><a href="#panel3">Panel 3</a></li>
  </ul>
  <div id="panel1">
    <p>Content for first panel.</p>
    <p>Foo, bar, baz.</p><p>Yadda, yadda, yadda.</p>
  </div>
  <div id="panel2">
    <p>Content for second panel.</p>
    <p>Foo, bar, baz.</p><p>Yadda, yadda, yadda.</p>
  </div>
  <div id="panel3">
    <p>Content for third panel.</p>
    <p>Foo, bar, baz.</p><p>Yadda, yadda, yadda.</p>
  </div>
</div>
```

28

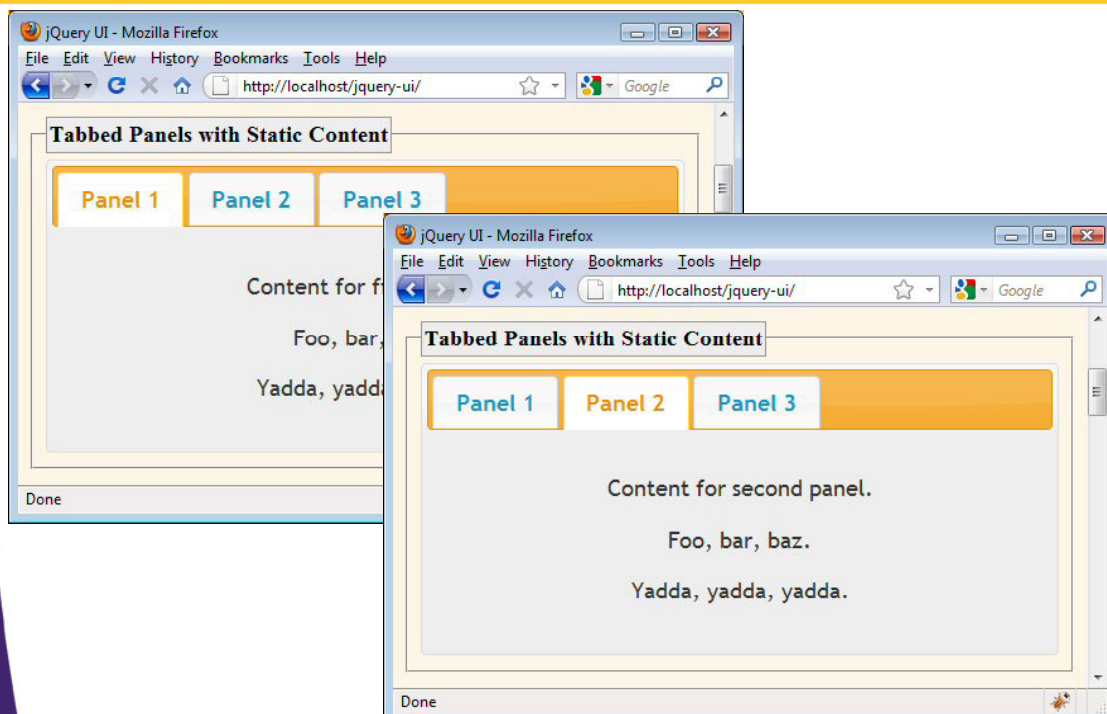


# Example: JavaScript

```
$(function() {  
    $("#static-tabbed-panel-div").tabs();  
    ...  
});
```

29

# Example: Results



30

## Main Options for tabs({...}) for Static Content

- **selected (default: 0)**
  - Tab to be selected initially
- **collapsible (default: false)**
  - Can you click selected tab to hide it (and thus *all* panels)?
    - `$("#main-id").tabs({ collapsible: true });`
- **disabled (default: empty array)**
  - An array of tab numbers (0-based) that should be disabled on startup
- **event (default: click)**
  - The type of event that should initiate tab selection
    - `$("#main-id").tabs({ event: "mouseover" });`
- **fx**
  - Many options for specifying animation when tabs are selected. See docs for details.

31

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## Tabbed Panels with Dynamic (Ajax) Content

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# Overview

- **Idea**
  - Tabbed panel where clicking tabs gets server content
- **HTML**
  - Make a div container to hold the tabs
    - `<div id="main-tabbed-panel-div">...</div>`
  - Include a ul list containing external relative hyperlinks
    - `<ul>`
      - `<li><a href="url1">Get Content for Panel 1</a></li>`
      - `<li><a href="url2">Get Content for Panel 2</a></li>`
    - `</ul>`
  - That's all!
    - Possibly simplest/best Ajax tabbed panel method of any of the major JavaScript libraries.
- **Basic JavaScript**
  - Call “tabs()” on the div container
    - `$("#main-tabbed-panel-div").tabs();`

33

## Example: HTML

```
<div id="ajax-tabbed-panel-div">
<ul>
  <li><a href="time-panel.jsp">Show Time</a></li>
  <li><a href="list-panel.jsp?range=5">
    Show Small Numbers</a></li>
  <li><a href="list-panel.jsp?range=500">
    Show Big Numbers</a></li>
</ul>
</div>
```

34

# Example: JavaScript

```
$(function() {  
    $("#ajax-tabbed-panel-div").tabs({ collapsible: true });  
    ...  
});
```

35

# Example: JSP

- **time-panel.jsp**

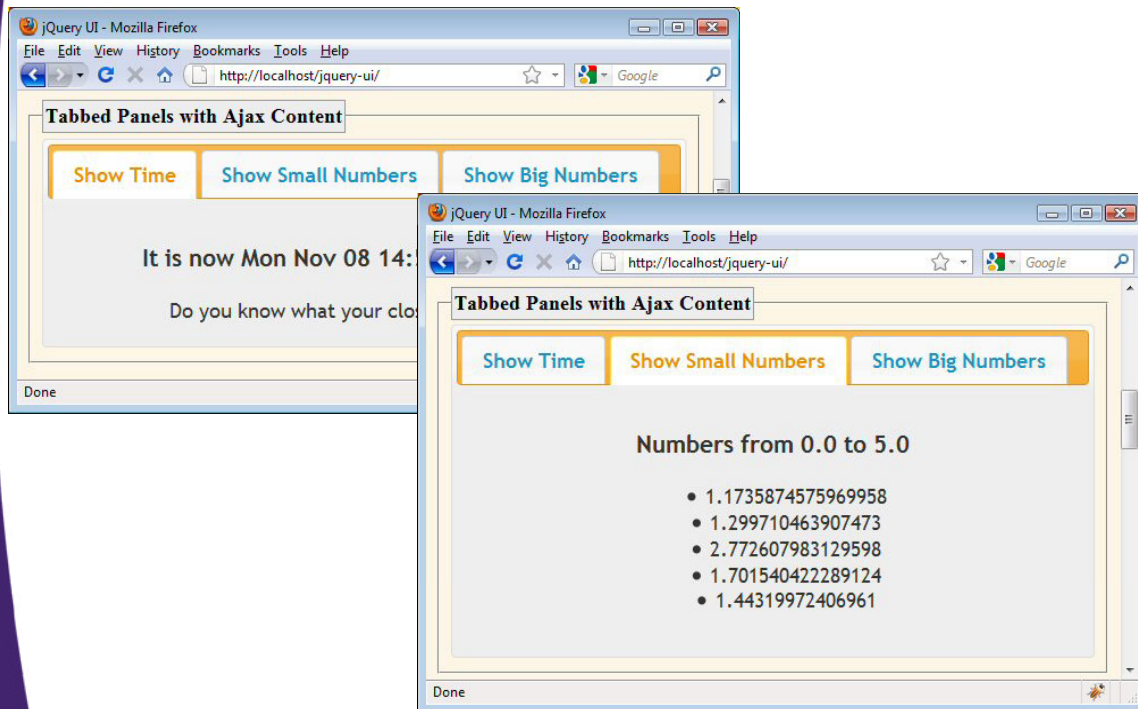
```
<h3>It is now <%= new java.util.Date() %></h3>  
Do you know what your closures are doing?
```

- **list-panel.jsp**

```
<% double range = 10.0;  
    try {  
        String r = request.getParameter("range");  
        range = Integer.parseInt(r);  
    } catch (Exception e) {} %>  
<h3>Numbers from 0 to <%= range %></h3>  
<ul>  
    <li><%= Math.random() * range %></li>  
    <li><%= Math.random() * range %></li>  
    <li><%= Math.random() * range %></li>  
    <li><%= Math.random() * range %></li>  
    <li><%= Math.random() * range %></li>  
</ul>
```

36

## Example: Results



## Main Options for tabs({...}) for Ajax Content

- **ajaxOptions (default: {})**
  - Any of the options used for \$.ajax in first jQuery section
    - `$("#main-id").tabs({ ajaxOptions: { error: errorHandler } });`
- **cache (default: false)**
  - Should jQuery remember content for previously-selected tabs?
    - Using `$("#main-id").tabs({ cache: true })` is very helpful if result is always the same for a given URL.
- **spinner (default “<em>Loading...</em>”)**
  - Text to show in tab title after tab is selected but before content is received from server





# Accordion Panels

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## Overview

- **Idea**
  - Horizontally stacked panels with wide tabs
- **HTML**
  - Make a div container to hold the tabs
    - `<div id="main-accordion-panel-div">...</div>`
  - Include *alternating* pairs of text with links and content
    - `<h2><a href="#">Panel 1</a></h2>`
    - `<div>Content for Panel 1</div>`
    - `<h2><a href="#">Panel 2</a></h2>`
    - `<div>Content for Panel 2</div>`
- **Basic JavaScript**
  - Call “accordion()” on the div container
    - `$("#main-accordion-panel-div").accordion();`

## Example: HTML

```
<div id="accordion-panel-div">
<h2><a href="#">Panel 1</a></h2>
<div>
  <p>Content for first panel.</p>
  <p>Foo, bar, baz.</p><p>Yadda, yadda, yadda.</p>
</div>
<h2><a href="#">Panel 2</a></h2>
<div>
  <p>Content for second panel.</p>
  <p>Foo, bar, baz.</p><p>Yadda, yadda, yadda.</p>
</div>
<h2><a href="#">Panel 3</a></h2>
<div>
  <p>Content for third panel.</p>
  <p>Foo, bar, baz.</p><p>Yadda, yadda, yadda.</p>
</div>
</div>
```

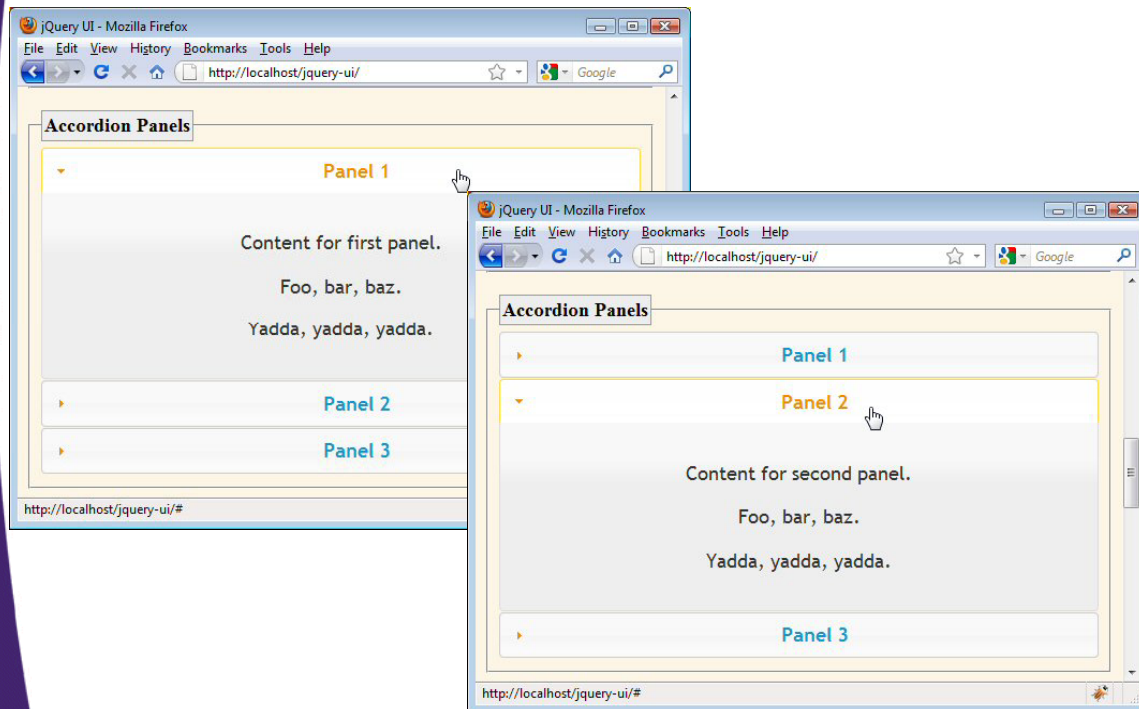
41

## Example: JavaScript

```
$(function() {
  $("#accordion-panel-div").accordion();
  ...
});
```

42

# Example: Results



43

# Main Options for accordion({...})

- **active (default: 0)**
  - Index or selector for initially-selected item
- **collapsible**
  - Can you click to hide?
- **event**
  - Event to trigger selection.
    - Same as with tabs()
- **animated (default: true)**
  - Name of jQuery animation to use when showing content
    - `$("#main-id").accordion({ animated: "fadeIn" });`

44



# Date Picker

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## Overview

- **Idea**
  - Click in textfield to pop up calendar. Choosing day from calendar puts date string into textfield
- **HTML**
  - Make an input field
    - `<input type="text" id="date-field"/>`
- **Basic JavaScript**
  - Call “datepicker()” on the textfield
    - `$("#date-field").datepicker();`

## Example: HTML

```
<table>
  <tr><td align="right">
    From: <input type="text"/></td></tr>
  <tr><td align="right">
    Departure Date:
    <input type="text" id="start-date"/></td></tr>
  <tr><td align="right">
    To: <input type="text"/></td></tr>
  <tr><td align="right">
    Return Date:
    <input type="text" id="end-date"/></td></tr>
  <tr><td align="center">
    <input type="button" value="Show Flights"/>
    <input type="button" value="Show Hotels"/>
  </td></tr>
</table>
```

47

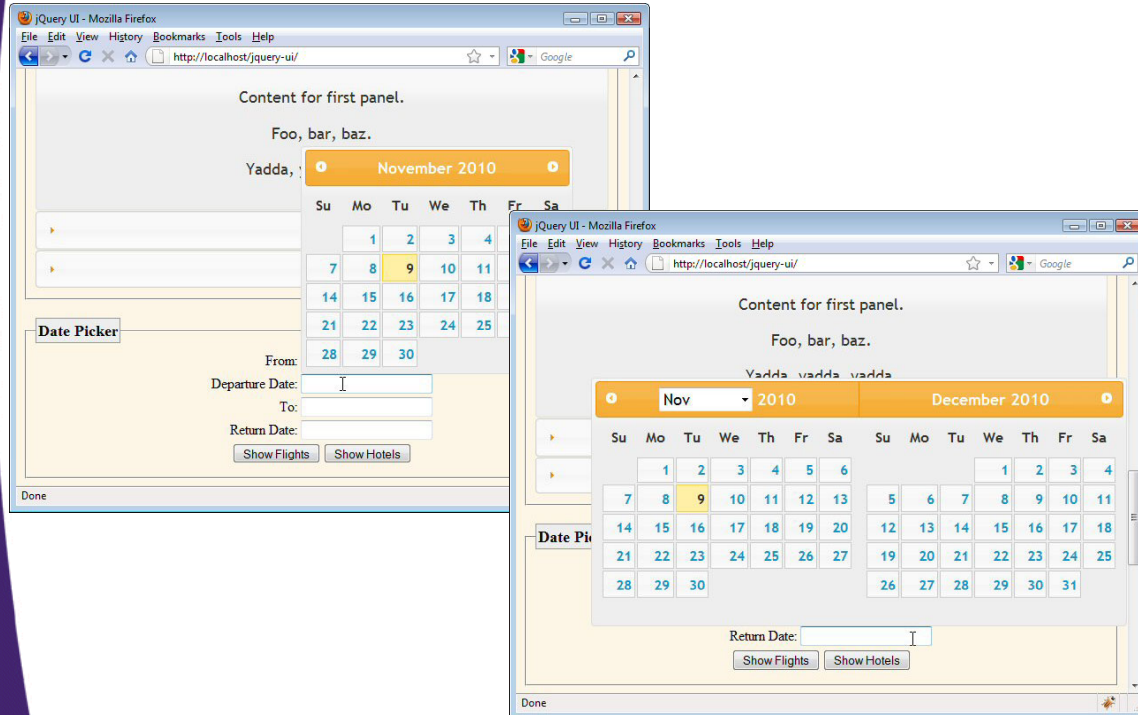
## Example: JavaScript

```
$(function() {
  $("#start-date").datepicker();
  $("#end-date").datepicker({ changeMonth: true,
                              numberOfMonths: 2 });
  ...
});
```

48



# Example: Results



49

## Main Options for `datepicker({...})`

- **defaultDate** (default: today)
  - Initially selected date
- **changeMonth, changeYear** (default: false)
  - Should jQuery include a dropdown list to let you choose the month or year?
- **dayNames** (default Sunday...Saturday)  
**monthNames** (default January...December)
  - Names to use for the days and months. For other languages. There are also various options for short versions of days.
- **numberOfMonths** (default: 1)
  - How many months to show at a time

50



# Slider

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## Overview

- **Idea**
  - Interactive slider to let user choose numeric values
    - Also supports double-handled sliders for choosing ranges
- **HTML**
  - Make a placeholder div
    - `<div id="div-for-slider"></div>`
- **Basic JavaScript**
  - Call “slider()” on the div, supply function to be called when slider moves
    - `$("#div-for-slider").slider({ slide: sliderEventHandler });`
  - Look up value later
    - Event handler takes two arguments: event and ui. Use `ui.value` to get current slider value

## Example: HTML

```
<table>
  ...
  <tr><td align="right">Temperature:</td>
    <td align="left" width="300">
      <div id="slider-div" style="margin-left: 10px"></div>
      <div id="temp-display" align="center">32</div>
    </td></tr>
  <tr><td align="center" colspan="2">
    <input type="button" value="Order Coffee"/>
  </td></tr>
</table>
```

53

## Example: JavaScript

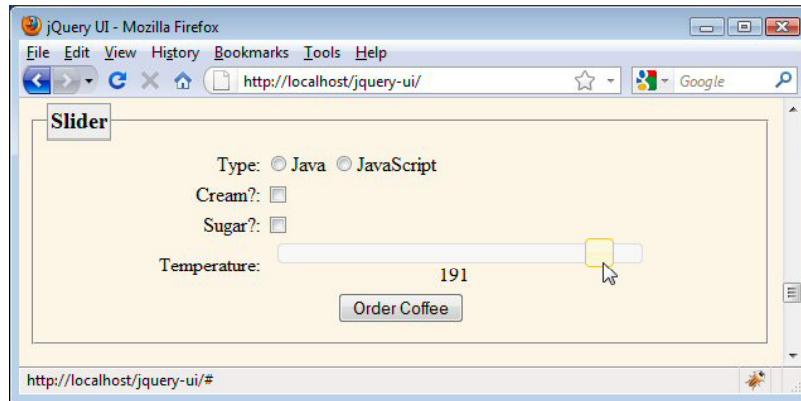
```
var uiDemo = {}; // To avoid name conflicts

uiDemo.showTemp = function(event, ui) {
  $("#temp-display").html(ui.value);
};

$(function() {
  $("#slider-div").slider({ min: 32, max: 212,
    slide: uiDemo.showTemp });
  ...
});
```

54

## Example: Results



55

## Main Options for slider({...})

- **min (default: 0)**
  - Value corresponding to left or top
- **max (default 100)**
  - Value corresponding to right or bottom
- **slide**
  - Function to call every time value changes. Function takes two arguments: event and ui object. Use ui.value to get currently selected value.
- **step (default: 1)**
  - Granularity of changes
- **value (default: min)**
  - The initial value
- **orientation (default: "horizontal")**
  - horizontal or vertical

56



# Progress Bar

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## Overview

- **Idea**
  - Shows progress from 0% to 100%
- **HTML**
  - Make a placeholder div
    - `<div id="div-for-progress-bar"></div>`
- **Basic JavaScript**
  - Call “progressbar()” on the div
    - `$("#div-for-progress").progressbar();`
  - Have another event that changes values of bar
    - Look up value with `$("#div-for-progress").progressbar("option", "value");`
    - Change value with `$("#div-for-progress").progressbar("option", "value", num);`



## Example: HTML

```
<div id="progressbar-div"></div>
<input type="button" value="Click 10 Times"
      id="progressbar-button"/>
```

59

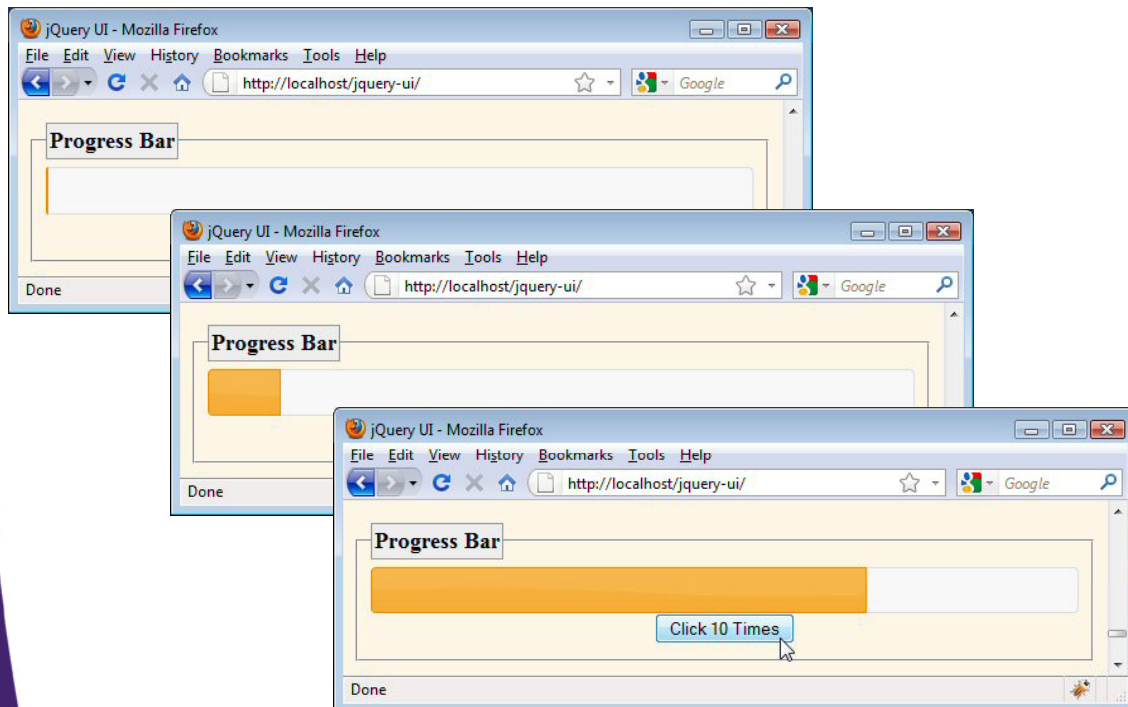
## Example: JavaScript

```
uiDemo.updateProgressBar = function() {
    var currentVal =
        $("#progressbar-div").progressbar("option", "value");
    if (currentVal < 100) {
        currentVal += 10;
        $("#progressbar-div").progressbar("option", "value",
                                           currentVal);
    }
};

$(function() {
    $("#progressbar-div").progressbar();
    $("#progressbar-button").click(uiDemo.updateProgressBar);
    ...
});
```

60

# Example: Results



61

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## Wrap-up

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# Summary

- **Setup**
  - Load jquery-ui/jquery-ui.css, jquery.js, and jquery-ui.js
    - These are renamed to omit specific version numbers
- **Ajax tabbed panels**
  - HTML
    - `<div id="main">`  
`<ul><li><a href="relative-url-1">Panel 1</a></li>`  
`<li><a href="relative-url-2">Panel 2</a></li>...`  
`</ul></div>`
  - JavaScript
    - `$(function() { $("#main").tabs(); ... });`
- **Others**
  - Styled buttons, dialog box, static tabbed panels, accordion panel, date picker, slider, progress bar

63

# Preview: Next Tutorial Section

- **Autocompleter**
  - Local data
  - Remote data
  - Custom matcher
  - Custom menu styles
  - Display values vs. values to be inserted
  - Performing side effects upon selection
- **Animation effects**
  - Highlight, animated appear/disappear
- **Changing themes**
  - Using ThemeRoller
  - Design strategies for theming
  - Changing themes at runtime

64



# Questions?

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