

# jQuery UI: Animation Effects and Themes

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co-author of *Core JSF* (4<sup>th</sup> Ed), and this tutorial.

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## Topics in This Section

- Overview of animation effects
- Applying animation effects
- Changing the default theme
- Changing themes at runtime
- Best practices for using themes

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# Setup for Examples

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## Overview

- **General setup**
  - jQuery and jQuery UI loaded as in previous lectures
  - smoothness theme is the default, as in previous lectures
- **Specific layout**
  - Each section is in its own accordion panel
  - The buttons in the animation section are styled so they take on look of theme
  - HTML headings and sections use predefined CSS class names like “ui-widget-header” and “ui-widget-content” so that they take on the look of the theme
    - See upcoming subsection on themes for the exact HTML used

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## JavaScript for General Setup

- **Purpose**
  - Styles all the buttons
  - Sets up the accordion panel
    - Both concepts covered in previous lectures
- **Code**

```
$(function() {  
    ...  
    $(".button").button();  
    $("#accordion-panel").accordion({  
        collapsible: true, active: false, autoHeight: false  
    });  
});
```

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# Animation Effects: Overview

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## Overview

- **Idea**

- You can animate HTML elements in various interesting ways
- Some of the effects automatically make elements disappear (explode, fold, etc.)
- Others can also be used for elements that remain visible (highlight, pulsate, etc.)
- You supply effect names to effect, show, hide, or toggle
- Many jQuery UI components also have builtin support for animation (e.g., datepicker, accordion)

- **Effect names**

- "blind", "bounce", "clip", "drop", "explode", "fade", "fold", "highlight", "puff", "pulsate", "scale", "shake", "slide", "transfer"
- We have upcoming interactive demo, but for details and for effect options, see <http://api.jqueryui.com/category/effects/>.

- **Quick examples**

```
$("#some-id").effect("highlight");  
$("#some-id").hide("explode");
```

## Running Effects

- **Run effect once**
  - `$(selector).effect(effectName);`
  - `$(selector).effect(effectName, options);`
    - For some effects (e.g., explode), running the effect will also hide the element
- **Run effect while hiding the element**
  - `$(selector).hide(effectName);`
  - `$(selector).hide(effectName, options);`
- **Run effect in reverse while showing the element**
  - `$(selector).show(effectName);`
  - `$(selector).show(effectName, options);`
- **Run effect while toggling visibility of the element**
  - `$(selector).toggle(effectName);`
  - `$(selector).toggle(effectName, options);`

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## Short Examples

- **Highlight element**  
`$("#some-id").effect("highlight");`
- **Flash element on and off**  
`$("#some-id").effect("pulsate");`
- **Explode element (pieces coming apart) and hide it**  
`$("#some-id").hide("explode");`
- **Show element with reverse explosion (pieces coming together)**  
`$("#some-id").show("explode");`
- **Show/clip if hidden, hide/clip if visible**  
`$("#some-id").toggle("clip");`

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## Effect Options

- **`$(selector).toggle(effectName);`**
  - Show/hide element using effect with default options and duration of 0.4 seconds  
`$("#some-id").toggle("slide");`
- **`$(selector).toggle(effectName, milliseconds);`**
  - Show/hide element using effect with default options and specified duration  
`$("#some-id").toggle("scale", 2000);`
- **`$(selector).toggle(effectName, {options});`**
  - Show/hide element using effect with effect-specific options  
`$("#some-id").toggle("puff", {percent: 500});`
    - See <http://api.jqueryui.com/category/effects/> for the options for each effect
- **`$(selector).toggle(effectName, {options}, milliseconds);`**
  - Show/hide element using effect with effect-specific options and specified duration  
`$("#some-id").toggle("puff", {percent: 500}, 3000);`
- **You can also supply function to run when animation finishes**
  - See <http://api.jqueryui.com/toggle/>

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# Animation Effects: Example

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## Example Overview

- **HTML**

- Small div styled to match the current theme

**Testing Effects**  
Blah, blah, blah.  
Yadda, yadda, yadda.  
Foo, bar, baz.

- **JavaScript setup**

- Inserts styled buttons, each with a label matching name of an animation effect



- **JavaScript button handlers**

- When any of the above buttons is pressed, it calls  
`$("#id-of-div").toggle(effectName);`  
(where the effect name is the button label)

**Testing Effects**  
Blah, blah, blah.  
Yadda, yadda, yadda.  
Foo, bar, baz.



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## Example: HTML

```
<div class="ui-widget-content ui-corner-all effects"
  id="effects-test">
  <h3 class="ui-widget-header ui-corner-all effects-header">
    Testing Effects
  </h3>
  Blah, blah, blah.<br/>
  Yadda, yadda, yadda.<br/>
  Foo, bar, baz.
</div>
```

**Testing Effects**  
Blah, blah, blah.  
Yadda, yadda, yadda.  
Foo, bar, baz.

The HTML shown here just makes the small dialog-like region shown. The buttons that perform the visual effects on that region will be dynamically added by the JavaScript.

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## Example: JavaScript (Inserts Buttons)

```
uiDemo.addEffectButtons = function(selector) {  
  var effects =  
    ["blind", "bounce", "clip", "drop", "explode", "fade", "fold",  
     "highlight", "puff", "pulsate", "scale", "shake", "slide"];  
  for(var i=0; i<effects.length; i++) {  
    var effect = effects[i];  
    var attributes = { type: "button", value: effect };  
    var button = $("<input>", attributes);  
    $(selector).append(button);  
  }  
  $(selector + " :button").click(function(event) {  
    uiDemo.toggleEffect(event.currentTarget.value, "#effects-test");  
  });  
};
```

Identifies the region where the buttons will be inserted.

Inserts a bunch of buttons that have the labels "blind", "clip", etc.

Attaches a click handler that calls uiDemo.toggleEffect (next slide) with the button label and a region id.

## Example: Main JavaScript

```
$(function() {  
  uiDemo.addEffectButtons("#effects");  
  ...  
});  
  
uiDemo.toggleEffect = function(buttonLabel, selector) {  
  $(selector).toggle(buttonLabel);  
};
```

When button is pressed, call \$(" #effects-test").toggle("blind"), \$(" #effects-test").toggle("clip"), \$(" #effects-test").toggle("drop"), etc.

The name of the effect is the button label.



# Themes: Overview

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## Themes (or “Skins”): Overview

- **Choosing themes**
  - Many prebuilt themes
  - Tool for interactively customizing themes
- **Using themes**
  - All rich GUI elements consistently use the same CSS style names and image names, so changing the style sheet and associated image folder totally changes the look and feel.
  - There are also generic names you can apply to *your* HTML elements so that they adapt to the theme
- **Other libraries**
  - jQuery’s theme customization facility is so good that other libraries have adopted the same CSS names so that jQuery’s themes apply to them.
    - E.g. PrimeFaces for JSF 2

## Using Themes

- **Changing default theme in advance**

- Can change theme for all jQuery UI elements by switching to new style sheet (with image folder)
  - To plan for changes to the theme without changes to the HTML, rename the folder for your default theme
  - E.g., use `.../jquery-ui/jquery-ui.css`, not `.../ui-darkness/jquery-ui.css`
- By using standard CSS names for your *own* HTML markup, you can ensure that *your* HTML adapts to the theme whenever it changes

- **Changing themes at runtime**

- Can change theme at runtime by creating and inserting a new style sheet link into the head (see upcoming example)

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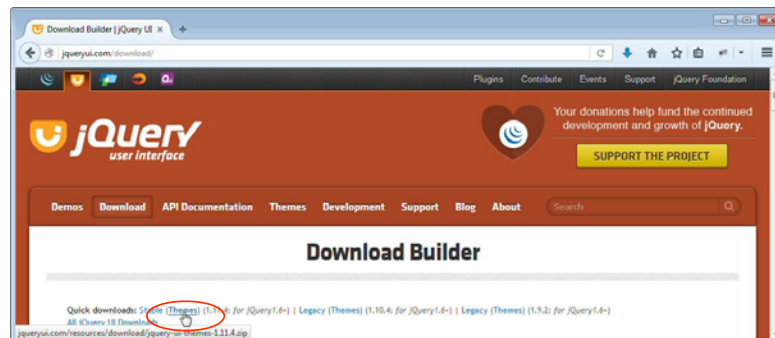
## Downloading Themes

- **Go to jQuery UI download page shown earlier**

- <http://jqueryui.com/download/>
  - When you downloaded jQuery UI, you got *one* theme. Now you can get more.

- **Click on “Themes” next to “Quick Downloads”**

- This will give a ZIP file of the latest theme files
- E.g., <http://jqueryui.com/resources/download/jquery-ui-themes-1.11.4.zip>



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## Using Downloaded Themes

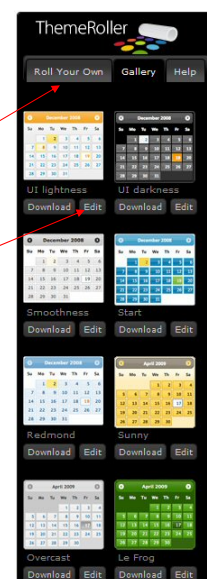
- **Use themes/theme-name folder**
  - For example, after you unzip the themes ZIP file, you might copy themes/sunny to the css folder of your app
- **Using a single theme (but that might change periodically)**
  - Rename “sunny” to “jquery-ui” so that if you replace the theme folder, you do not have to change any HTML files
  - From your HTML page, load jquery-ui.css from the jquery-ui folder
- **Using multiple themes (with ability to change at runtime)**
  - You would have multiple folders inside your css folder (e.g., jquery-ui, sunny, ui-lightness, etc.). When user makes selection, you will change which folder is used
- **Note**
  - This assumes you already have jQuery and jQuery UI installed as described in previous tutorial. So, you are installing *extra* themes only

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## Customizing Themes

<http://jqueryui.com/themeroller/>

- **Three main options**
  - Use a prebuilt theme
    - There are many choices, and each theme has consistent use of colors
  - Make a variation of an existing theme
    - Choose a theme, then either click the “Edit” button under the theme, or click on the “Roll Your Own” tab. Then, interactively change various settings before downloading
  - Edit the raw CSS file that comes with either of the above two options
    - Mostly reserved for CSS experts



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## Planning Ahead to Change Theme

- **Usual approach**

- You change theme by changing files on the Web site. But, it is easier to *replace* many files on a Web site than to *edit* many files on a Web site.

- **Strategies**

- Use generic theme names
  - Rename theme (skin) folder from ui-lightness (or sunny, or blitzer or whatever you chose) to **jquery-ui**
- Use jQuery UI CSS names for your *own* markup
  - ui-widget-header, ui-widget-content, etc.
  - For details, see <https://api.jqueryui.com/category/theming/>
- Changing theme
  - Replace the jquery-ui folder with version for new theme

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## Setting Up Page: Example

```
<head><title>jQuery UI</title>
<link rel="stylesheet"
      href="css/jquery-ui/jquery-ui.css"/>
<link rel="stylesheet"
      href="css/styles.css"/>
<script src="scripts/jquery.js"></script>
<script src="scripts/jquery-ui.js"></script>
<script src="scripts/jquery-ui-more-code.js"></script>
</head>
```

Folder was called smoothness (one of the theme names) 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-x.y.z.js in original download

My JavaScript file that calls jQuery and jQuery UI functions

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# Changing Themes at Runtime

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## Changing Theme at Run Time

- **Idea**

- Include CSS folders for multiple themes in the app
- To change theme, create new style sheet link and append it to the head section
  - Usually, developer changes the theme *ahead of time* by simply changing the CSS folder as on earlier slide. This approach lets the theme be changed at *runtime*.

- **JavaScript for inserting a style sheet**

```
var themeName = "...";
var attributes = {
    rel: "stylesheet",
    href: "css/" + themeName + "/jquery-ui.css"
};
var styleSheetLink = $("<link>", attributes);
$("head").append(styleSheetLink);
```

## Example: HTML

```
<div class="ui-widget-content ui-corner-all" id="themes-div">
  <input type="radio" name="themes" value="black-tie"/>Black Tie
  <input type="radio" name="themes" value="blitzer"/>Blitzer
  <input type="radio" name="themes" value="cupertino"/>Cupertino
  <input type="radio" name="themes" value="le-frog"/>Le Frog
  <input type="radio" name="themes" value="smoothness"/>Smoothness
  <br/>
  <input type="radio" name="themes" value="start"/>Start
  <input type="radio" name="themes" value="sunny"/>Sunny
  <input type="radio" name="themes" value="trontastic"/>Trontastic
  <input type="radio" name="themes" value="ui-darkness"/>UI-Darkness
  <input type="radio" name="themes" value="ui-lightness"/>UI Lightness
</div>
```

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These match folder names inside the css folder. They were just copied from the jQuery UI themes directory that was obtained as shown in earlier section on downloading themes.

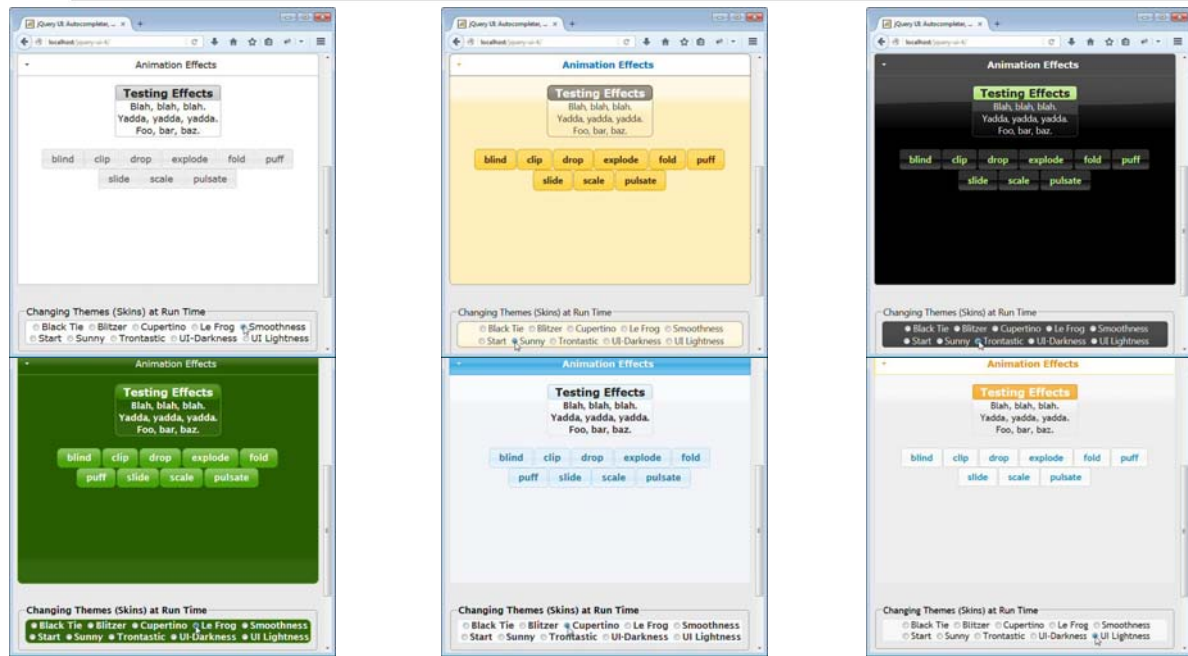
## Example: JavaScript

```
$(function() { ...
  $("#themes-div input").click(uiDemo.switchToSelectedTheme);
}

uiDemo.switchToTheme = function(themeName) {
  var attributes = { rel: "stylesheet",
                    href: "css/" + themeName + "/jquery-ui.css" };
  var styleSheetLink = $("<link>", attributes);
  $("head").append(styleSheetLink);
};

uiDemo.switchToSelectedTheme = function() {
  var theme = $(this).val();
  uiDemo.switchToTheme(theme);
};
```

## Example: Results



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# Best Practices for Using Themes

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## Plan Ahead for Changes to the Theme

- **Use CSS class names, not element names**
  - Yes: class selectors like `.blah { ... }`  
`<table class="blah">`
  - No: element selectors like `table { ... }`  
`<table>`
- **Minimize use of hard-coded colors**
  - Colors change frequently with the theme
- **Use relative, not absolute font sizes**
  - I.e., use 110% or 90%, not 18px
- **Customize components with standard CSS names**
  - See *Theming* subsection for each element at <http://api.jqueryui.com/blah/>

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## Know the Most Important jQuery UI CSS Classes

Selector	Applies To
<code>.ui-widget</code>	All jQuery UI components
<code>.ui-widget-header</code>	Header section of a component
<code>.ui-widget-content</code>	Content section of a component
<code>.ui-corner-all</code>	Makes corners rounded
<code>.ui-state-default</code>	A clickable in its default state
<code>.ui-state-hover</code>	A clickable when the mouse is hovering over it
<code>.ui-state-active</code>	A clickable when it is selected
<code>.ui-state-disabled</code>	Disabled elements
<code>.ui-state-highlight</code>	Highlighted elements
<code>.ui-icon</code>	Predefined icon for that component

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More classes and detail: <http://api.jqueryui.com/theming/css-framework/>

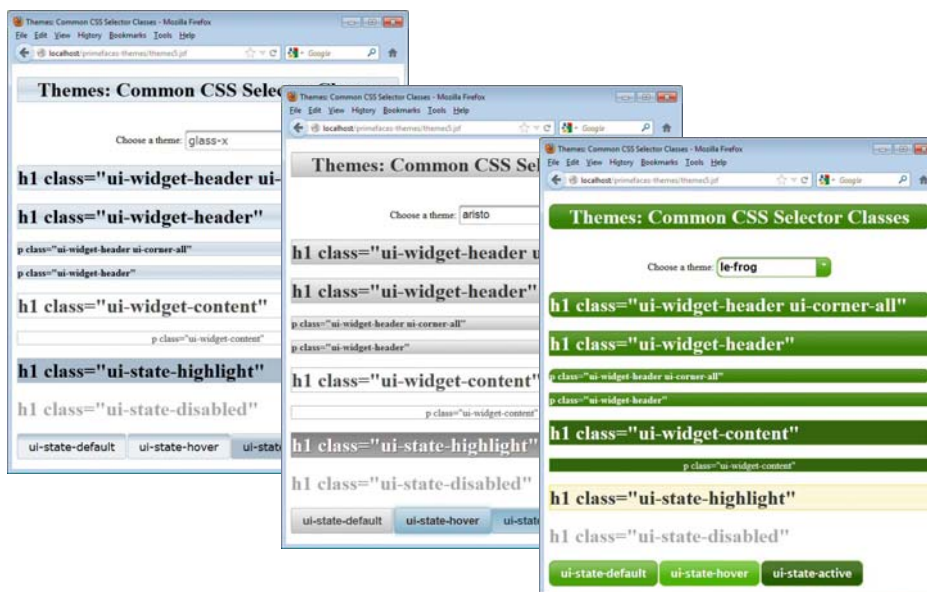


## Example

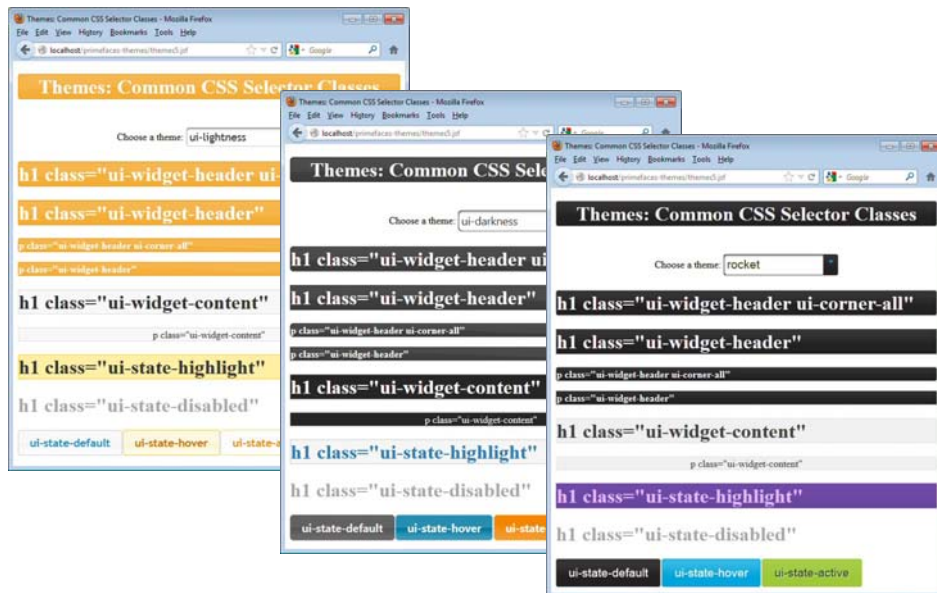
```
<h1 class="ui-widget-header ui-corner-all">
h1 class="ui-widget-header ui-corner-all"</h1>
<h1 class="ui-widget-header">h1 class="ui-widget-header"</h1>
<p class="ui-widget-header ui-corner-all">
p class="ui-widget-header ui-corner-all"</p>
<p class="ui-widget-header">p class="ui-widget-header"</p>
<h1 class="ui-widget-content">h1 class="ui-widget-content"</h1>
<p class="ui-widget-content" align="center">
p class="ui-widget-content"</p>
<h1 class="ui-state-highlight">h1 class="ui-state-highlight"</h1>
<button class="ui-state-default">ui-state-default</button>
<button class="ui-state-hover">ui-state-hover</button>
<button class="ui-state-active">ui-state-active</button>
<button class="ui-state-disabled">ui-state-disabled</button>
```

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## CSS Classes: Samples



# CSS Classes: Samples



## Theme Gotcha: None of the Themes Fit Your Needs

- **Problem**
  - None of the builtin themes is exactly what you want
- **Solution**
  - Roll your own. But don't start from scratch. Choose the theme that is nearest to what you want, then use ThemeRoller to tweak it.
  - Start at <http://jqueryui.com/themeroller/>
  - Choose a theme, then either click the "Edit" button under the theme, or click on the "Roll Your Own" tab. Then, interactively change various settings before downloading

## Theme Gotcha: Everything in Theme is Too Large

- **Problem**

- Many people feel that most themes make components slightly too large for most professional apps

- **Solution**

- Change default font size, leave everything else the same

```
.ui-widget, .ui-widget .ui-widget {  
    font-size: 90%;  
}
```

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## Theme Gotcha: Not All Styles Well Documented

- **Problem**

- Main styles are documented clearly in the sections on each component. But, some of the minor styles used throughout the themes are not documented under the individual components.

- **Solutions**

- Browse the theming page
  - <http://api.jqueryui.com/theming/css-framework/>
- Browse the themes.css file
  - Open it in TopStyle or another CSS editor that shows previews.

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# Wrap-up

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## Summary

- **Animation effects**

- `$("#some-id").effect("highlight");`
- `$("#some-id").hide("explode");`
- `$("#some-id").show("slide");`
- `$("#some-id").toggle("clip");`
  - You can also supply a duration and/or effect-specific options

- **Themes**

- Rename the theme folder and CSS file inside to have a generic name
- Change theme by replacing that theme folder
- You are not limited to the builtin themes: you can tweak them with ThemeRoller
- Use jQuery-UI CSS names in your own HTML
- Experiment by changing themes at runtime

# Questions?

More info:

<http://www.coreservlets.com/javascript-jquery-tutorial/> – Tutorial on JavaScript, jQuery, and jQuery UI

<http://courses.coreservlets.com/course-materials/java.html> – General Java programming tutorial

<http://www.coreservlets.com/java-8-tutorial/> – Java 8 tutorial

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