Session 3 : Animation in JQuery

February 2012

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- **JQuery Fundamentals**

- **Elements Display State**

- **Creating Custom Animation**

JQuery Fundamentals

- Not long ago, smooth effects and animations weren't realistic options using JavaScript.

- Between cross-browser issues and slow browser implementations, trying to fade or zoom elements, or even move them around the screen, was extraordinarily difficult.

- Thankfully, that state of affairs has passed, and JQuery provides a trivially simple interface for doing all sorts of neat effects.

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Element Display State

- Perhaps the most common type of dynamic effect we will want to perform on an element or group of elements is the simple act of showing or hiding them.

- Show() command is used to show elements which are hidden and similarly hide() is used to hide the elements.

- Hide() command changes the display value of the style property to none for the element.

- If an element in the wrapped set is already hidden, it will remain hidden but still be returned for chaining.

- Second, if an element starts as hidden by having its display style property value explicitly set to none, the show() command will always set its display style property value to block.

- If the element starts out without an explicitly declared display value, and we use the JQuery hide() command to hide it, the show() command will remember the original value and restore it to that original display state.

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Elements Display State - Show

Show Syntax

Command	Parameter	Returns
show(speed,callback) • Causes any hidden elements in the wrapped set to be revealed. • If called with no parameters, the operation takes place instantaneously by setting the display style property value of the elements to their previous setting (such as block or inline) • If a speed parameter is provided, the elements are revealed over a specified duration by adjusting their size and opacity upward. • An optional callback can be specified that's invoked when the animation is complete.	**speed** (Number|String) • Optionally specifies the duration of the effect as a number of milliseconds or as one of the predefined strings: slow, normal, or fast. • If omitted, no animation takes place and the elements are immediately revealed in the display. **callback** (Function) • An optional function invoked when the animation is complete.	• Returns the wrapped set.

Elements Display State - Hide

Hide Syntax

Command	Parameter	Returns
hide(speed,callback) • Causes the elements in the wrapped set to become hidden. • If called with no parameters, the operation takes place instantaneously by setting the display style property value of the elements to none. • If a speed parameter is provided, the elements are hidden over a period of time by adjusting their size and opacity downward to zero, at which time their display style property value is set to none to remove them from the display. • An optional callback can be specified that's invoked when the animation is complete.	**Speed** (Number|String) • Optionally specifies the duration of the effect as a number of milliseconds or as one of the predefined strings: slow, normal, or fast. • If omitted, no animation takes place, and the elements are immediately removed from the display. **Callback** (Function) • An optional function invoked when the animation completes.	• The wrapped set.

Elements Display State - Toggle

- Toggling the display state of elements between revealed or hidden—as for the collapsible list example—is such a common occurrence that JQuery defines a command named toggle() that makes it even easier.

Command	Parameter	Returns
toggle(speed,callback) • Performs show() on any hidden wrapped elements and hide() on any non-hidden wrapped elements.	**speed** (Number|String) • Optionally specifies the duration of the effect as a number of milliseconds or as one of the predefined strings: *slow*, *normal*, or *fast*. • If omitted, no animation takes place. **Callback** (Function) • An optional function invoked when the animation is complete.	• The wrapped set.

Elements Display State - Fading (1/2)

- fadeIn() and fadeOut(), only affect the opacity of the elements.
  - Other than the lack of scaling, these commands work in a fashion similar to show() and hide() (when animated) respectively.

Command	Parameters	Returns
fadeIn(speed,callback) • Causes any matched elements that are hidden to be shown by gradually changing their opacity to their natural value. • This value is either the opacity originally applied to the element, or 100%. • The duration of the change in opacity is determined by the speed parameter.	**Speed** (Number|String) • Specifies the duration of the effect as a number of milliseconds or as one of the predefined strings: slow, normal, or fast. **Callback** (Function) • An optional function invoked when the animation completes.	• The wrapped set.
fadeOut(speed,callback) • Causes any matched elements that aren't hidden to be removed from the display by gradually changing their opacity to 0% and then removing the element from the display. • The duration of the change in opacity is determined by the speed parameter.	**Speed** (Number|String) • Specifies the duration of the effect as a number of milliseconds or as one of the predefined strings: slow, normal, or fast. **Callback** (Function) • An optional function invoked when the animation completes.	• The wrapped set.

Elements Display State - Fading (2/2)

- FadeTo() lets you change the current opacity for the wrapped elements.

Command	Parameters	Returns
fadeTo(speed,opacity,callback) - Adjusts the opacity of the wrapped elements from their current setting to the new setting specified by opacity.	**Speed** (Number|String) - Specifies the duration of the effect as a number of milliseconds or as one of the predefined strings: *slow*, *normal*, or *fast*. **Opacity** (Number) - The target opacity to which the elements will be adjusted specified as a value from 0.0 to 1.0. **Callback** (Function) - An optional function invoked when the animation completes.	- The wrapped set.

Elements Display State - Sliding (1/3)

- Another set of effects that hide or show elements—slideDown() and slideUp()—also works in a similar manner to the hide() and show() effects, except that the elements appear to slide down from their tops when being revealed and to slide up into their tops when being hidden.

- As with hide() and show(), the slide effects have a command that will toggle the elements between hidden and revealed: slideToggle().

Command	Parameters	Returns
slideUp(speed,callback) • Causes any matched elements that aren't hidden to be removed from the display by gradually decreasing their vertical size.	**Speed** (Number|String) • Specifies the duration of the effect as a number of milliseconds or as one of the predefined strings: slow, normal, or fast. **callback** (Function) • An optional function invoked when the animation completes.	• The wrapped set.

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Elements Display State - Sliding (2/3)

Command	Parameters	Returns
slideDown(speed,callback) • Causes any matched elements that are hidden to be shown by gradually increasing their vertical size.	**Speed** (Number|String) • Specifies the duration of the effect as a number of milliseconds or as one of the predefined strings: slow, normal, or fast. If omitted, the default is normal. **Callback** (Function) • An optional function invoked when the animation completes. No parameters are passed to this function, but the function context (this) is set to the element that was animated.	• The wrapped set.
slideToggle(speed,callback) • Performs slideDown() on any hidden wrapped elements and slideUp() on any non-hidden wrapped elements.	**Speed** (Number|String) • Optionally specifies the duration of the effect as a number of milliseconds or as one of the predefined strings: slow, normal, or fast. **Callback** (Function) • An optional function invoked when the animation completes.	• The wrapped set.

Elements Display State - Sliding (3/3)

Stop Animation

- Stop() – command used to stop the animation.

Command	Parameters	Returns
stop() • Halts all animations that may be currently in progress for the elements in the matched set	• None	• The wrapped set.

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Creating Custom Animation (1/4)

- The number of core effects supplied with JQuery is purposefully kept small (in order to keep JQuery's core footprint to a minimum) with the expectation that plugins are available to add more animations at the page author's discretion.

- It's also a simple to write our own animations.

- JQuery publishes the animate()wrapper method that allows us to apply our own custom animated effects to the elements of the wrapped set.

Creating Custom Animation (2/4)

Command	Parameters
animate(properties,duration,easing,callback) **animate(properties,options)** • Applies an animation, as specified by the properties and easing parameters, to all members of the wrapped set. • An optional callback function can be specified that's invoked when the animation is complete. • An alternate format specifies a set of options in addition to the properties.	**properties** (Object) • An object hash that specifies the end values that supported CSS styles should reach at the end of the animation. • The animation takes place by adjusting the values of the style properties from the current value for an element to the value specified in this object hash. **duration** (Number|String) • Optionally specifies the duration of the effect as a number of milliseconds or as one of the predefined strings: slow, normal, or fast. **easing** (String) • The optional name of a function to perform easing of the animation. • Easing functions must be registered by name and are often provided by plugins. • Core JQuery supplies two easing functions registered as linear and swing. **callback** (Function) • An optional function invoked when the animation completes. **options** (Object) • Specifies the animation parameter values using an object hash. Duration/easing/complete/queue

Creating Custom Animation (3/4)

A custom scale animation

- In the example below we want to adjust the size of the elements to twice their original dimensions.

```
$('.animateMe').each(function(){
  $(this).animate(
   {
     width: $(this).width() * 2,
     height: $(this).height() * 2
   },
   2000
  );
});
```

Creating Custom Animation (4/4)

A custom drop animation

- In the example we want to conspicuously animate the removal of an element from the display.

- The animation we will use to accomplish this will make it appear as if the element drops off the page, disappearing from the display as it does so by adjusting the top position of the element, we can make it move down the page to simulate the drop; adjusting the opacity will make it seem to vanish as it does so.

- And finally, when all that's done, we want to remove the element from the display.

```
$('.animateMe').each(function(){
    $(this)
      .css('position','relative')
      .animate(
        {
          opacity: 0,
          top: $(window).height() - $(this).height() -
               $(this).position().top
        },
        'slow',
        function(){ $(this).hide(); });
});
```

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THANK YOU

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