

Chapter 9

How to use effects and animations

Objectives

- How to use effects
- A Slide Show application with effects
- How to use animation
- A Carousel application with animation



How to use effects

jQuery provide many method to make effect for elements like `show()`, `hide()`, `slideUp()`, `slideDown()`...



The jQuery methods for effects

The basic methods for jQuery effects

Method	Description
show()	Display the selected elements from the upper left to the lower right.
hide()	Hide the selected elements from the lower right to the upper left.
toggle()	Display or hide the selected elements.
slideDown()	Display the selected elements with a sliding motion.
slideUp()	Hide the selected elements with a sliding motion.
slideToggle()	Display or hide the selected elements with a sliding motion.
fadeIn()	Display the selected elements by fading them in to opaque.
fadeOut()	Hide the selected elements by fading them out to transparent.
fadeToggle()	Display or hide the selected elements by fading them in or out.
fadeTo()	Adjust the opacity property of the selected elements to the opacity set by the second parameter. With this method, the duration parameter must be specified.



The jQuery methods for effects (cont.)

The basic syntax for all of the methods except the fadeTo method

```
methodName([duration][, callback])
```

The basic syntax for the fadeTo method

```
fadeTo(duration, opacity[, callback])
```

HTML for a heading that is animated after the web page is loaded

```
<h1 id="startup_message">Temporarily under construction!</h1>
```

jQuery that fades the heading out over 5 seconds

```
$("#startup_message").fadeOut(5000);
```

jQuery that uses chaining to fade the heading out and slide it back down

```
$("#startup_message").fadeOut(5000).slideDown(1000);
```

Chaining with fadeTo methods

```
$("#startup_message").fadeTo(5000, .2).fadeTo(1000, 1);
```

jQuery with a callback function that gets the same result as the chaining

```
$("#startup_message").fadeTo(5000, .2,  
    function() {                                // start callback function  
        $(this).fadeTo(1000, 1);  
    }                                             // end callback function  
);
```



The FAQs application with jQuery effects

- The web interface

jQuery FAQs

+ What is jQuery?

– Why is jQuery becoming so popular?

Three reasons:

- It's free.
- It lets you get more done in less time.
- All of its functions are cross-browser compatible.

+ Which is harder to learn: jQuery or JavaScript?



The FAQs application with jQuery effects (cont.)

- The HTML code

```
<main id="faqs">
  <h1>jQuery FAQs</h1>
  <h2><a href="#">What is jQuery?</a></h2>
  <div>
    <hr/>
    <h2><a href="#">Why is jQuery becoming so popular?</a></h2>
    <div>
      <p>Three reasons:</p>
      <ul>
        <li>It's free.</li>
        <li>It lets you get more done in less time.</li>
        <li>All of its functions are cross-browser compatible.</li>
      </ul>
    </div>
    <h2><a href="#">Which is harder to learn: jQuery or JavaScript?</a></h2>
    <div>
      <hr/>
    </div>
  </div>
</main>
```



The FAQs application with jQuery effects (cont.)

- The jQuery with the slideDown() and fadeOut() methods

```
$(document).ready(function() {
    $("#faqs h2").click(
        function() {
            $(this).toggleClass("minus");
            if ($(this).attr("class") != "minus") {
                $(this).next().fadeOut(1000);
            }
            else {
                $(this).next().slideDown(1000);
            }
        }
    ); // end click
}); // end ready
```



The FAQs application with jQuery effects (cont.)

- The jQuery with the slideToggle() methods

```
$(document).ready(function() {  
  
    $("#faqs h2").click(  
        function() {  
            $(this).toggleClass("minus");  
            $(this).next().slideToggle(1000);  
        }  
    ); // end click  
}); // end ready
```



A Slide Show application

- The web interface



A Slide Show application (cont.)

- The HTML code

```
<main>
  <h1>Fishing Slide Show</h1>
  <h2 id="caption">Casting on the Upper Kings</h2>
  
  <div id="slides">
    
    
    
    
    
  </div>
</main>
```



A Slide Show application (cont.)

- The jQuery code – The first way

```
$(document).ready(function() {  
    // create an array of the slide images  
    var image, imageCounter = 0, imageCache = [];  
    $("#slides img").each(function() {  
        image = new Image();  
        image.src = $(this).attr("src");  
        image.title = $(this).attr("alt");  
        imageCache[imageCounter] = image;  
        imageCounter++;  
    });  
  
    // start slide show  
    imageCounter = 0;  
    var nextImage;  
    setInterval( function () {  
        $("#caption").fadeOut(1000);  
        $("#slide").fadeOut(1000,  
            function() {  
                imageCounter = (imageCounter + 1) % imageCache.length;  
                nextImage = imageCache[imageCounter];  
                $("#slide").attr("src", nextImage.src).fadeIn(1000);  
                $("#caption").text(nextImage.title).fadeIn(1000);  
            }  
        );  
    }, 3000);  
}); // end ready
```



A Slide Show application (cont.)

- The jQuery code – The second way

```
$(document).ready(function() {
    var nextSlide = $("#slides img:first-child");
    var nextCaption;
    var nextSlideSource;

    // start slide show
    setInterval( function () {
        $("#caption").fadeOut(1000);
        $("#slide").fadeOut(1000,
            function () {
                if (nextSlide.next().length == 0) {
                    nextSlide = $("#slides img:first-child");
                }
                else {
                    nextSlide = nextSlide.next();
                }
                nextSlideSource = nextSlide.attr("src");
                nextCaption = nextSlide.attr("alt");
                $("#slide").attr("src", nextSlideSource).fadeIn(1000);
                $("#caption").text(nextCaption).fadeIn(1000);
            }
        ); // end callback
    },
    3000);
}); // end ready
```



How to stop and start a slide show

```
// start slide show
var timer1 = setInterval(runSlideShow, 3000);

// starting and stopping the slide show
$("#slide").click(function() {
    if (timer1 != null) {
        clearInterval(timer1);
        timer1 = null;
    }
    else {
        timer1 = setInterval(runSlideShow, 3000);
    }
});
```



How to use animation

This is refer to these custom effects as animation by use `animate()` method.

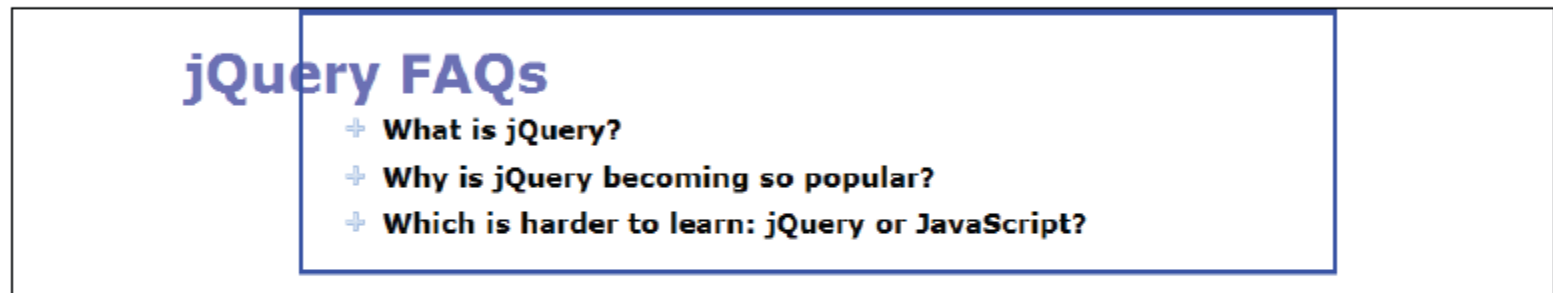


How to use the basic syntax of the `animate()` method

The basic syntax for the `animate` method

```
animate({properties}[, duration][, callback])
```

An animated heading that is moving into the “faqs” section



The CSS for the h1 heading

```
#faqs h1 {  
  position: relative;  
  left: -175px;  
  font-size: 75%;  
  opacity: .2;  
}
```



How to use the basic syntax of the animate() method (cont.)

The CSS for the h1 heading

```
#faqs h1 {  
    position: relative;  
    left: -175px;  
    font-size: 75%;  
    opacity: .2;  
}
```

An animate method for the h1 heading without a callback function

```
$("#faqs h1").animate(  
    { fontSize: "275%", opacity: 1, left: 0 },    // the properties map  
    2000  
); // end animate
```

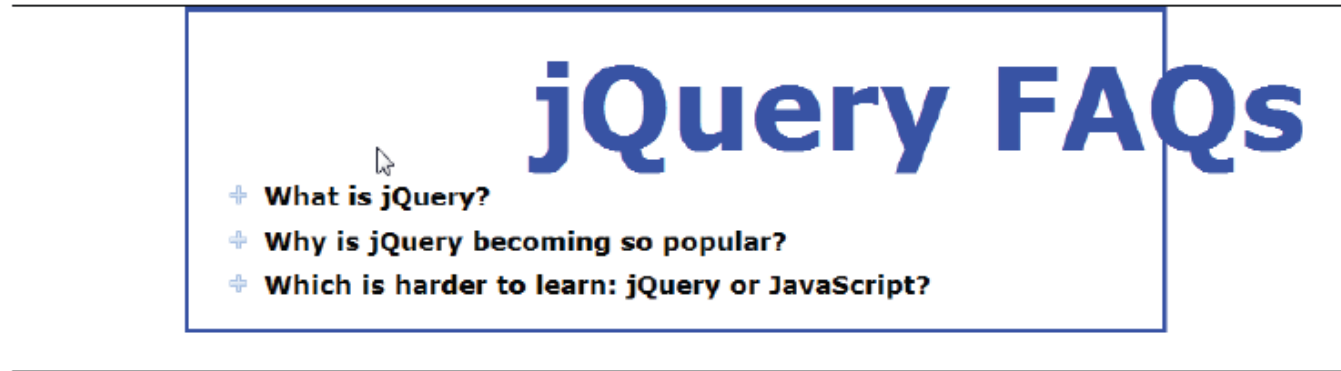
An animate method for the h1 heading with a callback function

```
$("#faqs h1").animate(  
    { fontSize: "275%", opacity: 1, left: "+=175" },  
    2000,  
    function() {  
        $("#faqs h2").next().fadeIn(1000).fadeOut(1000);  
    }  
); // end animate
```



How to chain animate() methods

A heading with two animations started by its click event



Chained animations

```
$("#faqs h1").click(function() {  
    $(this).animate(  
        { fontSize: "650%", opacity: 1, left: "+=275" }, 2000 )  
        .animate(  
            { fontSize: "175%", left: "-=275" }, 1000 )  
    });    // end click
```

Queued animations

```
$("#faqs h1").click(function() {  
    $(this).animate(  
        { fontSize: "650%", opacity: 1, left: "+=275" }, 2000 );  
    $(this).animate(  
        { fontSize: "175%", left: "-=275" }, 1000 );  
    });    // end click
```



How to chain animate() methods (cont.)

An animation with a second animation in its callback function

```
$("#faqs h1").click(function() {  
    $(this).animate(  
        { fontSize: "650%", opacity: 1, left: "+=275" },  
        2000,  
        function() {  
            $(this).animate(  
                { fontSize: "175%", left: "-=275" }, 1000  
            )  
        }  
    )  
}) // end function  
); // end click
```



How to use the `delay()`, `stop()`, and `finish()` methods

The `delay` and `stop` methods

Method	Description
<code>delay(duration)</code>	Delay the start of the next animation in the queue.
<code>stop([clearQueue][,jumpToEnd])</code>	Stop the current animation for the selected element. The two parameters are Boolean with false default values. If set to true, the first parameter clears the queue so no additional animations are run. The second parameter causes the current animation to be completed immediately.

HTML for a heading that is displayed when the web page is loaded

```
<h1 id="startup_message">Temporarily under construction!</h1>
```

jQuery that fades the heading out after 5 seconds

```
$("#startup_message").delay(5000).fadeOut(1000);
```



How to use the delay(), stop(), and finish() methods (cont.)

Thumbnail images with queues that are still running



The HTML for the thumbnail images

```
<ul id="image_list">
  <li><a href="images/h1.jpg" title="James Allison: 1-1"
    </a></li>
  // four more li elements that contain thumbnail images
  <li><a href="images/h6.jpg" title="James Allison: 1-6">
    </a></li>
</ul>
```

The CSS for the <a> elements

```
a { position: relative; }
```

The stop method stops the queued animations before starting a new one

```
$("#image_list a").hover(
  function(evt) { $(this).stop(true).animate({ top: 15 }, "fast"); },
  function(evt) { $(this).stop(true).animate({ top: 0 }, "fast"); }
); // end hover
```



How to use easings with effects and animations

- Easing refer to the way an animation is perform.
- jQuery provides only two easings: swing and linear.
- You can use plugins to get more types of easings.



How to use easings with effects and animations (cont.)

The syntax for using easing with effects and animations

The syntax for all of the basic methods except the `fadeTo` method

```
methodName([duration][, easing][, callback])
```

The syntax for the `fadeTo` method

```
fadeTo(duration, opacity[, easing][, callback])
```

The syntax for the basic `animate` method

```
animate({properties}[, duration][, easing][, callback])
```

A script element for getting the jQuery UI library from the Google CDN

```
<!-- the script element for jquery ui must come after the one for jquery -->  
<script>  
  src="https://ajax.googleapis.com/ajax/libs/jqueryui/1.8.16/jquery-ui.js">  
</script>
```



How to use easings with effects and animations (cont.)

Two easings used by the FAQs application

```
$("#faqs h2").toggle(  
    function() {  
        $(this).toggleClass("minus");  
        $(this).next().slideDown(1000, "easeOutBounce");  
    },  
    function() {  
        $(this).toggleClass("minus");  
        $(this).next().slideUp(1000, "easeInBounce");  
    }  
); // end toggle
```

Two easings for an animated heading

```
$("#faqs h1").click(function() {  
    $(this).animate(  
        { fontSize: "650%", opacity: 1, left: "+=275" }, 2000, "easeInExpo" )  
    .animate(  
        { fontSize: "175%", left: "-=275" }, 1000, "easeOutExpo" );  
}); // end click
```



How to use the advanced animate syntax and the methods for working with queues

The advanced syntax for the animate method

```
animate({properties}, {options})
```

The options for the advanced syntax

Option	Description
duration	A string or number that specifies the duration of the animation.
easing	A string that specifies an easing function.
complete	A callback function that runs when the animation is complete.
step	A function to call after each step that the animation is broken down into.
queue	A Boolean value. If true, the animation will be placed in the queue. If false, the animation will start immediately.
specialEasing	A map of one or more of the properties in the properties map with their corresponding easings.



How to use the advanced animate syntax and the methods for working with queues (cont.)

The methods for working with animation queues

Method	Description
<code>queue([name])</code>	Get the queue for the selected element.
<code>queue([name], newQueue)</code>	Replace the queue for the selected element with a new queue.
<code>queue([name], callback)</code>	Adds a new function (callback) to the end of the queue for the selected element.
<code>dequeue([name])</code>	Run the next item in the queue for the selected element.
<code>clearQueue([name])</code>	Remove all items that haven't yet been run from the queue.



How to use the advanced animate syntax and the methods for working with queues (cont.)

An animate method that uses the advanced syntax

```
$("#faqs h1").animate(  
  { fontSize: "650%", opacity: 1, left: "+=175" },  
  { duration: 2000,  
    specialEasing: { fontSize: "easeInExpo", left: "easeOutExpo" },  
    complete: function() {  
      $("#faqs h2").next().fadeIn(1000).fadeOut(1000); }  
  }  
); // end animate
```

How to provide easings by property with the basic syntax

```
$("#faqs h1").animate(  
  { fontSize: ["650%", "easeInExpo"],  
    opacity: [1, "swing"],  
    left: ["+=275", "easeOutExpo"] }, 2000  
); // end animate
```



A Carousel application with animation



A Carousel application with animation

- The web interface



A Carousel application with animation

- The HTML code

```
<main>
  <h1>View our Books</h1>
  <div id="carousel">
    <div id="left_button" class="button_panel"></div>
    <div id="display_panel">
      <ul id="image_list">
        <li><a href="newpage.html"></a></li>
        <li><a href="newpage.html"></a></li>
        <li><a href="newpage.html"></a></li>
        <li><a href="newpage.html"></a></li>
        <li><a href="newpage.html"></a></li>
        <li><a href="newpage.html"></a></li>
        <li><a href="newpage.html"></a></li>
        <li><a href="newpage.html"></a></li>
        <li><a href="newpage.html"></a></li>
      </ul>
    </div>
    <div id="right_button" class="button_panel"></div>
  </div>
</main>
```



A Carousel application with animation

- The jQuery code

```
$(document).ready(function() {

    var slider = $("#image_list");
    var leftProperty, newLeftProperty;

    // the click event handler for the right button
    $("#right_button").click(function() {
        // get value of current left property
        leftProperty = parseInt(slider.css("left"));

        // determine new value of left property
        if (leftProperty - 300 <= -900) {
            newLeftProperty = 0;
        }
        else {
            newLeftProperty = leftProperty - 300;
        }

        // use the animate function to change the left property
        slider.animate( {left: newLeftProperty}, 1000);

    }); // end click
```



A Carousel application with animation

- The jQuery code

```
// the click event handler for the left button
$("#left_button").click(function() {

    // get value of current right property
    leftProperty = parseInt(slider.css("left"));

    // determine new value of left property
    if (leftProperty < 0) {
        newLeftProperty = leftProperty + 300;
    }
    else {
        newLeftProperty = 0;
    }

    // use the animate function to change the left property
    slider.animate( {left: newLeftProperty}, 1000);

}); // end click
```



Summary

- The jQuery provide many method to make effect for elements like show(), hide(), slideUp(), slideDown()...
- The jQuery animation is refer to these custom effects as animation by use animate() method.
- Easing refer to the way an animation is perform. The jQuery provides only two easings: swing and linear.



The End.

