

JQUERY AIR

CAPTAIN'S ★ LOG

Events

– Level 1 –

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06 Live & Delegate

EVENTS



Reading from the DOM

HTML < data attribute

```
<section id="tabs">  
  <ul>  
    <li><a href="#2012-09-27" data-flights="6">Sep 27</a></li>  
    <li><a href="#2012-09-28" data-flights="5">Sep 28</a></li>  
    <li><a href="#2012-09-29" data-flights="5">Sep 29</a></li>  
  </ul>  
</section>
```

```
$('#tabs ul li:first').html();
```

```
<a href="#2012-09-27" data-flights="6">Sep 27</a>
```

```
$('#tabs ul li:first a').text();
```

Sep 27

```
$('#tabs ul li:first a').attr('href');
```

#2012-09-27

```
$('#tabs ul li:first a').data('flights');
```

6

EVENTS



What We're Building

SELECT A FLIGHT

Sep 27

Sep 28

Sep 29

Sep 30

Oct 01

DEPART

ARRIVE

FLIGHT #

ROUTING

FIRST CLASS

COACH

2:30 PM

5:18 PM

347

Nonstop

\$317

\$134

3:15 PM

5:08 PM

1946

2 stops

\$276

\$205

4:45 PM

5:22 PM

1884

1 stop

\$353

\$249

5:30 PM

5:51 PM

633

Nonstop

\$269

\$232

6:15 PM

7:25 PM

1478

Nonstop

\$268

\$169

EVENTS



Making the Tabs Work

```
$(document).ready(function(){
  $("#tabs li a").click(function(e){
    e.preventDefault();
    $("#tabs li a.active").removeClass("active");
    $(this).addClass("active");
  });
});

<section id="tabs">
  <ul>
    <li><a href="#2012-09-27" data-flights="6">Sep 27</a></li>
    <li><a href="#2012-09-28" data-flights="5">Sep 28</a></li>
    <li><a href="#2012-09-29" data-flights="5">Sep 29</a></li>
    <li><a href="#2012-09-30" data-flights="3">Sep 30</a></li>
    <li><a href="#2012-10-01" data-flights="3">Oct 1</a></li>
  </ul>
</section>
```

SELECT A FLIGHT

Sep 27

Sep 28

Sep 29

Sep 30

Oct 01

EVENTS

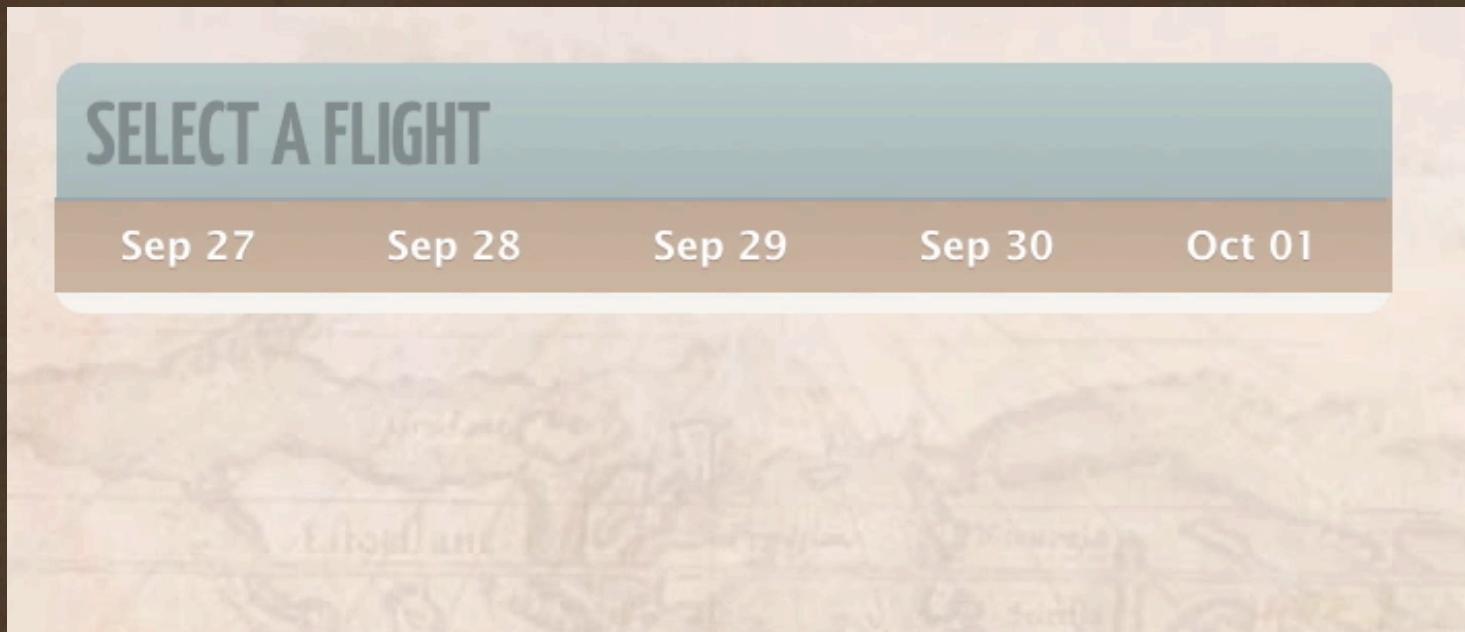


Cleaning up the Code

Executes once DOM is loaded
⋮ and ensures \$ refers to jQuery

```
jQuery(function($) {  
    function changeTab(e) {  
        e.preventDefault();  
        $("#tabs li a.active").removeClass("active");  
        $(this).addClass("active");  
    }  
    $("#tabs li a").click(changeTab);  
});
```

What we have so far



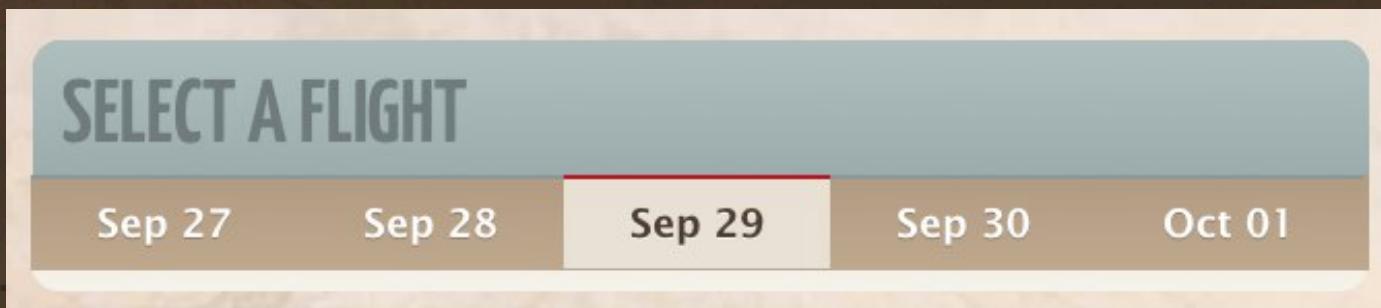
```
function changeTab(e) {  
    e.preventDefault();  
    $("#tabs li a.active").removeClass("active");  
    $(this).addClass("active");  
}
```

EVENTS

Select the Default View

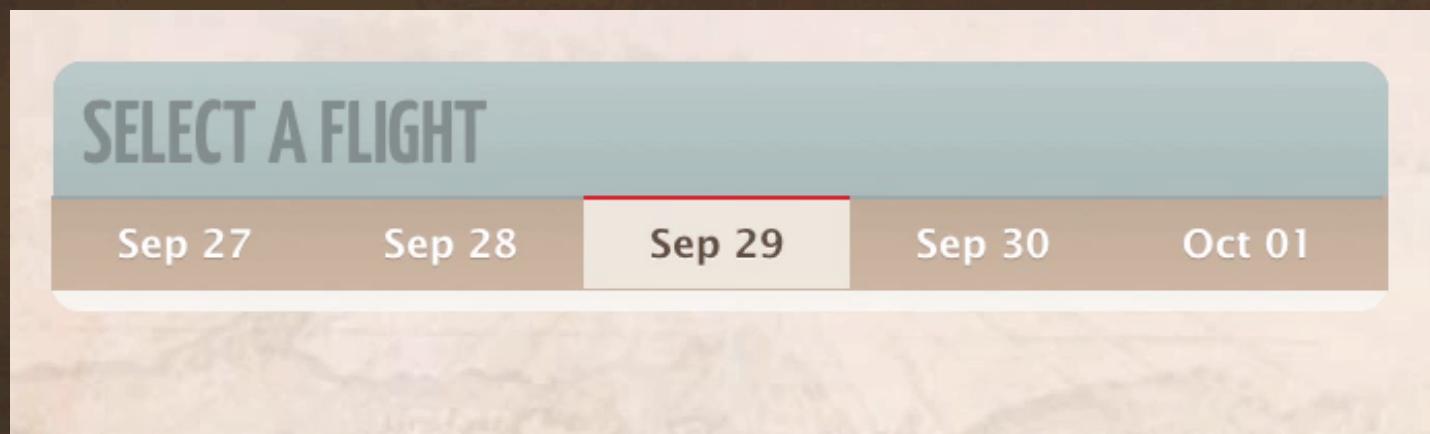
```
function changeTab(e) {  
    e.preventDefault();  
    $("#tabs li a.active").removeClass("active");  
    $(this).addClass("active");  
}  
  
$("#tabs li a").click(changeTab);  
$("#tabs li:eq(2) a").click();
```

Selects the 3rd element



EVENTS

What we have so far



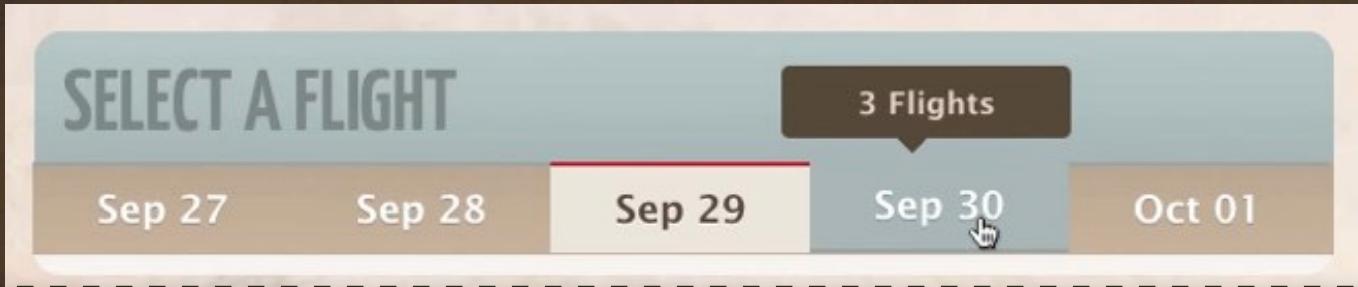
Create a tool tip with the data tag

```
<section id="tabs">
  <ul>
    <li><a href="#2012-09-27" data-flights="6">Sep 27</a></li>
    <li><a href="#2012-09-28" data-flights="5">Sep 28</a></li>
    <li><a href="#2012-09-29" data-flights="5">Sep 29</a></li>
    <li><a href="#2012-09-30" data-flights="3">Sep 30</a></li>
    <li><a href="#2012-10-01" data-flights="3">Oct 1</a></li>
  </ul>
</section>
```

EVENTS



Create Tooltip with Data Tag



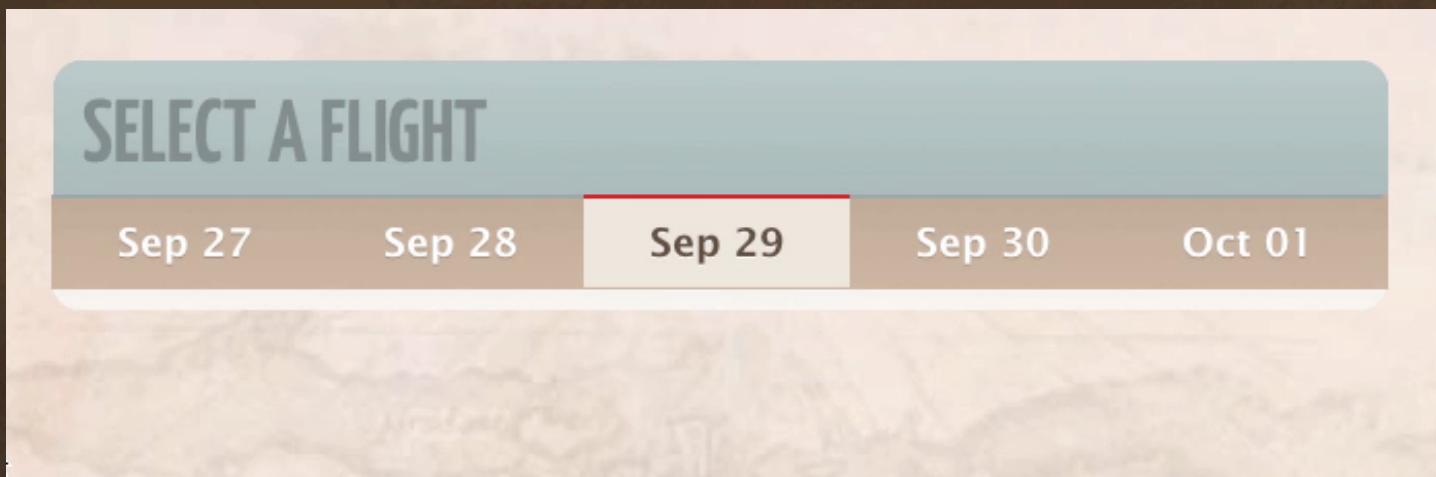
```
function showNumberOfflights(e) {  
    var num_flights = $(this).data('flights');  
    $(this).append("<span class='tooltip'>" + num_flights  
                  + " flights</span>");  
}  
  
function hideNumberOfflights(e) {  
    $("#tabs span.tooltip").remove();  
}  
  
$("#tabs li a").click(changeTab);  
$("#tabs li a").mouseenter(showNumberOfflights);  
$("#tabs li a").mouseleave(hideNumberOfflights);
```

Using Bind for Multiple Events



```
function showNumber0fFlights(e) {  
    var num_flights = $(this).data("flights");  
    $(this).append("<span class='tooltip'>" + num_flights  
                  + " flights</span>");  
}  
  
function hideNumber0fFlights(e) {  
    $("#tabs span.tooltip").remove();  
}  
  
$("#tabs li a").bind({  
    click: changeTab,  
    mouseenter: showNumber0fFlights,  
    mouseleave: hideNumber0fFlights  
});
```

What we have so far



```
$("#tabs li a").bind({  
  click: changeTab,  
  mouseenter: showNumberOfFlights,  
 mouseleave: hideNumberOfFlights  
});
```

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Lets Add Divs!

```
<section id="tabs">
  <ul>
    <li><a href="#2012-09-27" data-flights="6">Sep 27</a></li>
    <li><a href="#2012-09-28" data-flights="5">Sep 28</a></li>
    <li><a href="#2012-09-29" data-flights="5">Sep 29</a></li>
    <li><a href="#2012-09-30" data-flights="3">Sep 30</a></li>
    <li><a href="#2012-10-31" data-flights="3">Oct 1</a></li>
  </ul>
  ...
  <div id="2012-09-27">Loading Sep 27</div>
  <div id="2012-09-28">Loading Sep 28</div>
  <div id="2012-09-29">Loading Sep 29</div>
  <div id="2012-09-30">Loading Sep 30</div>
  <div id="2012-10-01">Loading Oct 1</div>
</section>
```

SELECT A FLIGHT

Sep 27 Sep 28 Sep 29 Sep 30 Oct 01

Loading Sep 29



Switching Between Divs

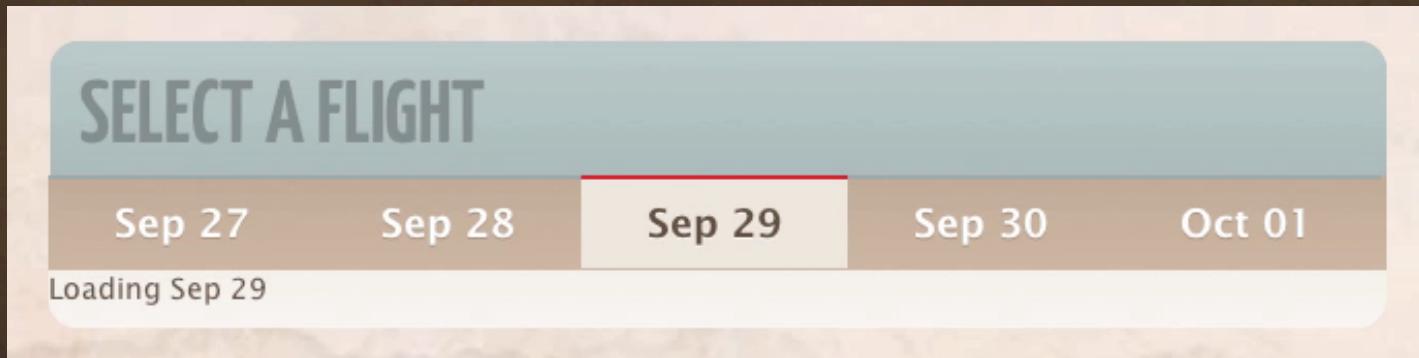
```
function changeTab(e) {  
  e.preventDefault();  
  $("#tabs li a.active").removeClass("active");  
  $(this).addClass("active");  
  
  $("#tabs div").hide();  
  var activeDiv = $(this).attr("href");  
  $(activeDiv).show();  
}  
  
<section id="tabs">  
  <ul>  
    <li><a href="#2012-09-27" data-flights="6">Sep 27</a></li>  
  </ul>  
  <div id="2012-09-27">Loading Sep 27</div>  
</section>
```

Refactor

```
function changeTab(e) {  
  e.preventDefault();  
  $("#tabs li a.active").removeClass("active");  
  $(this).addClass("active");  
  showFlights($(this).attr("href"));  
}  
  
function showFlights(activeDiv) {  
  $("#tabs div").hide();  
  $(activeDiv).show();  
}
```

```
<section id="tabs">  
  <ul>  
    <li><a href="#2012-09-27" data-flights="6">Sep 27</a></li>  
  </ul>  
  
  <div id="2012-09-27">Loading Sep 27</div>  
</section>
```

What we have so far



```
function changeTab(e) {  
    e.preventDefault();  
    $("#tabs li a.active").removeClass("active");  
    $(this).addClass("active");  
    showFlights($(this).attr("href"));  
}  
  
function showFlights(activeDiv) {  
    $("#tabs div").hide();  
    $(activeDiv).show();  
}
```

EVENTS

Load Flights with AJAX

```
function changeTab(e) {  
  e.preventDefault();  
  $("#tabs li a.active").removeClass("active");  
  $(this).addClass("active");  
  showFlights($(this).attr("href"));  
}  
  
function showFlights(activeDiv) {  
  $("#tabs div").hide();  
  $(activeDiv).show();  
  fetchFlights(activeDiv);  
}
```

...

Loads the proper flight data
(We'll learn about AJAX later)

EVENTS



Unbind the Event

```
.bind("click", changeTab);
```

```
function changeTab(e) {
```

```
  e.preventDefault();
```

```
  $("#tabs li a.active").removeClass("active").click(changeTab);
```

```
  $(this).addClass("active").unbind("click", changeTab);
```

```
...
```

SELECT A FLIGHT

DEPART	ARRIVE	FLIGHT #	ROUTING	FIRST CLASS	COACH
2:30 PM	5:18 PM	347	Nonstop	\$317	\$134
3:15 PM	5:08 PM	1946	2 stops	\$276	\$205
4:45 PM	5:22 PM	1884	1 stop	\$353	\$249
5:20 PM	5:51 PM	633	Nonstop	\$269	\$232

localhost:3000/slides?l=1&c=4#2012-09-30

Network

Name	Method	Status Text	Type	Size Counter	Time Latency	Timeline	94ms	142ms	189ms	236ms	283ms
flights	GET	304 Not Mod	text...	525B 1012B	57ms 56ms						

9 requests | 3.63KB transferred | 283ms (onload: 253ms, DOMContentLoaded: 236ms)

JQUERY AIR CAPTAIN'S LOG

Namespacing Your Events

```
.bind("click.flightSchedule", changeTab);  
.unbind("click.flightSchedule")
```

Or alternatively

```
$("#tabs li a").bind({  
  "click.flightSchedule": changeTab,  
  "mouseenter.flightSchedule": showNumberOfFlights,  
  "mouseout.flightSchedule": hideNumberOfFlights  
});
```

Now you can unbind everything

```
$("#tabs li a").unbind(".flightSchedule")
```

Allowing Users to Select a Flight

SELECT A FLIGHT					
Sep 27	Sep 28	Sep 29	Sep 30	Oct 01	
DEPART	ARRIVE	FLIGHT #	ROUTING	FIRST CLASS	COACH
2:30 PM	5:18 PM	347	Nonstop	\$317	\$134
3:15 PM	5:08 PM	1946	2 stops	\$276	\$205
4:45 PM	5:22 PM	1884	1 stop	\$263	\$249
5:30 PM	5:51 PM	633	Nonstop	\$269	\$232
6:15 PM	7:25 PM	1478	Nonstop	\$268	\$169

EVENTS

JQUERY
AIR
CAPTAIN'S LOG

Allowing Users to Select a Flight

```
<table id="flights">
  ...
  <tr>
    <td>3:15 PM</td>
    <td>5:08 PM</td>
    <td>1946</td>
    <td>2 stops</td>
    <td><a href="#" class="selected">$276</a></td>
    <td><a href="#">$205</a></td>
  </tr>
  ...
</table>
```

EVENTS



Selecting a Flight

```
function selectFlight(e) {  
    e.preventDefault();  
    $("#flights a.selected").removeClass("selected");  
    $(this).addClass("selected");  
}  
  
$("#flights a").bind("click", selectFlight);
```

If doesn't work!

SELECT A FLIGHT					
Sep 27	Sep 28	Sep 29	Sep 30	Oct 01	
DEPART	ARRIVE	FLIGHT #	ROUTING	FIRST CLASS	ECONOMY
3:15 PM	6:10 PM	1432	2 stops	\$397	\$230
4:00 PM	6:40 PM	66	1 stop	\$320	\$153
6:15 PM	8:02 PM	906	1 stop	\$273	\$101

EVENTS

Live - For Binding Selectors Now and in the Future

```
function selectFlight(e) {  
  e.preventDefault();  
  $("#flights a.selected").removeClass("selected");  
  $(this).addClass("selected");  
}  
  
$("#flights a").live("click", selectFlight);
```

SELECT A FLIGHT					
Sep 27	Sep 28	Sep 29	Sep 30	Oct 01	
DEPART	ARRIVE	FLIGHT #	ROUTING	FIRST CLASS	ECONOMY
3:15 PM	6:10 PM	1432	2 stops	\$397	\$230
4:00 PM	6:40 PM	66	1 stop	\$320	\$153
6:15 PM	8:02 PM	906	1 stop	\$273	\$101

EVENTS



Delegate vs Live

```
$("#flights a").live("click", selectFlight);
```

↑
⋮ Same as
↓

```
$(document).delegate("#flights a", "click", selectFlight);
```

```
$("#tabs div").delegate("#flights a", "click", selectFlight);
```

↑
⋮

Check inside this element, rather than entire page

Delegate has Benefits

- can be method chained
- more performant

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AJAX

– Level 2 –

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AJAX



Figuring out the AJAX

We skipped over it the first time

SELECT A FLIGHT					
Sep 27	Sep 28	Sep 29	Sep 30	Oct 01	
DEPART	ARRIVE	FLIGHT #	ROUTING	FIRST CLASS	ECONOMY
2:30 PM	5:18 PM	347	Nonstop	\$317	\$134
3:15 PM	5:08 PM	1946	2 stops	\$276	\$205
4:45 PM	5:22 PM	1884	1 stop	\$353	\$249
5:30 PM	5:51 PM	633	Nonstop	\$269	\$232
6:15 PM	7:25 PM	1478	Nonstop	\$268	\$169

AJAX



Basic AJAX

★ Code from Level 1

```
function showFlights(activeDiv) {  
    $("#tabs div").hide();  
    $(activeDiv).show();  
    fetchFlights(activeDiv);  
}
```



We need to write the AJAX

AJAX

Basic AJAX



```
function showFlights(activeDiv) {  
    $("#tabs div").hide();  
    $(activeDiv).show();  
  
    $.ajax('/flights', {  
        data: { date: activeDiv },  
        success: function(result) {  
            $(activeDiv).html(result);  
        }  
    });  
}
```

/flights?date=%232012-09-30

We're showing the DN
before it's loaded

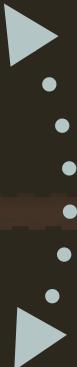
AJAX

\$.get Alternate Syntax

```
$.ajax('/flights', {  
    data: { date: activeDiv },  
    success: function(result) {  
        $(activeDiv).html(result);  
        $(activeDiv).show();  
    }  
});
```



```
$.get("/flights",  
{ date: activeDiv },  
function(result) {  
    $(activeDiv).html(result);  
    $(activeDiv).show();  
});
```



AJAX

AJAX cache option

```
$.ajax('/flights', {  
    data: { date: activeDiv },  
    cache: false,  
    success: function(result) {  
        $(activeDiv).html(result);  
        $(activeDiv).show();  
    }  
});
```

Reloads all data

AJAX

Add Error Handling

```
$.ajax('/flights', {
  data: { date: activeDiv },
  cache: false,
  beforeSend: function(result) {
    $('#error').hide();
  },
  success: function(result) {
    $(activeDiv).html(result);
    $(activeDiv).show();
  },
  error: function(result) {
    $('#error').show();
  }
});
```

AJAX



Add Error Handling

In HTML

```
<div id="2012-10-01"></div>

<div id="error">
  <h2>Whoops, unable to pull flights.</h2>
  <p>Sorry about that, <a href="#">Click Here</a> to try again.<p>
</div>
```

In JavaScript

```
$("#error a").click(function (e){
  e.preventDefault();
  showFlights($("#tabs li a.active").attr("href"));
});
```

AJAX



Add Loading Screen

In HTML

```
<div id="2012-10-01"></div>

<div id="error">
  <h2>Whoops, unable to pull flights.</h2>
  <p>Sorry about that, <a href="#">Click here</a> to try again.<p>
</div>

<div id="loading">
  <h2>Just a minute while we pull up your flight</h2>
</div>
```

AJAX



More Callbacks

```
$.ajax('/flights', {  
  data: { date: activeDiv },  
  cache: false,  
  beforeSend: function() {  
    $('#error').hide();  
    $('#loading').show();  
  },  
  complete: function() {  
    $('#loading').hide();  
  },  
  success: ... If returns successfully  
  error: ... If doesn't return successfully  
});
```

Before AJAX invoked

When AJAX returns

If returns successfully

If doesn't return successfully

AJAX



Need to abort incomplete AJAX requests

```
function showFlights(activeDiv) {  
    $("#tabs div").hide();  
    $.ajax('/flights', {  
        ...  
    });  
}
```



Getting called every time
a tab is clicked

AJAX

Need to abort incomplete AJAX requests

```
var fetchingFlights = null;  
  
function showFlights(activeDiv) {  
    $("#tabs div").hide();  
    if (fetchingFlights) {  
        fetchingFlights.abort();  
    }  
    fetchingFlights = $.ajax('/flights', {  
        ...  
        complete: function(result) {  
            $('#tabs #loading').hide();  
            fetchingFlights = null;  
        }  
    });  
}
```



AJAX

Abort triggers the error callback



```
function showFlights(activeDiv) {  
    $("#tabs div").hide();  
    if (fetchingFlights) {  
        fetchingFlights.abort();  
    }  
    fetchingFlights = $.ajax('/flights', {  
        ...  
        complete: function(result) {  
            $('#tabs #loading').hide();  
            fetchingFlights = null;  
        }  
        error: function(result) {  
            if (result.statusText != "abort") {  
                $('#tabs #error').show();  
            }  
        }  
    });  
}
```

Don't show error if aborted

Adding a timeout



```
fetchingFlights = $.ajax('/flights', {  
    data: { date: activeDiv },  
    cache: false,  
    timeout: 8000, ▼..... After 8 seconds will error out  
    ...  
    error: function(result) {  
        if (result.statusText != "abort") {  
            $('#tabs #error').show();  
        }  
    }  
});
```

AJAX

Adding a Timeout

SELECT A FLIGHT

Sep 27

Sep 28

Sep 29

Sep 30

Oct 01

Whoops, unable to pull flights.

Sorry about that, [Click here](#) to try again.

AJAX

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Fetch Data using JSON

SELECT A FLIGHT

Sep 27

Sep 28

Sep 29

Sep 30

Oct 01

DEPART

ARRIVE

FLIGHT #

ROUTING

FIRST CLASS

ECONOMY

3:15 PM

6:10 PM

1432

2 stops

\$397

\$230

4:00 PM

6:40 PM

66

1 stop

\$320

\$153

6:15 PM

8:02 PM

906

1 stop

\$273

\$101

Base Price: \$397.00

Govt. Taxes and Fees: \$51.61

Trip Total: \$448.61

Please login to book flight:

Email:

Password:

Login

Fetching Data using JSON

```
function selectFlight(e) {  
    e.preventDefault();  
    $("#tabs a.selected").removeClass('selected');  
    $(this).addClass('selected');  
  
    var flight = $(this).data('flight');  
    var flightClass = $(this).data('class');  
  
    $('#confirm').hide();  
  
    $.ajax('/flights/' + flight, {  
        data: { 'class': flightClass },  
        dataType: 'json',  
        success: showTotal  
    });
```

Same as

```
$.getJSON('/flights/' + flight,  
        { 'class': flightClass },  
        showTotal);
```

Fetching Data using JSON

```
$.ajax('/flights/' + flight, {  
    data: { 'class': flightClass },  
    dataType: 'json',  
    success: showTotal  
});
```

```
function showTotal(json) {  
    $('#price').text(json.price);  
    $('#fees').text(json.fees);  
    $('#total').text(json.total);  
    $('#confirm').slideDown();  
}
```

```
<section id="confirm">  
    <div class="flight-review">  
        <table>  
            <tr>  
                <th>Base Price:</th>  
                <td id="price"></td>  
            </tr>  
            <tr>  
                <th>Govt. Taxes:</th>  
                <td id="fees"></td>  
            </tr>  
            <tr class="total">  
                <th>Trip Total:</th>  
                <td id="total"></td>  
            </tr>  
        </table>  
    </div>
```

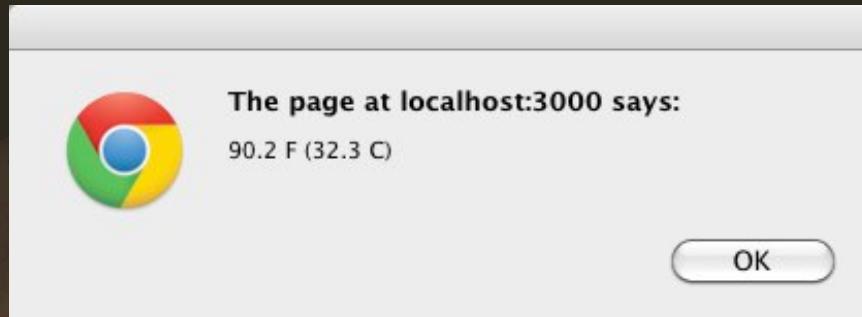
Fetching Data Using JSONP

How you fetch JSON data from a different domain

```
$.ajax('http://other.com/flights/' + flight, {  
  data: { 'class': class },  
  dataType: 'jsonp',  
  success: showTotal  
});
```

```
function fetchWeather() {  
  $.ajax('http://api.wunderground.com/api/./conditions/q/32789.json', {  
    dataType: 'jsonp',  
    success: function(json) {  
      alert(json.current_observation.temperature_string);  
    }  
  });  
}
```

...Your API key



AJAX

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The Login Form

```
<div id="login">
  <form>
    <h4>Please login to book flight:</h4>
    <p>
      <label>Email:</label>
      <input type='email' name='email' id='email' />
    </p>
    <p>
      <label>Password:</label>
      <input type='password' name='password' id='password' />
    </p>
    <p>
      <input type='submit' value="Login" />
    </p>
  </form>
</div>
```

Please login to book flight:

Email:

Password:

AJAX



Pulling Email and Password

```
$('#login form').submit(login);
```

```
function login(e) {  
    e.preventDefault();  
    $('#login h4').slideUp();  
  
    var email = $('#login #email').val();  
    var password = $('#login #password').val();  
  
    $.ajax('/login', {  
        data: { 'email':email, 'password':password },  
        ...  
    })
```

AJAX



Serialize & Script

```
function login(e) {  
    e.preventDefault();  
    $('#login h4').slideUp();    email=<email>&password=<pass>  
  
    var form = $(this).serialize();....  
  
    $.ajax('/login', {  
        data: form,  
        dataType: 'script', ▼...  
        type: 'post'  
    });  
}
```



Expecting JavaScript to execute

AJAX

Server-Side Generated JavaScript

/app/views/sessions/create.js.erb (Rails app)

```
<% if @logged_in %>
  $('#login').html("<%= escape_javascript(render 'welcome') %>");  
                                Insert welcome message
  $('#confirm .confirm-purchase').slideDown();  
                                Show purchase button
  $("#confirm tr.total td").css('background-color', '#2C1F11');  
                                Highlight total price
<% else %>
  $('#login h4').text("Invalid Email/Password. Try Again").slideDown();
<% end %>
```

AJAX



Effects

– Level 3 –

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- 01 Chaining Effects & Adjusting Speed
- 02 Animating with CSS
- 03 Effect Easing
- 04 Using a Queue
- 05 Adding a Delay
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Adding Fade In & Out to Login Box

```
$('#login').html(...);
```

⋮
⋮ Chain effects
▼

```
$('#login').fadeOut().html(...).fadeIn();
```

Please login to book flight:

Email:

Password:

Effect docs

<http://api.jquery.com/category/effects/>

Effects



Adding a Callback to Effects

```
$('#login').fadeOut().html(...).fadeIn();
```

↓ Use callback

```
$('#login').fadeOut(function() {  
  $(this).html(...).fadeIn();  
});
```

↓ Adjust speed

```
$('#login').fadeOut('fast', function() {  
  $(this).html(...).fadeIn('slow');  
});
```

Effect Speed Settings

200 ms <..... 'fast'

400 ms <..... Default

600 ms <..... 'slow'

Custom Time

1000 ms <.....
\$('#login').fadeOut(1000)
(1 second)

Animate Total to Call Attention

```
$(...).css('background-color', '#2C1F11');
```

↓
Change height

Trip Total:

\$303.97

```
$(...).css({'background-color': '#2C1F11'})  
.animate({ height: '30'});
```

↓
Flash a little

Trip Total:

\$398.89

```
$(...).css({'background-color': '#2C1F11', 'opacity':'0.5'})  
.animate({ opacity: '1', height: '30'}, 'slow');
```

FYI. Could use classes & CSS animations

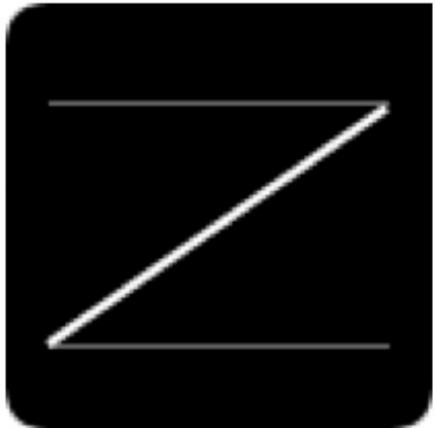
Effects



Effect Easing, We Have Two

The speed the animation progresses

1. linear



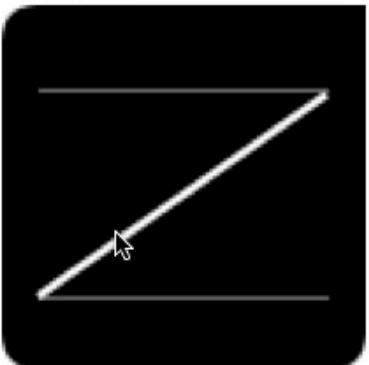
2. swing



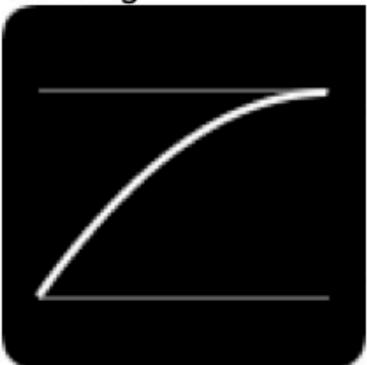
Default

The jQuery UI library comes with more

1. linear



2. swing



3. easeInQuad



4. easeOutQuad



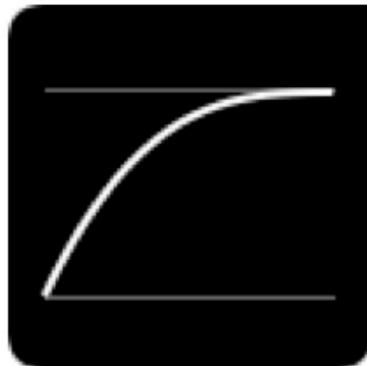
5. easeInOutQuad



6. easeInCubic



7. easeOutCubic



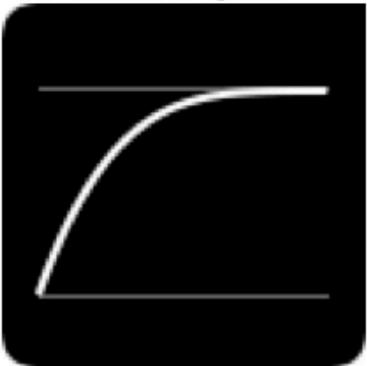
8. easeInOutCubic



9. easeInQuart



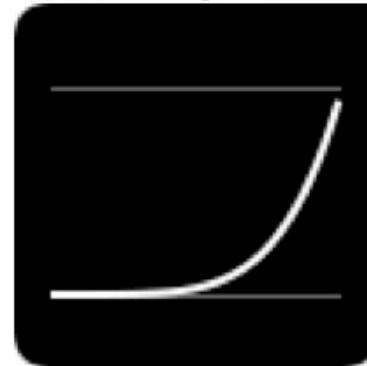
10. easeOutQuart



11. easeInOutQuart



12. easeInQuint



Change Easing of Confirmation to Linear

```
$('#confirm .confirm-purchase').slideDown(500, 'linear');
```

```
$("...").css({'background-color': '#2C1F11', 'opacity':'0.5'})  
.animate({ opacity: '1', height: '30' }, 'slow', 'linear');
```

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Refactoring Login

```
$.ajax('/login', {  
  data: form,  
  dataType: 'script',  
  type: 'post'  
});
```

⋮

Successful login returns ▼

```
$('#login').fadeOut('fast', function() {  
  $(this).html(...).fadeIn('slow');  
});
```

But why not fade out
before the AJAX?

Effects

Refactoring Login

```
$('#login').fadeOut(2000);  
$.ajax('/login', {  
  data: form,  
  dataType: 'script',  
  type: 'post'  
});
```

Successful login returns ▾

```
$('#login').html(...).fadeIn('slow');
```

Adding a Queue

Successful login returns

```
$('#login').queue(function(next) {  
    $(this).html("...").fadeIn('slow');  
    next(); .....  
});
```

..... to dequeue the next item

```
$('#confirm .confirm-purchase').slideDown(500, 'linear');  
$("...").css({'background-color': '#2C1F11', 'opacity':'0.5'})  
.animate({ opacity: '1', height: '30'}, 'slow', 'linear');
```

Do the confirm box afterwards?

Adding a Queue

Do the confirm box afterwards

```
$('#login').queue(function(next) {  
    $(this).html("...").fadeIn('slow', function() {  
        $('#confirm .confirm-purchase').slideDown(500, 'linear');  
        $("...").css({'background-color': '#2C1F11', 'opacity':'0.5'})  
        .animate({ opacity: '1', height: '30'}, 'slow', 'linear');  
    });  
    next();  
});
```

Improved Tool Tips

SELECT A FLIGHT

Sep 27

Sep 28

Sep 29

Sep 30

Oct 01

DEPART

ARRIVE

FLIGHT #

ROUTING

FIRST CLASS

ECONOMY

2:30 PM

5:18 PM

347

Nonstop

\$317

\$134

3:15 PM

5:08 PM

1946

2 stops

\$276

\$205

4:45 PM

5:22 PM

1884

1 stop

\$353

\$249

5:30 PM

5:51 PM

633

Nonstop

\$269

\$232

6:15 PM

7:25 PM

1478

Nonstop

\$268

\$169

Let's add fade in, out, and delay

Effects



Improved Tool Tips

Let's add fade in, out, and delay

```
function showNumberOfFlights(e) {  
    var num_flights = $(this).data('flights');  
    $(this).append("<span class='tooltip'>"  
                  + num_flights + " flights</span>");  
    $("#tabs span.tooltip").show();  
}  
 
```

```
function hideNumberOfFlights(a) {  
    $("#tabs span.tooltip").remove();  
}
```

Improved Tool Tips

Let's add *fade in*, *out*, and *delay*

```
function showNumberofFlights(e) {  
    var num_flights = $(this).data('flights');  
    $(this).append("<span class='tooltip'>"  
                  + num_flights + " flights</span>");  
    $("#tabs span.tooltip").delay(300).fadeIn();  
}  
 
```

```
function hideNumberofFlights(a) {  
    $("#tabs span.tooltip").fadeOut(function(){  
        $(this).remove();  
    });  
}
```



Fixing the Delay

```
function hideNumberOfFlights(a) {  
    $("#tabs span.tooltip").stop().fadeOut(function(){  
        $(this).remove();  
    });  
}
```



Will stop all effects

Code Organization

– Level 4 –

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CODE ORGANIZATION



Turning the Flight Function to JSON

```
fetchingFlights = $.ajax('/flights', {  
    data: { date: activeDiv },  
    ...  
    success: function(result) {  
        $(activeDiv).html(result);  
        $('#error').hide();  
        $(activeDiv).show();  
    }  
});  
}
```

Let's receive JSON

Turning the Flight Function to JSON

/flights.json

```
[  
  - {  
      depart: "3:15 PM",  
      arrive: "3:54 PM",  
      flight: 1826,  
      routing: 0,  
      first_class: "$303",  
      economy: "$248"  
    },  
    - {  
      depart: "4:45 PM",  
      arrive: "5:18 PM",  
      flight: 1431,  
      routing: 2,  
      first_class: "$293",  
      economy: "$245"  
    },  
    - {  
      depart: "6:15 PM",  
      arrive: "8:50 PM",  
      flight: 1545,  
      routing: 1,  
      first_class: "$306",  
      economy: "$173"  
    }  
]
```

CODE ORGANIZATION

The \$.each Utility Function

```
fetchingFlights = $.ajax('/flights.json', {
  data: { date: activeDiv },
  ...
  success: function(result) {
    $(activeDiv + ' tbody td').remove();

    var rows = "";
    $.each(flights, function(index, flight) {
      rows += "<tr>" +
              "<td>" + flight.depart + "</td>" +
              "<td>" + flight.arrive + "</td>" +
              ...
              "</tr>";
    });
    $(activeDiv + ' tbody').html(rows);
    ...
  }
});
```

The `$.map` Utility Function

```
fetchingFlights = $.ajax('/flights.json', {
  data: { date: activeDiv },
  ...
  success: function(result) {
    $(activeDiv + ' tbody td').remove();

    var flight_rows = $.map(flights, function(flight) {
      return "<tr>" +
        "<td>" + flight.depart + "</td>" +
        "<td>" + flight.arrive + "</td>" +
        ...
        "</tr>";
    });
    $(activeDiv + ' tbody').html(flight_rows.join(''));
    ...
  }
});
```

Extending jQuery (to stay DRY)

Two ways to organize your code

Utility Functions

Not called on jQuery objects

```
$.filterFlights(json);
```

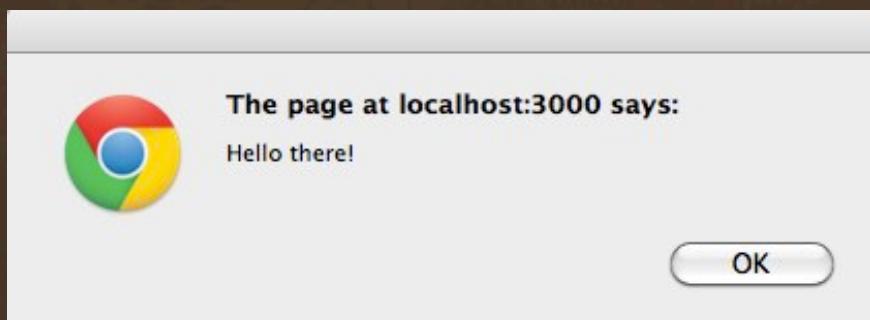
Plugins

Called on jQuery objects

```
$("#tabs ul li a").addToolTip();
```

Creating Utility Functions

```
(function( $ ){  
  
    $.hello = function() {  
        alert("Hello there!");  
    };  
  
})( jQuery );  
  
$.hello();
```



CODE ORGANIZATION

JQUERY
AIR
CAPTAIN'S LOG

Filter Based on Number of Stops

SELECT A FLIGHT

Sep 27	Sep 28	Sep 29	Sep 30	Oct 01	
DEPART	ARRIVE	FLIGHT #	ROUTING	FIRST CLASS	ECONOMY
2:30 PM	5:18 PM	347	Nonstop	\$317	\$134

Number of Stops

- 0 Stops
- 0-1 Stops
- 0-2+ Stops

```
<div id="flight-filter">
  <strong>Number of Stops</strong><br />
  <input type="radio" name="stops" value="0" /> 0 Stops<br />
  <input type="radio" name="stops" value="1" /> 0-1 Stops<br />
  <input type="radio" name="stops" value="2+" checked="checked" />
                                         0-2+ Stops<br />
</div>
```

```
$('#flight-filter input[name=stops]').change(filterByFlights);
```

When radio button changed



Filter Based on Number of Stops

```
$('#flight-filter input[name=stops]').change(filterByFlights);
```

```
function filterByFlights(e) {
  var stops = $(this).val();
  var filtered_flights = [];

  $.each(currentFlights, function(index, flight) {
    if (stops == '2+') {
      filtered_flights.push(flight);
      ... other conditionals ...
    });
  ... reprint the flights...
}
```

With the Filter

SELECT A FLIGHT

Sep 27	Sep 28	Sep 29	Sep 30	Oct 01	
DEPART	ARRIVE	FLIGHT #	ROUTING	FIRST CLASS	ECONOMY
2:30 PM	5:18 PM	347	Nonstop	\$317	\$134
3:15 PM	5:08 PM	1946	2 Stops	\$276	\$205
4:45 PM	5:22 PM	1884	1 Stop	\$353	\$249
5:30 PM	5:51 PM	633	Nonstop	\$269	\$232
6:15 PM	7:25 PM	1478	Nonstop	\$268	\$169

- Number of Stops
- 0 Stops
 - 0-1 Stops
 - 0-2+ Stops

Doesn't stay filtered!

CODE ORGANIZATION



Create a Filter Utility Function

```
$.filterFlights = function(cFlights, stops) {  
  
  var filtered_flights = [];  
  
  $.each(cFlights, function(index, flight) {  
    if (stops == '2+') {  
      filtered_flights.push(flight);  
      ... other conditionals ...  
    });  
  
  return filtered_flights;  
};
```

```
var stops = $('#flight-filter input[name=stops]:checked').val();  
var filtered_flights = $.filterFlights(currentFlights, stops);
```

Creating Plugins

```
(function( $ ){  
    $.fn.callOut = function() {  
        this.css({ opacity:0.5 }).animate({ opacity:1 }, 'fast');  
    };  
};)( jQuery );  
$(activeDiv).callOut();  
  
: Must call on a jQuery object
```

Plugin Options with Defaults

```
$.fn.callOut = function(options) {  
  var defaults = {  
    duration: 'fast'  
  }  
  var options = $.extend(defaults, options);  
  
  this.css({ opacity:0.5 })  
    .animate({ opacity:1 }, options.duration);  
};  
:  
:  
:  
$(activeDiv).callOut();  
  
$(activeDiv).callOut({ 'duration': 1000});
```

Use defaults,
unless option exists

Our Beautiful Tool Tips

SELECT A FLIGHT

Sep 27	Sep 28	Sep 29	Sep 30	Oct 01	
DEPART	ARRIVE	FLIGHT #	ROUTING	FIRST CLASS	ECONOMY
2:30 PM	5:18 PM	347	Nonstop	\$317	\$134
3:15 PM	5:08 PM	1946	2 stops	\$276	\$205
4:45 PM	5:22 PM	1884	1 stop	\$353	\$249
5:30 PM	5:51 PM	633	Nonstop	\$269	\$232
6:15 PM	7:25 PM	1478	Nonstop	\$268	\$169

Let's extract that into a plugin!

CODE ORGANIZATION



Creating Plugins



```
function showNumberOfFlights(e) {  
    var num_flights = $(this).data('flights');  
    $(this).append("...");  
    $("#tabs span.tooltip").delay(100).fadeIn();  
}  
//
```

```
function hideNumberOfFlights(e) {  
    $("#tabs span.tooltip").stop().fadeOut(function(){  
        $(this).remove();  
    });  
}  
//
```

```
$("#tabs ul li a").bind({  
    mouseenter: showNumberOfFlights,  
    mouseleave: hideNumberOfFlights  
});  
//
```

CODE ORGANIZATION

```
<li><a href="#2012-09-27" data-tooltip="6 flights">Sep 27</a></li>
<li><a href="#2012-09-28" data-tooltip="5 flights">Sep 28</a></li>
```

```
$.fn.addToolTip = function() {
    return this.bind({
        mouseenter: function(e) {
            var tip = $(this).data('tooltip');
            $("<span class='tooltip'>" + tip + "</span>")
                .appendTo(this).delay(100).fadeIn();
        },
        mouseleave: function(e) {
            $(this).find('span.tooltip').stop().fadeOut(function(){
                $(this).remove();
            });
        }
    });
}

$("#tabs ul li a").addToolTip();
```



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CODE ORGANIZATION



Keeping Organized with Encapsulation



```
var fetchingFlights = null;  
var currentFlights = null;  
  
function showFlights(activeDiv) { .. }  
function changeTab(e) { .. }  
function selectFlight(e) { .. }  
  
function showTotal(json) { .. }  
function login(e) { .. }  
  
$("#tabs ul li a").click(changeTab);  
  
$("#tabs div").delegate('#flights a', 'click', selectFlight);
```

Keeping Organized with Encapsulation

```
var selectFlights = {  
  fetchingFlights : null,  
  currentFlights : null,  
  
  init : function() {  
    $("#tabs ul li a").click(changeTab);  
  
    $("#tabs div").delegate('#flights a', 'click', selectFlight);  
  },  
  showFlights : function(activeDiv) { .. },  
  changeTab : function(e) { .. },  
  selectFlight : function(e) { .. }  
};  
  
var confirmFlight = {  
  showTotal : function(json) { .. },  
  login : function(e) { .. }  
};  
selectFlights.init();
```



Need to Specify the Object

```
var selectFlights = {  
  fetchingFlights : null,  
  currentFlights : null,  
  
  init : function() {  
    $("#tabs ul li a").click(selectFlights.changeTab);  
  
    $("#tabs div").delegate('#flights a', 'click',  
      selectFlights.selectFlight);  
  },  
  showFlights : function(activeDiv) { .. },  
  changeTab : function(e) { .. },  
  selectFlight : function(e) { .. }  
};  
  
var confirmFlight = {  
  showTotal : function(json) { .. },  
  login : function(e) { .. }  
};  
selectFlights.init();
```



Can Also Use 'this'



```
var selectFlights = {  
  fetchingFlights : null,  
  currentFlights : null,  
  
  init : function() {  
    $("#tabs ul li a").click(this.changeTab);  
  
    $("#tabs div").delegate('#flights a', 'click',  
      this.selectFlight);  
  },  
  showFlights : function(activeDiv) { .. },  
  changeTab : function(e) { .. },  
  selectFlight : function(e) { .. }  
};  
  
var confirmFlight = {  
  showTotal : function(json) { .. },  
  login : function(e) { .. }  
};  
selectFlights.init();
```

Custom Events

SELECT A FLIGHT					
Sep 27	Sep 28	Sep 29	Sep 30	Oct 01	
DEPART	ARRIVE	FLIGHT #	ROUTING	FIRST CLASS	ECONOMY
2:30 PM	5:18 PM	347	Nonstop	\$317	\$134
3:15 PM	5:08 PM	1946	2 stops	\$276	\$205
4:45 PM	5:22 PM	1884	1 stop	\$353	\$249
5:30 PM	5:51 PM	633	Nonstop	\$269	\$232
6:15 PM	7:25 PM	1478	Nonstop	\$268	\$169

Objective:
Allow Keys 1-5 to select tabs

CODE ORGANIZATION



Allow Keys 1-5 To Select Tabs



```
$(document).keydown(function(e) {  
    if (e.keyCode >= 49 && e.keyCode <= 53) {  
        var numSelected = e.keyCode - 49;  
        var tabSelected = $("#tabs ul li:eq(" + numSelected + ") a");  
        // Select proper tab, switch classes, do ajax call  
    }  
});
```

Our old tab click code

```
$("#tabs ul li a").click(function(e) {  
    // Select proper tab, switch classes, do ajax call  
});
```

Let's make it DRY!

Create a Custom Event & Trigger



```
$("#tabs ul li a").bind({
  'selectTab': function(e) {
    // Select proper tab, switch classes, do ajax call
  }
}); 'selectTab' is our custom event
```

```
$(document).keydown(function(e) {
  if (e.keyCode >= 49 && e.keyCode <= 53) {
    var numSelected = e.keyCode - 49;
    $("#tabs ul li:eq(" + tabSelected + ") a").trigger('selectTab');
  }
});
```

```
$("#tabs ul li a").click(function(e) {
  $(this).trigger('selectTab');
});
```

Remember This?

```
fetchingFlights = $.ajax('/flights.json', {
  data: { date: activeDiv },
  ...
  success: function(result) {
    $(activeDiv + ' tbody td').remove();

    var flight_rows = $.map(flights, function(flight) {
      return "<tr>" +
        "<td>" + flight.depart + "</td>" +
        "<td>" + flight.arrive + "</td>" +
        ...
        "</tr>";
    });
    $(activeDiv + ' tbody') .html(flight_rows.join(''));
    ...
  }
});
```

YUCK! Tons of HTML in our JavaScript



```
var flight_rows = $.map(flights, function(flight) {  
    return "<tr>" +  
        "<td>" + flight.depart + "</td>" +  
        "<td>" + flight.arrive + "</td>" +  
        "<td>" + flight.flight + "</td>" +  
        "<td>" + flight.routing + "</td>" +  
        "<td><a href='#' data-flight='" + flight.flight +  
            "' data-class='first_class'>" + flight.first_class +  
            "</a></td>" +  
        "<td><a href='#' data-flight='" + flight.flight +  
            "' data-class='economy'>" + flight.economy +  
            "</a></td>" +  
        "</tr>";  
});  
$(activeDiv + ' tbody') .html(flight_rows.join(''));
```

Using a Template

flights is a JSON array

⋮



```
$( "#flightTemplate" ).tmpl( flights )  
    :     .appendTo(activeDiv + ' tbody');
```

⋮
⋮
⋮

in our html

```
<script id="flightTemplate" type="text/x-jquery-tmpl">  
<tr>  
  <td>${depart}</td>  
  <td>${arrive}</td>  
  <td>${flight}</td>  
  <td>${routing}</td>  
  <td><a href="#" data-flight='${flight}' data-class='first_class'>  
    ${first_class}</a></td>  
  <td><a href="#" data-flight='${flight}' data-class='economy'>  
    ${economy}</a></td>  
</tr>  

```

Including The Template Library

Download & Documentation

<http://api.jquery.com/category/plugins/templates/>

Include the Source

```
<script src="jquery tmpl.js" type="text/javascript"></script>
```

(at least until it's baked in)

CODE ORGANIZATION



Turning the Flight Method to JSON

SELECT A FLIGHT

Sep 27	Sep 28	Sep 29	Sep 30	Oct 01	
DEPART	ARRIVE	FLIGHT #	ROUTING	FIRST CLASS	ECONOMY
2:30 PM	5:18 PM	347	0	\$317	\$134
3:15 PM	5:08 PM	1946	2	\$276	\$205
4:45 PM	5:22 PM	1884	1	\$353	\$249
5:30 PM	5:51 PM	633	0	\$269	\$232
6:15 PM	7:25 PM	1478	0	\$268	\$169

Not as friendly format

```
[ - {  
    depart: "3:15 PM",  
    arrive: "3:54 PM",  
    flight: 1826,  
    routing: 0,  
    first_class: "$303",  
    economy: "$248"  
}, - {  
    depart: "4:45 PM",  
    arrive: "5:18 PM",  
    flight: 1431,  
    routing: 2,  
    first_class: "$293",  
    economy: "$245"  
}, - {  
    depart: "6:15 PM",  
    arrive: "8:50 PM",  
    flight: 1545,  
    routing: 1,  
    first_class: "$306",  
    economy: "$173"  
}]
```

Using a Template

```
<script id="flightTemplate" type="text/x-jquery-tmpl">
<tr>
  <td>${depart}</td>
  <td>${arrive}</td>
  <td>${flight}</td>
  <td>
    {{if (routing == 0)}}
      Nonstop
    {{else (routing == 1)}}
      1 Stop
    {{else}}
      ${routing} Stops
    {{/if}}
  </td>
  ...
</tr>
</script>
```



With Template Conditionals

SELECT A FLIGHT					
Sep 27	Sep 28	Sep 29	Sep 30	Oct 01	
DEPART	ARRIVE	FLIGHT #	ROUTING	FIRST CLASS	ECONOMY
2:30 PM	5:18 PM	347	Nonstop	\$317	\$134
3:15 PM	5:08 PM	1946	2 Stops	\$276	\$205
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6:15 PM	7:25 PM	1478	Nonstop	\$268	\$169

CODE ORGANIZATION



Other Template Commands

`${<field name>}`

Printing data

`${html <field name>}`

Printing markup

`{{each}}`

Iterate over a data array

`{{tmpl}}`

For nested templates

For examples see:

<http://api.jquery.com/category/plugins/templates/>

CODE ORGANIZATION

