jQuery Datatables Part IV: A New Hope

Widget of the Week (WoW) Series

Administrative
Computing &
Telecommunications

UC San Diego

Things to know …

- DOM
  - Document Object Model
- jQuery
  - Third-party JavaScript library
- Progressive enhancement
  - More than just a buzzword. (Two buzzwords.)
- Datatables.net
  - jQuery plug-in

DOM

- “Document Object Model”
- Way to represent, and interact with, the parts of HTML/XHTML and XML documents
- Elements, attributes, parents, siblings, children
- Kinda messy to work with the raw API, which is why we use something like …

jQuery

- Arguably the most popular JavaScript library in use today
- Excels at DOM manipulation, event handling, client-server interaction
- Good cross-browser support
- Readily extensible through plug-ins and libraries …

Progressive enhancement

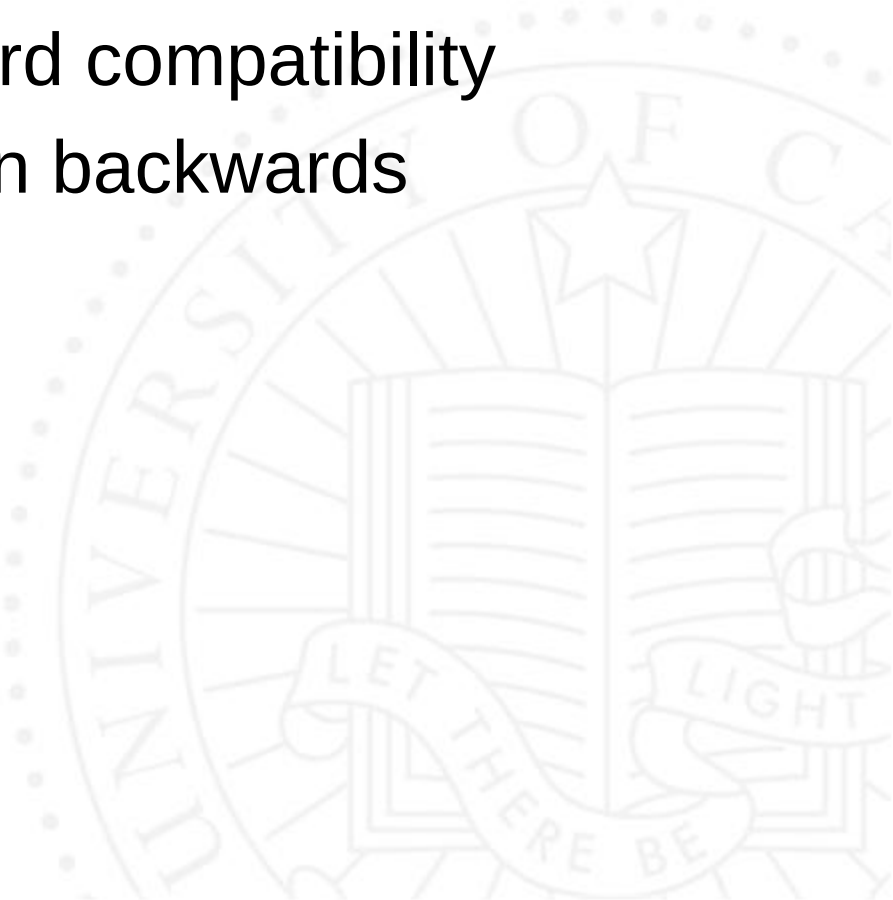
"A strategy for web design that … uses web technologies in a layered fashion that allows everyone to access the basic content and functionality of a web page, using any browser or Internet connection, while also providing those with better bandwidth or more advanced browser software an enhanced version of the page."

Progressive enhancement

- Create the page using basic low-tech accessible HTML content
- Use JavaScript/CSS/etc. to “enhance” the page with extra functionality / bling
- Enhancements can be minor, or can amount to complete rewrite of page
- Purports to separate content from presentation

Progressive enhancement

- Often compared with “graceful degradation”
  - Former assumes forward compatibility
  - Latter implicitly relies on backwards compatibility



Graceful degradation

- “Fault-tolerance” for the web
- Design pages for current standards
  - Accessibility
  - Previous generation platforms
- Assume “forward compatibility” of existing web technologies

Progressive enhancement

- Guarantees perpetual employment for client-side developers?

Use the 5Ps approach:

- Prepare
- Plan
- Prototype
- Plumb
- Proselytize
- Secure

Prepare

- Which widget(s) do I want/need to use?
  - Datatables.net plugin
- What docs are available?
  - jQuery online docs, uxt.ucsd.edu, datatables.net
- What client-side resources are required?
  - jQuery core, datatables plugin, HTML table
- What server-side resources are required?
  - Sample data source for dynamic example only

Plan

- How to generate table data?
  - Output from server side
  - Output on client side (AJAX-ish)
- First example: Generating the table on the server side (progressive enhancement)
- Second example: Build table dynamically

Prototype

- Create a basic HTML table and play around with the datatables.net plug-in.

Prototype (cont'd)

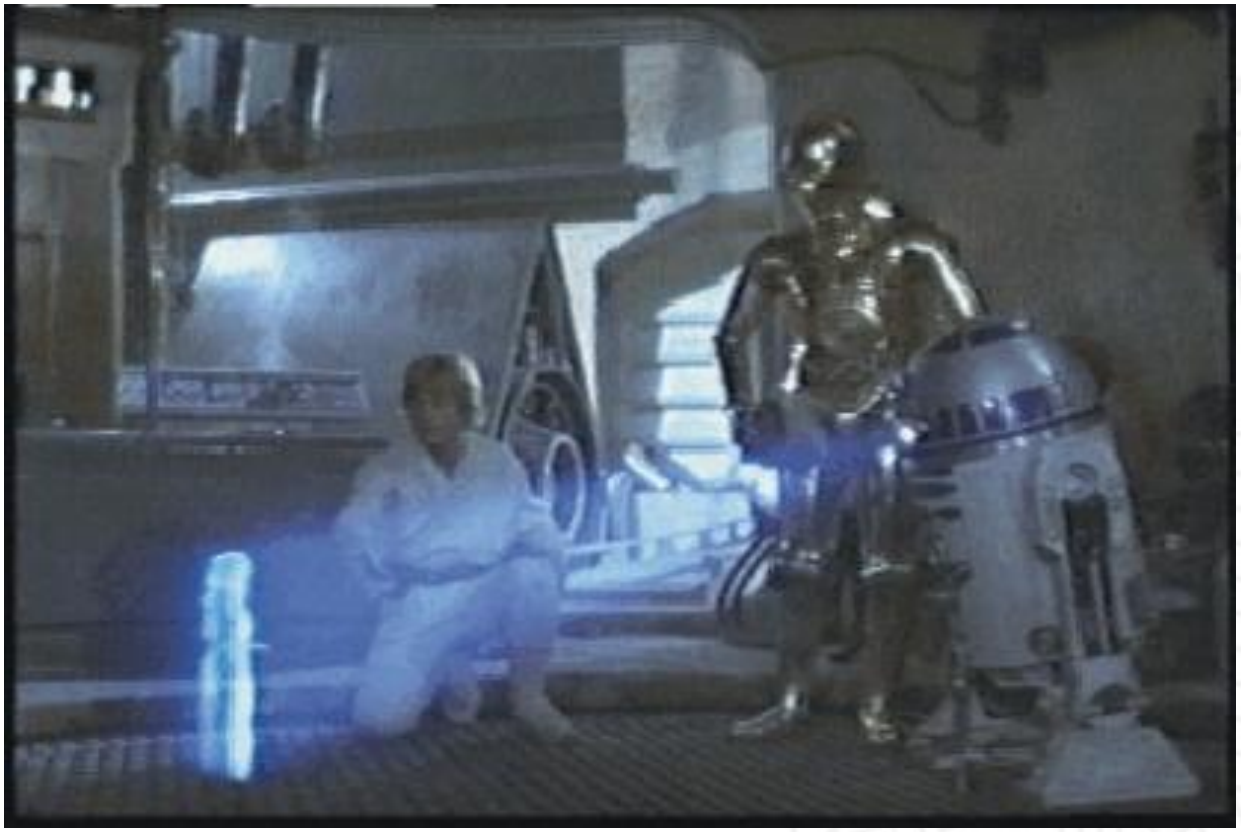
```
<table>
<thead>
    <th>Reservoir</th>
    <th>Capacity</th>
    <th>Storage</th>
</thead>
<tbody>
<tr>
    <td>Shasta</td>
    <td>4,552,000</td>
    <td>3,444,300</td>
</tr> ...
```

Plumb

- Create sample data source and skeleton table on page
- Add JavaScript glue code to write server-side data to page using DataTables API

Proselytize

- Tell your friends!



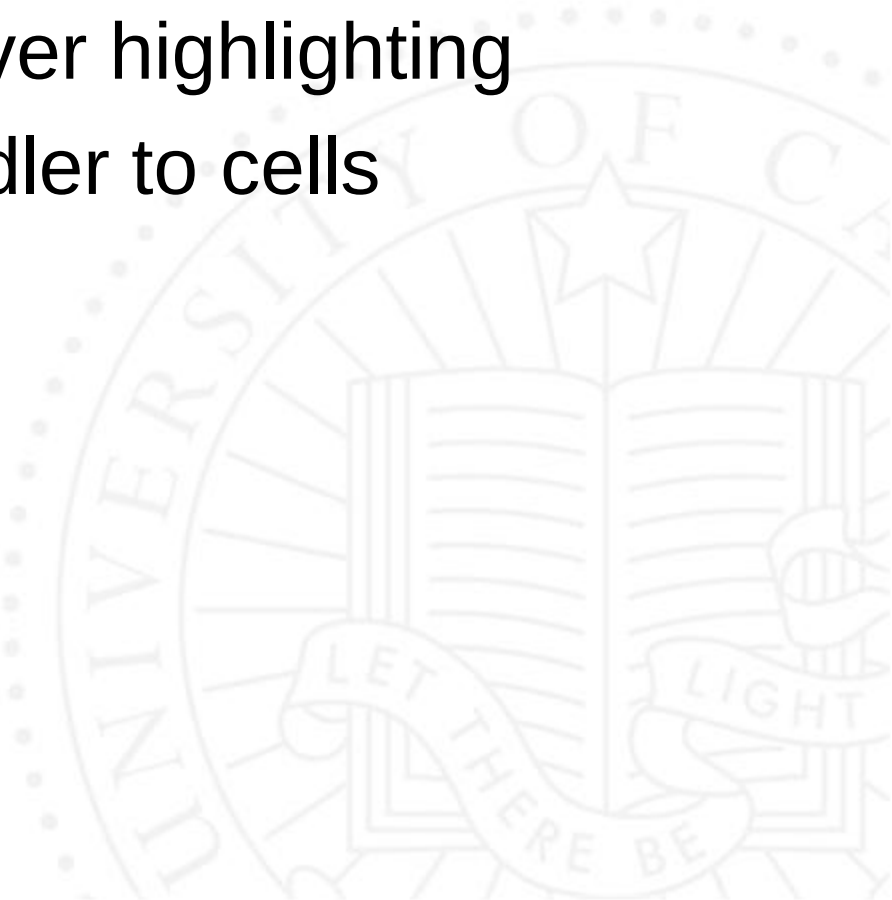
Secure

- How do you keep unauthorized users from gaining access to your services?
  - Use Jlink Security Filter to control access by role
  - Roll (role?) your own session-based authentication
  - Use Spring Security (a subject for another lunch hour)

Exercise IV

Create static HTML table and “enhance” with jQuery DataTables

- Optional: Add mouse-over highlighting
- Optional: Add click handler to cells



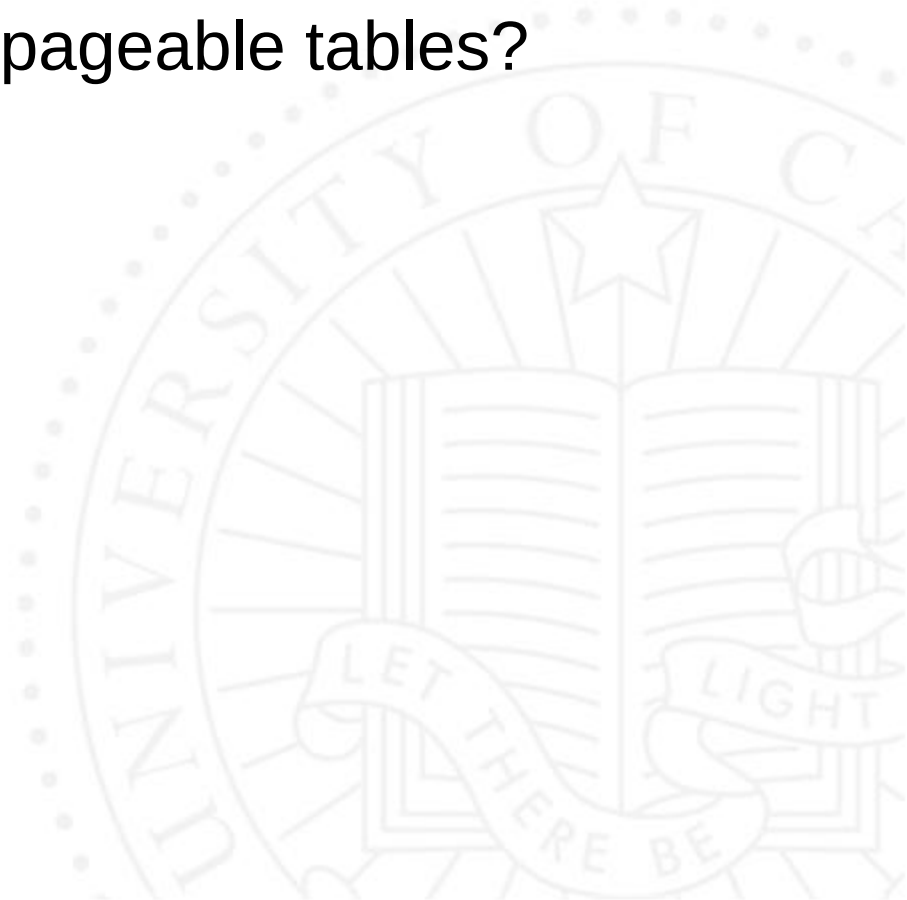
Exercise V

- What's happening behind the scenes?
  - Examine in Firebug
  - Examine pageable table in Firebug

I AM YOUR FATHER!

Exercise V

- What are the implications?
  - Can we write data directly to the DOM?
  - Can we embed forms in pageable tables?



Exercise VI

- Dynamically generated table
- Optional: Dynamically generated column data

Clone Wars

- Yahoo! UI data table component
- jQuery Tablesorter
- jQueryTreeTable

Middleware, UI, and database

Coming soon

Datatables Part I: “The Phantom Menace”