Announcements

- **Lecture videos**: [https://www.cs76.net/Lectures](https://www.cs76.net/Lectures)
- **Section videos**: [https://www.cs76.net/Sections](https://www.cs76.net/Sections)
Today

- Setup
- JSONP
- YQL
we can do this using a single HTML page
  remember, we’ll by using JavaScript+jQuery to update the contents of this page
multiple HTML pages (or “pages” using jQuery Mobile or jQTouch) are not necessary, but you can certainly use more than one page if you’d like to
# head

- HTML5 Doctype: `<!doctype html>`
- jQuery: `<script type="text/javascript" src="cdn link here"></script>`
  - [http://docs.jquery.com/Downloading_jQuery](http://docs.jquery.com/Downloading_jQuery)
- `<meta>` tags!
Page Elements

- other things we’ll need
  - text box: so users can enter a location
  - submit button: so users can get news for a location
  - news area: so your news has a place to be displayed to the user
  - geolocate: up to you!
  - history: up to you!
Sanity Checks

- HTML sanity check: are the elements visible on the page and selectable?
- jQuery sanity check: can we say hello to the user via $(document).ready?
  - remember, $ is a jQuery function, so this will only work if we’ve loaded jQuery correctly
HTML Setup

▶ setup.html
JSON: **JavaScript Object Notation**

- despite having JavaScript in its name, JSON is a language-independent data interchange standard
  - RFC 4627, if you’re interested
  - just like XML, but much less verbose
JSON Syntax

- syntax identical to JavaScript object

```
{  
  "car": {  
    "color": "red",
    "miles": 20918,
    "owners": [ "tommy", "julia" ]  
  }
}
```

- isn’t that so much nicer than XML?
Using JSON

- WebKit browsers have a built-in JSON parser
- `JSON.parse(string)`: parse a JSON string and return an object
  - will fail silently if your JSON string has a syntax error!
- `JSON.stringify(object)`: convert an object into a string that can be parsed by JSON later
  - `localStorage` stores strings, hmm...
Mobile Local Walkthrough
Tommy MacWilliam
Setup
JSONP
YQL
Putting it all Together

▶ json.html
AJAX Win?

▶ remember, AJAX allows us to make requests to other pages from JavaScript
▶ cool beans, let’s try to load the Google News homepage with a GET request
Mobile Local
Walkthrough

Tommy MacWilliam

Setup

JSONP

YQL

Putting it all Together

▶ get.html

- forget it, let’s just go home

- security feature of JavaScript: cannot load content from different domains
  - news.google.com is a different domain than 192.156.56.50
one solution: JSONP (JSON with padding)

- `<script>` tags can load content from other domains
- Instead of using `XMLHttpRequest` object, add a `<script>` tag to the DOM
  - The `src` attribute will be the URL we’d like to make a GET request to
- Server also has to cooperate by wrapping its response in a JavaScript function
  - The name of this function will match the name of our event handler, so it will be called when the server responds
➤ complicated? I agree!
➤ good thing jQuery does ALL of this for us
➤ $.getJSON(url, callback);
  ➤ treats your JSONP request to another domain just like any other request
service by Yahoo! that allows us to “query web services with a SQL-like language”

- select * from format where url="url"
- here we’ll be using rss and json for formats

- check out the console at:
  http://developer.yahoo.com/yql/console/
YQL

- okay great, but YQL is still on another domain, we can’t get that either
- notice the buttons for XML and JSON underneath the query textbox
  - cbfunc? callback function? SWEET.
  - YQL can output data as JSONP, which means we can call it from another domain
JSONP + YQL

- with YQL, can query any page and output data as JSONP
- as the problem set mentions, let’s try `select * from rss where url = 'http://news.google.com/news?geo=02138&output=rss'`
  - notice the (long) URL at the very bottom of the page:
    `http://query.yahooapis.com/v1/public/yql?q=select%20*%20from%20rss%20where%20url%3D%22http%3A%2F%2Fnews.google.com%2Fnews%3Foutput%3Drss%22&format=json&diagnostics=true&callback=cbfunc`
JSONP + YQL

give that long URL to $.getJSON

REMOVE &callback=cbfunc from the end of that URL

jQuery handles this detail for you
JSONP + YQL

▶ yql.html
JSONP + YQL

- take that Same Origin Policy!
- we can also use YQL with the Google Geocoding API, which outputs JSON
  
  ```
  select * from json where
  url="http://maps.googleapis.com/maps/api/geocode/json?address=10+Cowperwaithe+St+Cambridge+MA&sensor=false"
  ```

  ```
  select * from json where
  url="http://maps.googleapis.com/maps/api/geocode/json?latlng=42.36862,-71.115226 &sensor=false"
  ```
JSONP + YQL

- don’t forget about the JSON in JSONP
- $.getJSON response is already a JSON object
  - no need for JSON.parse
- use console.log to look at the object
JSONP + YQL

▶ response.html
1. set up UI
2. get news for zip code and city, state
3. get news for geolocation
4. store and display recent searches
Useful jQuery Stuff

- `$('#input').val()`: get the value of text box with id="input"
  - `$('#input').val('value')`: set input value
- `$('.row').html()`: get HTML of all elements with class="row"
  - `$('.row').html('value')`: set HTML contents
- `$('a').on('click', callback)`: bind an event handler to a tags
- `$('#news ul').append('<li>news</li>')`: append content to ul contained within #news
Getting News

- use geocoding API to convert input to location
  - location may not be returned in the same format every time!
- use geocode response to query Google News
  - `geo` parameter takes more than just zip codes
Getting Geolocation

- `navigator.geolocation.getCurrentPosition`
  - gives you a position object with `coords.latitude` and `coords.longitude`

- geocoding API can also convert latitude/longitude
localStorage

- localStorage is just an array
  - localStorage['key'] = 'value';
  - localStorage['key']; // 'value';

- however, localStorage only supports STRINGS
  - not objects, arrays, etc.