Mobile Local Walkthrough

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February 1, 2012

Announcements

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Setup

JSONP

YQL

Putting it all
Together

- Lecture videos: `https://www.cs76.net/Lectures`
- Section videos: `https://www.cs76.net/Sections`

- ▶ Setup
- ▶ JSONP
- ▶ YQL

HTML Setup

- ▶ 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`
- `<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

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- ▶ 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

- `setup.html`

- JSON: **J**ava**S**cript **O**bject **N**otation
- 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

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- syntax identical to JavaScript object

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

  - isn't that so much nicer than XML?

- ▶ 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...

JSON

- `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

- `get.html`

- "XMLHttpRequest cannot load http://news.google.com/. Origin http://192.168.56.50 is not allowed by Access-Control-Allow-Origin."
    - 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

JSONP with jQuery

- 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

YQL

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

- ▶ 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

- ▶ 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
    ```

- ▶ 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`

- ▶ 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"`

- ▶ 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

- `response.html`

TODO

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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

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- ► `$('#input').val()`: get the value of text box with `id="input"`
  - ► `$('#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

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- 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

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- `navigator.geolocation.getCurrentPosition`
  - gives you a position object with `coords.latitude` and `cords.longitude`
- geocoding API can also convert latitude/longitude

- `localStorage` is just an array
    - `localStorage['key'] = 'value';`
    - `localStorage['key']; // 'value';`
- however, `localStorage` only supports STRINGS
    - not objects, arrays, etc.