

# Information Design

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ARTS 269

Spring 2019

Tuesday 2:00PM – 5:50PM

I-Building 201

# Interactive Data Viz

Week 8: Data, the Web and Datavisual

Week 9: JavaScript and jQuery

Week 10: JavaScript and APIs

Week 11: In Class Work

Week 12: JavaScript and D3

Week 13: In Class Work

Week 14: Final

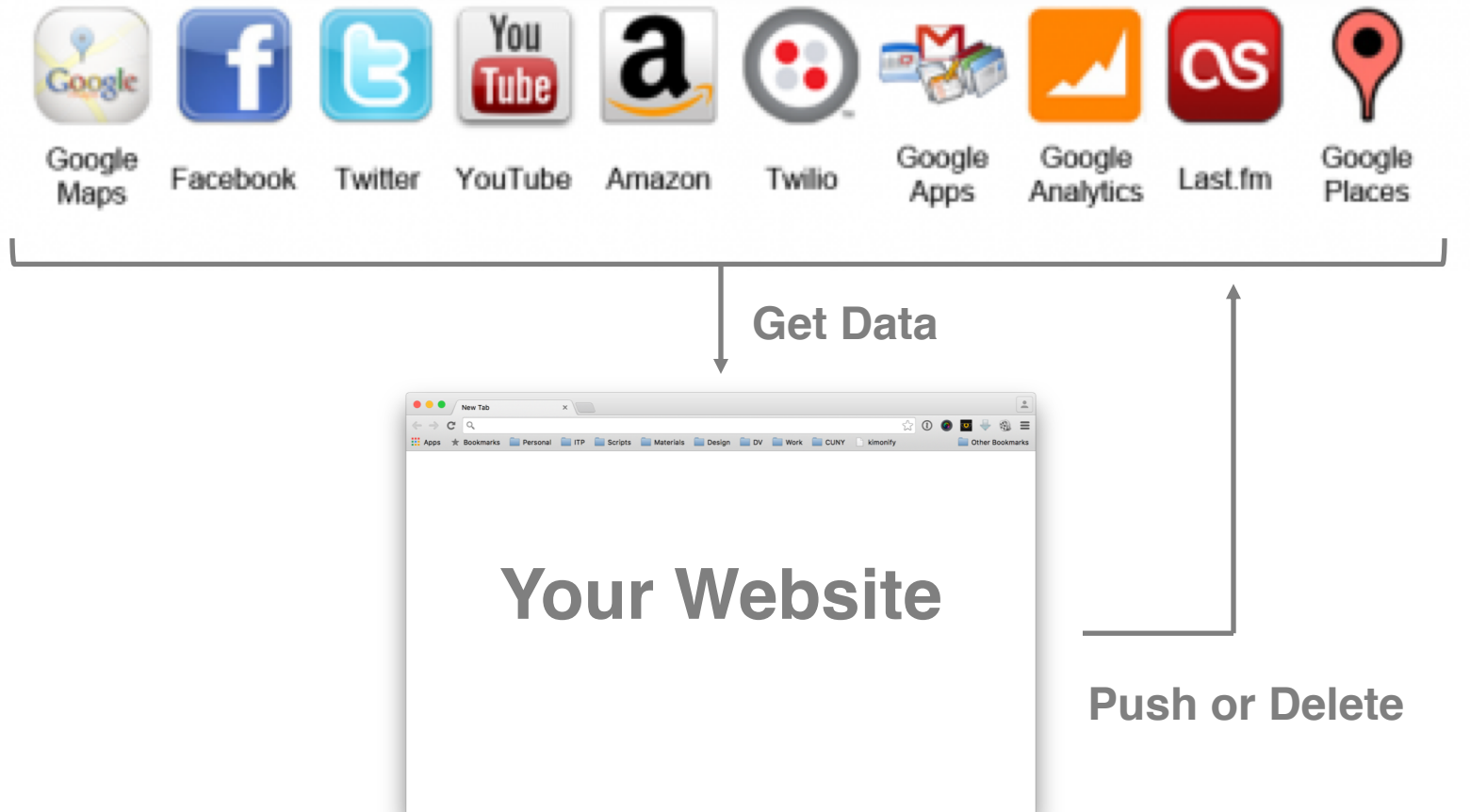


What is an API?

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# **API – Application Programming Interface**

# What is an API?



**Access Key:** ks93yb8231971jn2u3ib

**Secret Key:** hk245khbhbip4i56i7o3mdnroq

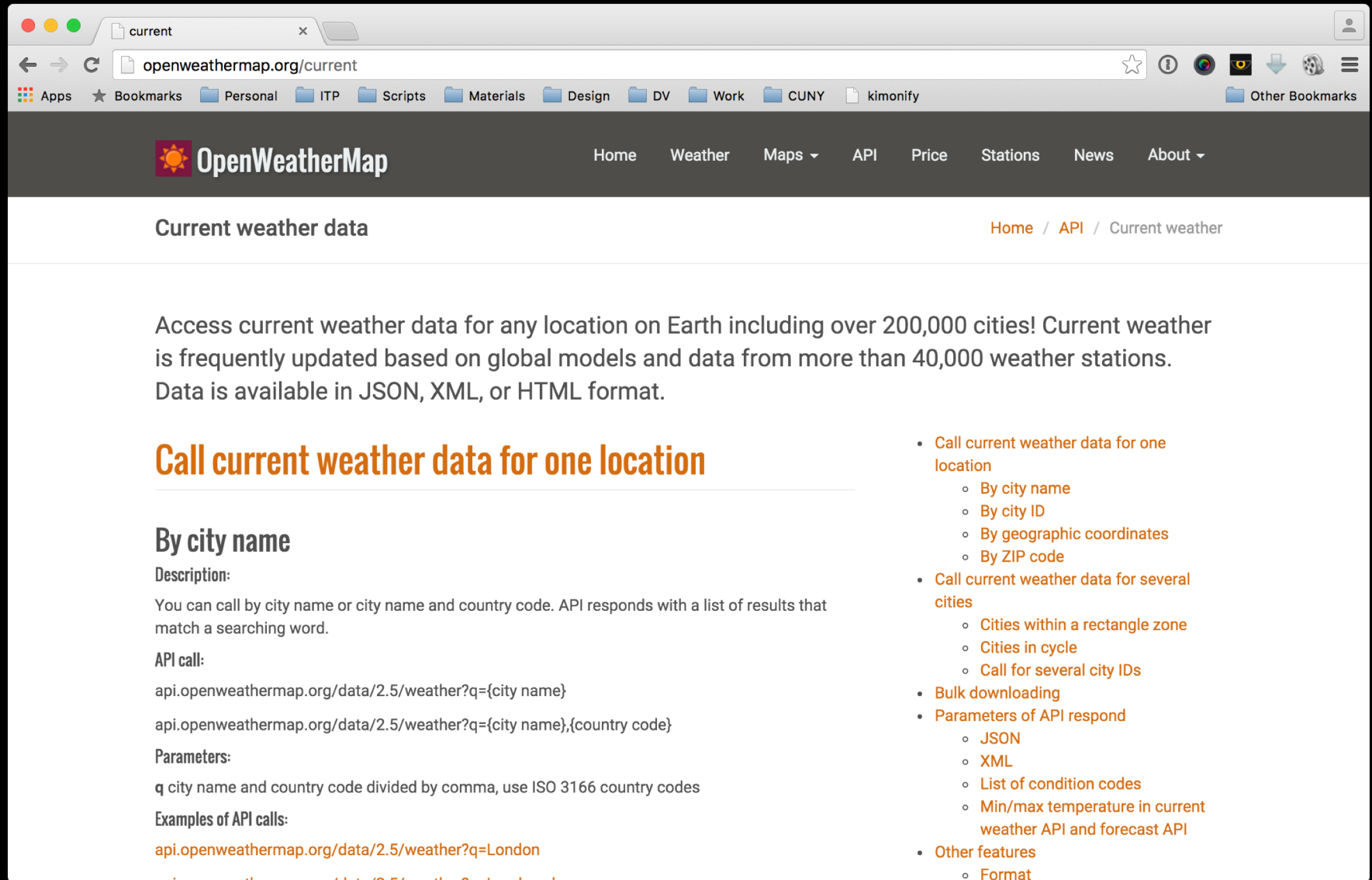
## API URLs

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<http://www.apiwebsite.com/...query...access key>

[http://api.openweathermap.org/data/2.5/weather?  
q=London,uk&appid=2de143494c0b295cca9337e  
1e96b00e0](http://api.openweathermap.org/data/2.5/weather?q=London,uk&appid=2de143494c0b295cca9337e1e96b00e0)

# Documentation



The screenshot shows a web browser window with the URL `openweathermap.org/current`. The browser's address bar and tabs are visible at the top. The OpenWeatherMap logo is on the left, and navigation links (Home, Weather, Maps, API, Price, Stations, News, About) are on the right. The page title is "Current weather data". A breadcrumb trail shows "Home / API / Current weather". The main content area has a heading "Call current weather data for one location" and a subheading "By city name". The "By city name" section includes a description, an API call example, parameters, and examples of API calls. A sidebar on the right lists other API features like bulk downloading, parameters of API response, and other features.

## Current weather data

[Home](#) / [API](#) / [Current weather](#)

Access current weather data for any location on Earth including over 200,000 cities! Current weather is frequently updated based on global models and data from more than 40,000 weather stations. Data is available in JSON, XML, or HTML format.

### Call current weather data for one location

#### By city name

**Description:**

You can call by city name or city name and country code. API responds with a list of results that match a searching word.

**API call:**

```
api.openweathermap.org/data/2.5/weather?q={city name}
```

```
api.openweathermap.org/data/2.5/weather?q={city name},{country code}
```

**Parameters:**

**q** city name and country code divided by comma, use ISO 3166 country codes

**Examples of API calls:**

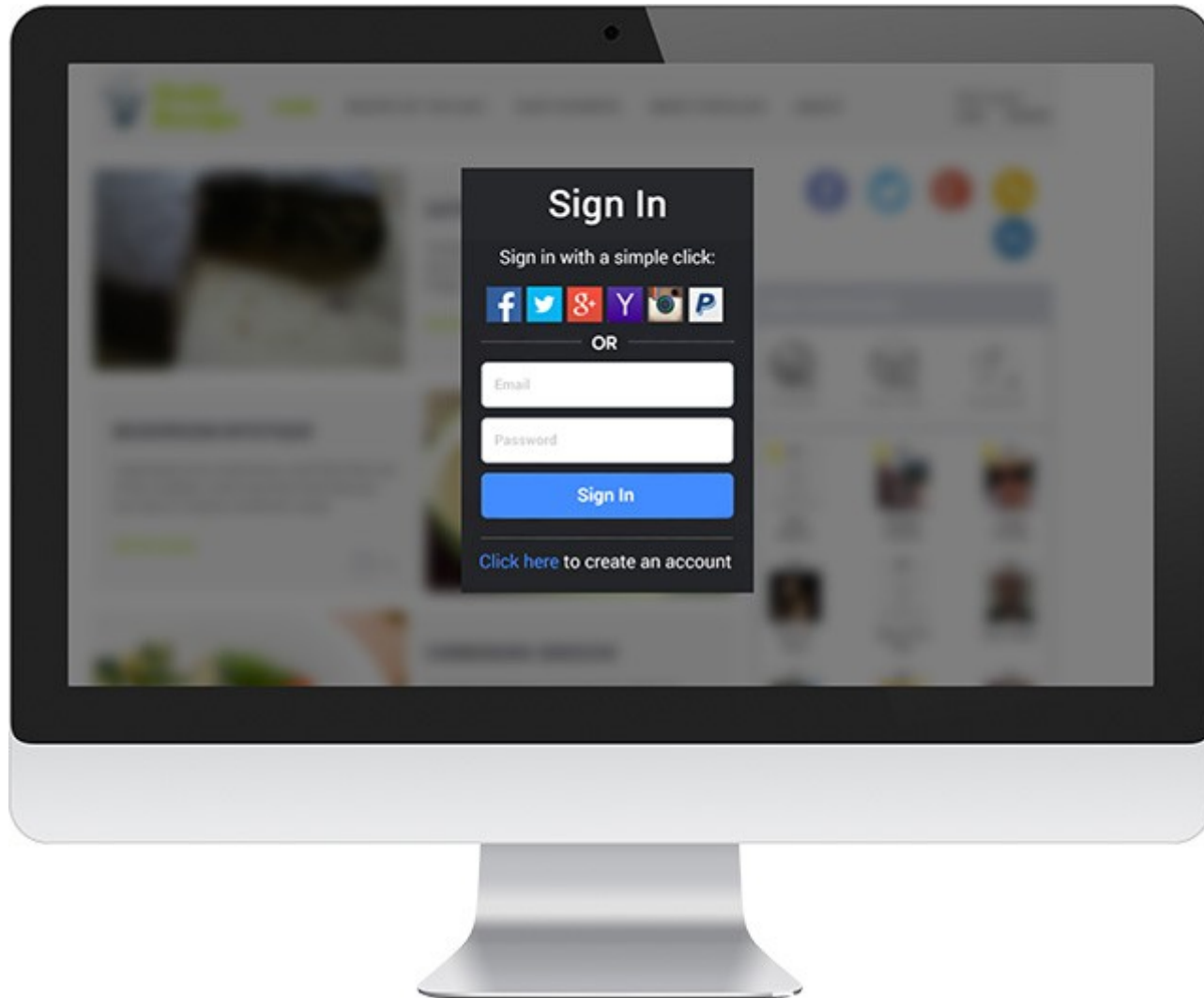
```
api.openweathermap.org/data/2.5/weather?q=London
```

```
api.openweathermap.org/data/2.5/weather?q=London,uk
```

- Call current weather data for one location
  - By city name
  - By city ID
  - By geographic coordinates
  - By ZIP code
- Call current weather data for several cities
  - Cities within a rectangle zone
  - Cities in cycle
  - Call for several city IDs
- Bulk downloading
- Parameters of API response
  - JSON
  - XML
  - List of condition codes
  - Min/max temperature in current weather API and forecast API
- Other features
  - Format

# User Authentication

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# Google Maps API

The screenshot displays the Google Maps interface on a web browser. The address bar shows the URL: <https://www.google.com/maps/dir/Empire+State+Building,+5th+Av+New+York,+NY/Queens+College,+65-30+Kissena+Bld,+Flushing,+...>. The left sidebar contains the search bar with the origin 'Empire State Bldg, 350 5th Ave, New York' and the destination 'Queens College, 65-30 Kissena Boulevard'. Below the search bar, there are icons for different travel modes: walking, driving, public transit, and a multi-modal option. The 'Leave now' button is visible. The main map area shows a route from New York City to Queens, with a red line indicating the primary route and blue lines for alternative paths. The route is labeled with travel time and distance: 43 min, 13.4 miles. A callout box indicates a transit route: '1 h 4 min every 6 min'. Another callout box shows a transit route: '49 min 10.1 miles'. The map includes various landmarks, streets, and a scale bar at the bottom right.

Empire State Bldg, 350 5th Ave, New York

Queens College, 65-30 Kissena Boulevard

Leave now

OPTIONS

via Grand Central Pkwy 43 min 13.4 miles  
24 min without traffic  
This route has tolls.  
DETAILS

via I-495 E 49 min 10.1 miles  
19 min without traffic

4:28 PM–5:32 PM 1 h 4 min  
Q25 Q34

Earth

Google Maps

Map data ©2015 Google Terms Privacy Send feedback 2 mi



# Google Maps + Uber

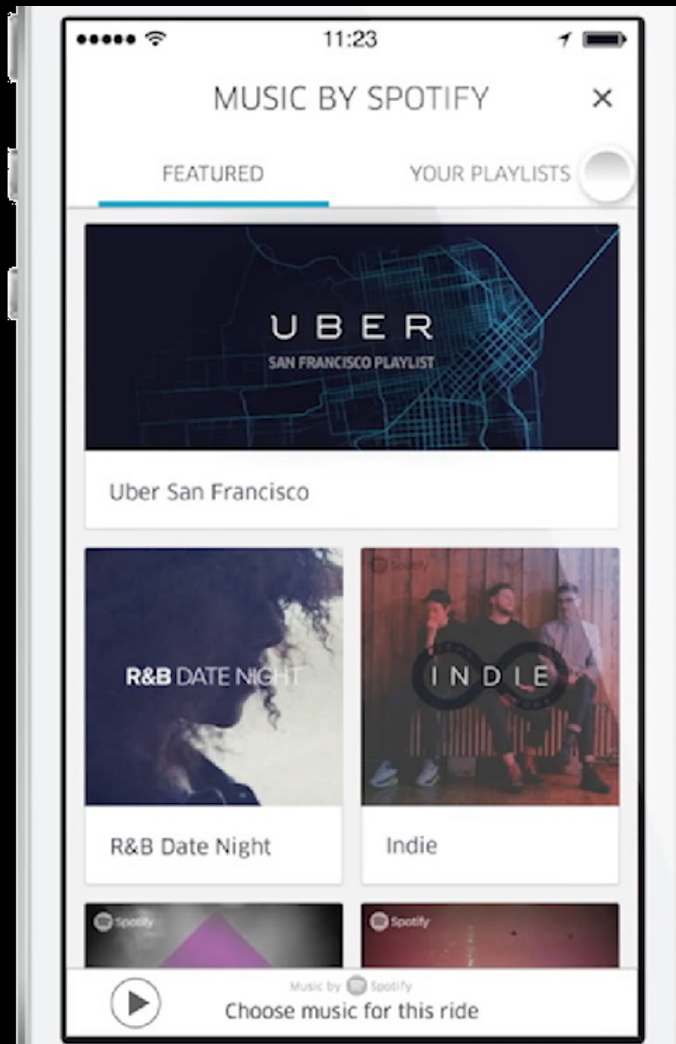
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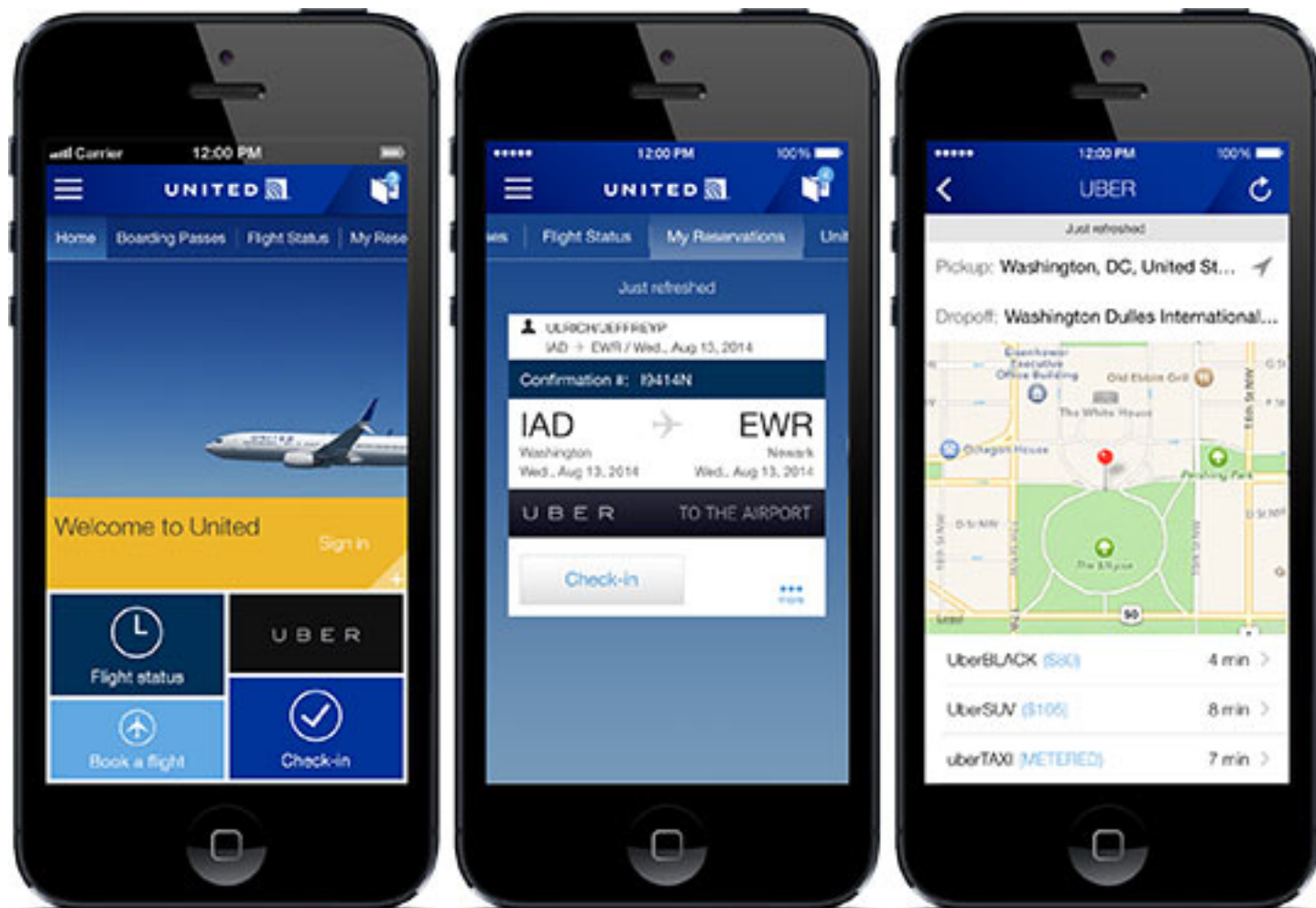


## Uber + Spotify

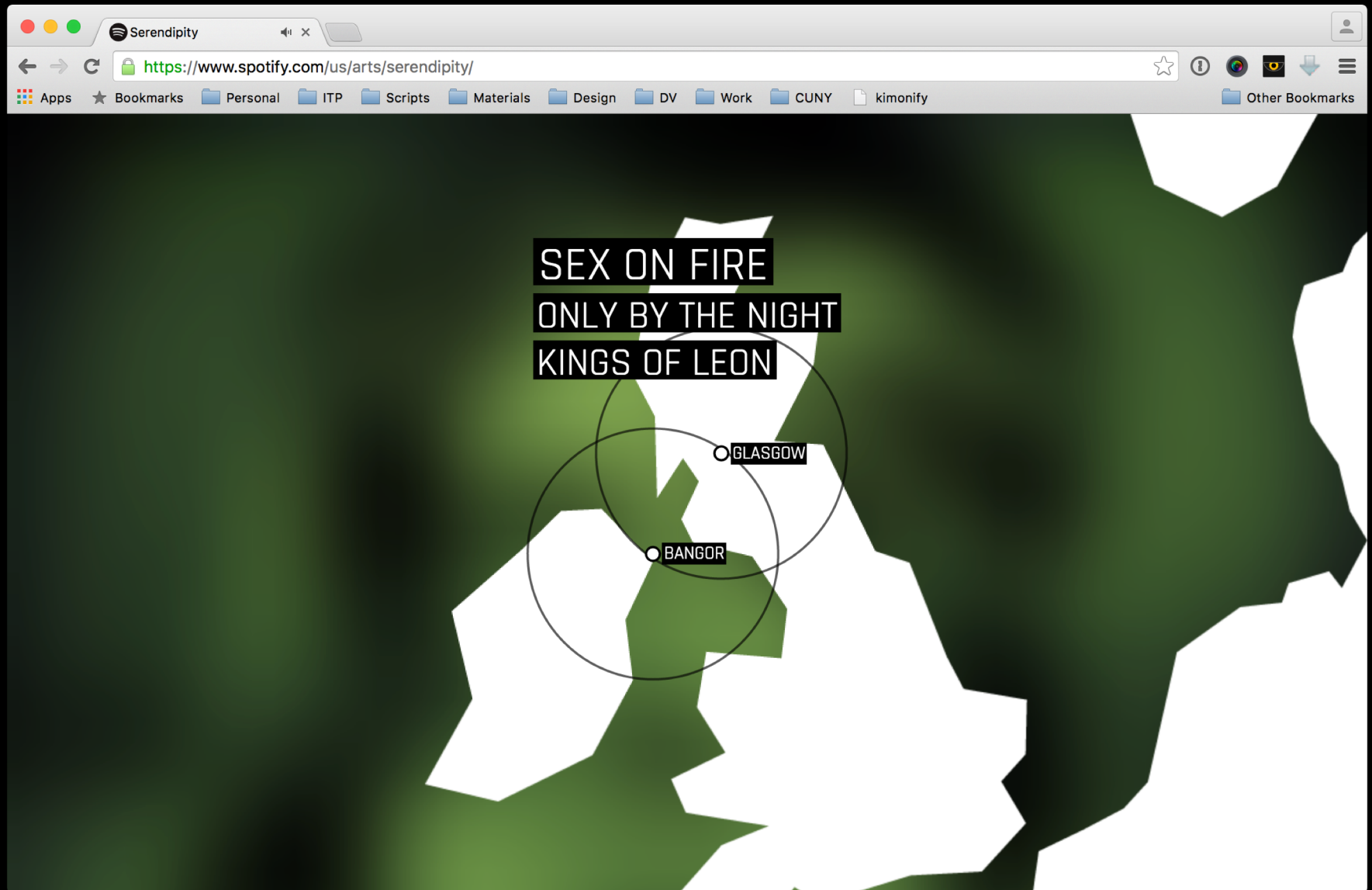
U B E R



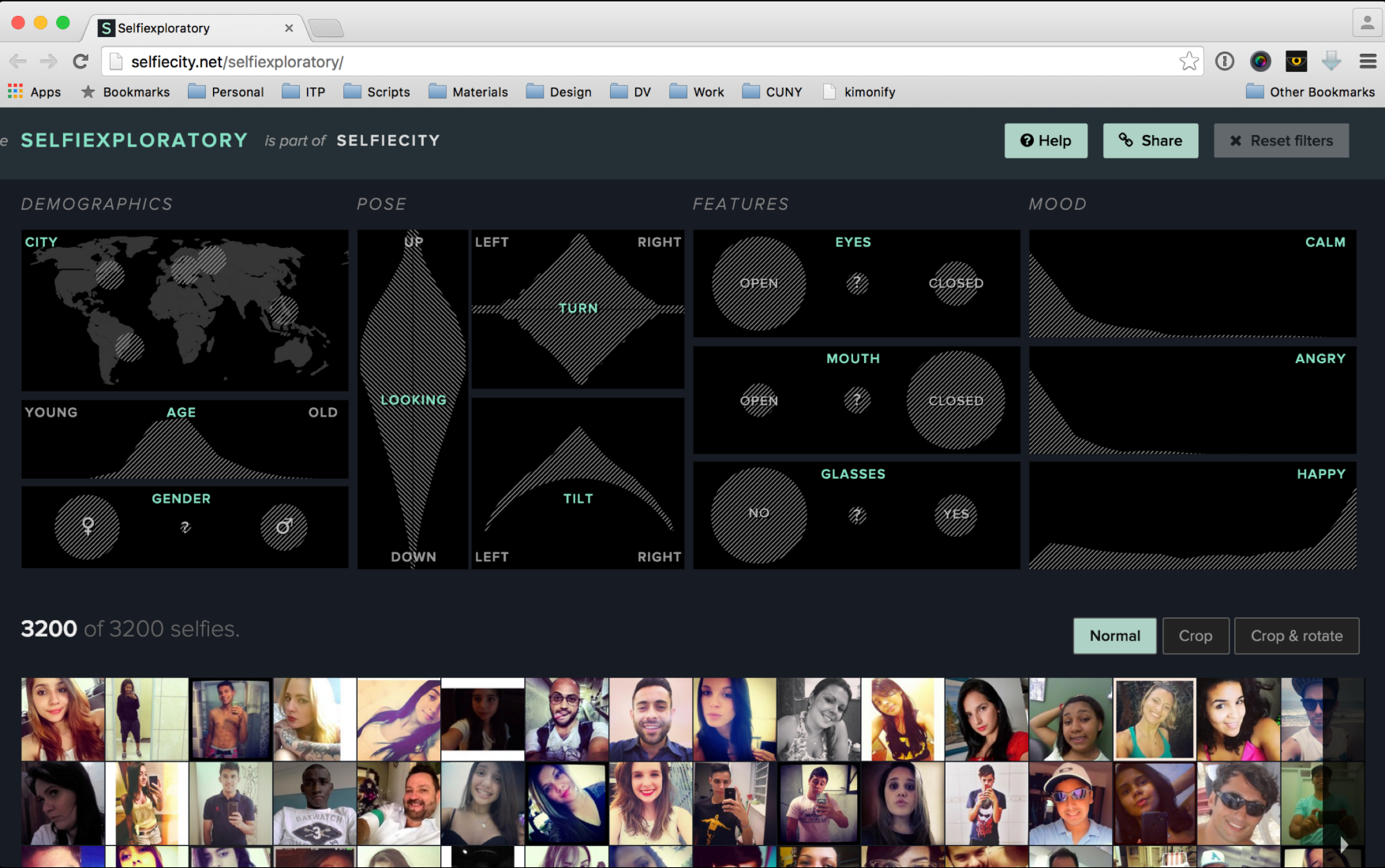
## Uber + United App



# Spotify and D3js



# Instagram and Mechanical Turk





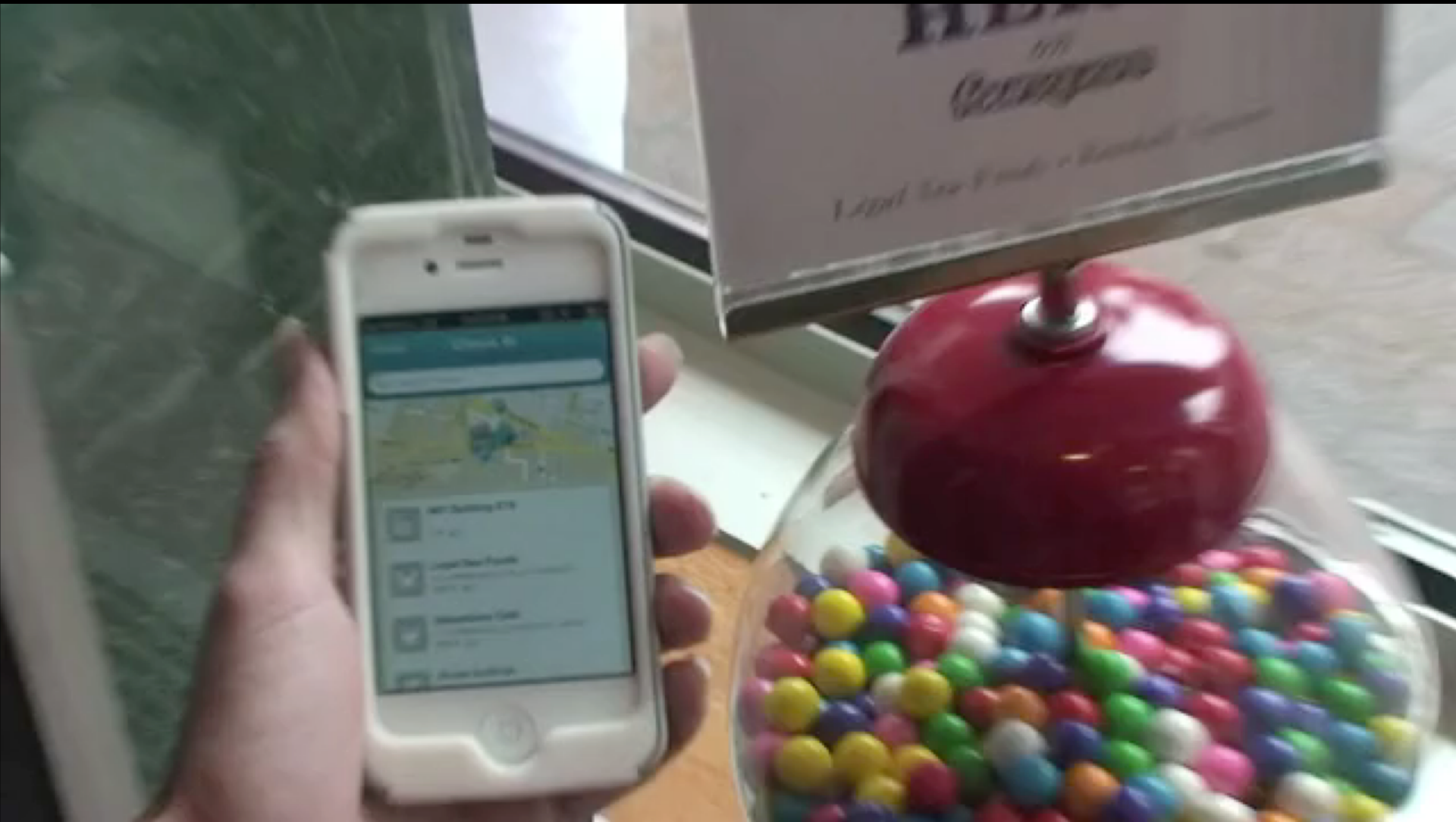
## Vuforia and MTA

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## Foursquare and Raspberry Pi

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**Syfy** presents



The screenshot shows a web browser window with the address bar displaying 'fashionweatherready.com'. The website content features a header 'SAN DIEGO' and a weekly outfit calendar. The calendar consists of seven vertical panels, each representing a day of the week from Thursday to Wednesday. Each panel shows a male model wearing a specific outfit. Below each outfit, a temperature reading is provided. The outfits are: Thursday (green hoodie with 'vineyard vines' text, 66.0°), Friday (maroon t-shirt, 62.0°), Saturday (red polo shirt, 63.0°), Sunday (white long-sleeve shirt, 62.5°), Monday (plaid shirt, 63.0°), Tuesday (grey button-down shirt, 63.5°), and Wednesday (black t-shirt, 62.5°). The browser's address bar shows the URL 'https://api.shopstyle.com/action/apiVisitRetailer?id=644761184&pid=uid9600-36626140-55'.



Color of Change - Peer-to-Peer x


https://vote.colorofchange.org

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Our votes have the power to make lasting change for our community. Color Of Change is committed to increasing Black voter registration that will lead to a boost in turnout this November, and huge wins in our community for years to come. We created a tool that empowers YOU to lead this effort.

 Sign in with Google

1

remix4change

https://glitch.com/~remix4change

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COLOR OF CHANGE

Welcome to #Remix4Change

My address is:

1600 Pennsylvania Ave NW, Washington, DC 20500, USA

Filter bills by:

☒ Bail ☐ Police ☐ Prison ☐ Discrimination

Click to Update




Donald J. Trump  
President of the United States

Mike Pence  
Vice-President of the United States

Eleanor Holmes Norton  
United States House of Representatives DC

Muriel Bowser  
Mayor

remix4change Code App Both

Made by    Show

1

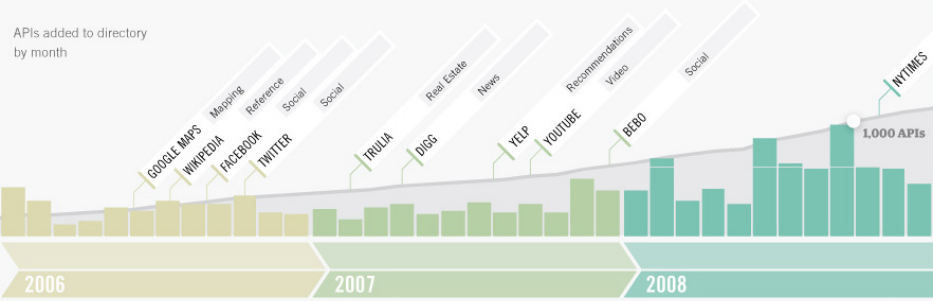
# API History

## OUT IN THE OPEN

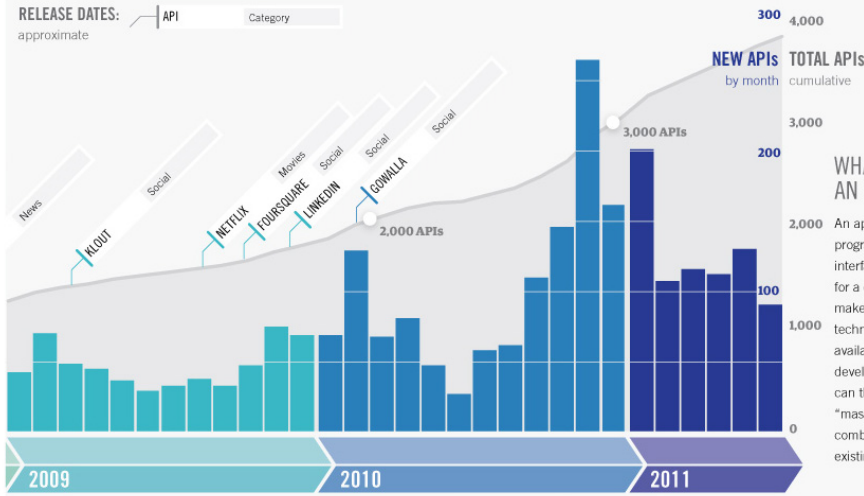
### APIs for Developers

More and more companies are making the data they collect and generate publicly available through the release of APIs, which are used by developers in building new products—like FarmVille, based on Facebook's API. Since 2005, more than 3,700 APIs have been launched.

APIs added to directory by month

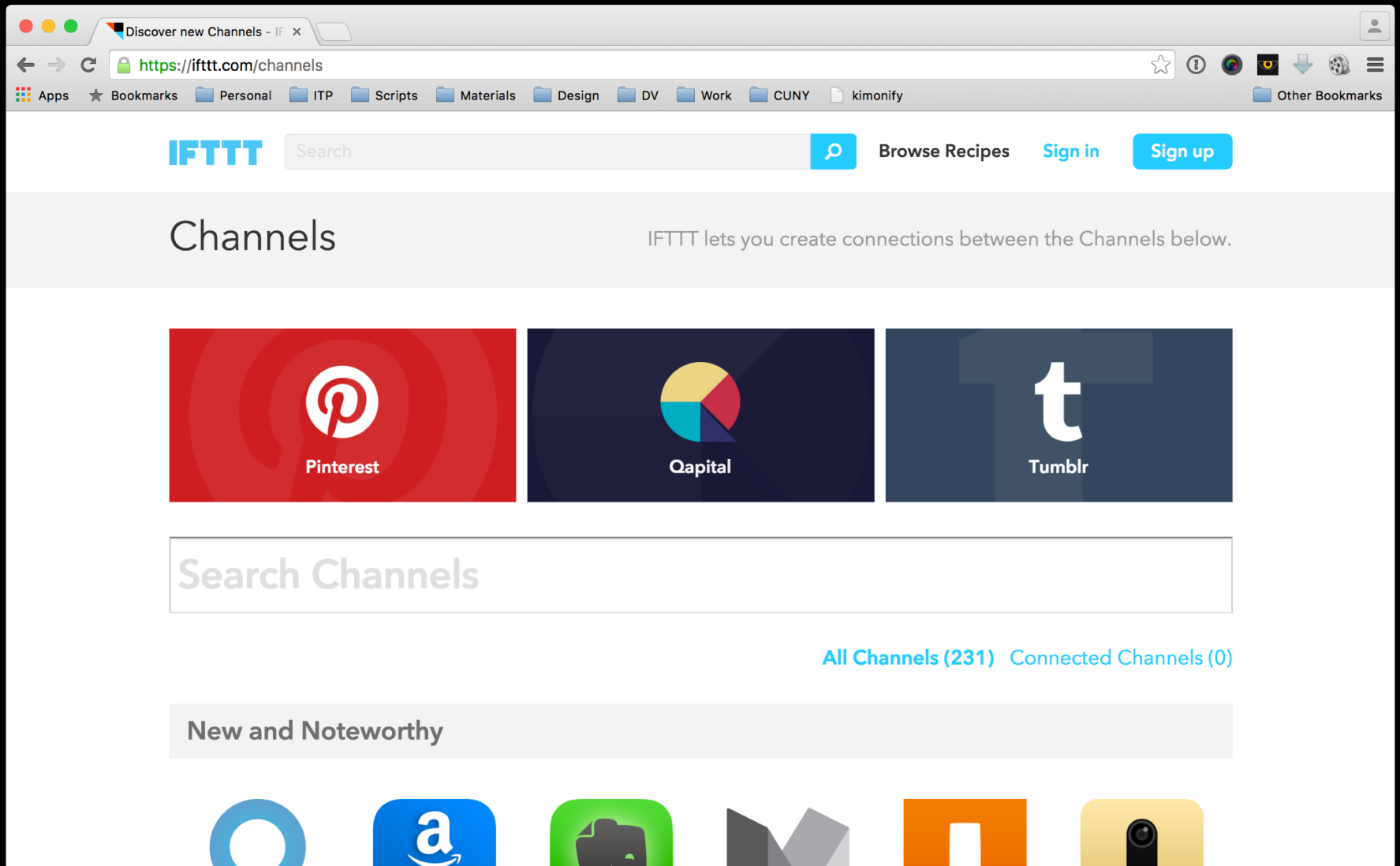


RELEASE DATES:  
approximate



### WHAT IS AN API?

An application programming interface is a way for a company to make its data or technology available to other developers, who can then make "mashups" (new combinations of existing APIs).



# JSON Object Data Format

https://www.citibikenyc.com

https://www.citibikenyc.com/stations/json

Apps Bookmarks Personal ITP Scripts Materials Design DV Work CUNY kimonify Other Bookmarks

Raw Parsed

```
{
  "executionTime": "2015-11-16 10:34:23 PM",
  "stationBeanList": [
    {
      "id": 72,
      "stationName": "W 52 St & 11 Ave",
      "availableDocks": 33,
      "totalDocks": 39,
      "latitude": 40.76727216,
      "longitude": -73.99392888,
      "statusValue": "In Service",
      "statusKey": 1,
      "availableBikes": 5,
      "stAddress1": "W 52 St & 11 Ave",
      "stAddress2": "",
      "city": "",
      "postalCode": "",
      "location": "",
      "altitude": "",
      "testStation": false,
      "lastCommunicationTime": "2015-11-16 10:32:13 PM",
      "landMark": ""
    },
    {
      "id": 79,
      "stationName": "Franklin St & W Broadway",
      "availableDocks": 12,
      "totalDocks": 33,
      "latitude": 40.71911552,
      "longitude": -74.00666661,
      "statusValue": "In Service",
      "statusKey": 1,
      "availableBikes": 19,
      "stAddress1": "Franklin St & W Broadway",
      "stAddress2": "",
      "city": "",
      "postalCode": ""
    }
  ]
}
```

## jQuery ajax

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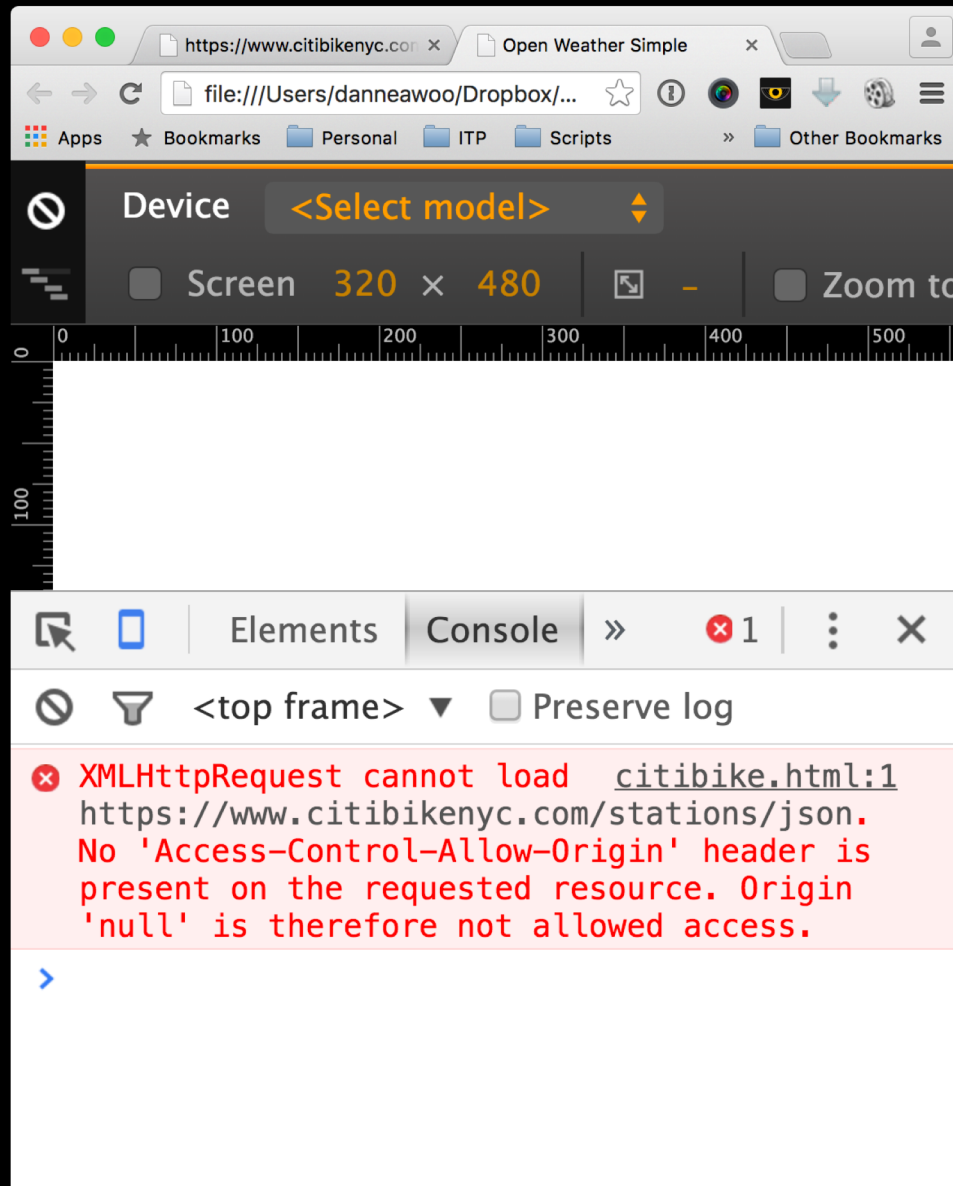
```
$.ajax({  
    url: "http://www.apiwebsite.com",  
    type: "get",  
    dataType: "jsonp",  
    data: data that is sent to the server,  
    success: function(data) {  
        // Do something with the data.  
        console.log(data);  
    },  
    error: function(data) {  
        // Error message displays here.  
        console.log(data);  
    }  
});
```

## jQuery getJSON

---

```
$.getJSON( "http://www.apiwebsite.com", function(data) {  
    // Do something with the data.  
    console.log(data);  
});
```

# JSON Error





# APIs

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Explore the world of APIs. Think of a website or topic that you are interested in and try and find an open API where you can pull that data into your own website.

Start to think about what you want to build for your final project. This can be an interactive version of your midterm, a website around your personal data or a creative way to use data from APIs.