





# Web Development

Adding Behavior to Widgets in Javascript.  
Interacting with online services.



# Class Agenda

- Learn how to interact with online services to get resources dynamically.
- Walk through the process of creating a widget using Web Technologies.
- Learn about good practices when working on Javascript projects.



# Online Resources

**RESOURCE** = Something the application needs in order to execute some action of value.



**ONLINE** = Something that must be retrieved from the internet.





# Online Resources

The Web Speaks **HTTP**.

(mostly)

# HyperText Transfer Protocol

(For resources that are **more** than text,  
interlinked text, **interlinked content**.)



(To move from an origin to a destination, from the  
**Server** to the **Client**)



(A set of rules and procedures)



# Online Resources

Online Resources are  
identified by **URLs**

# Uniform Resource Locator

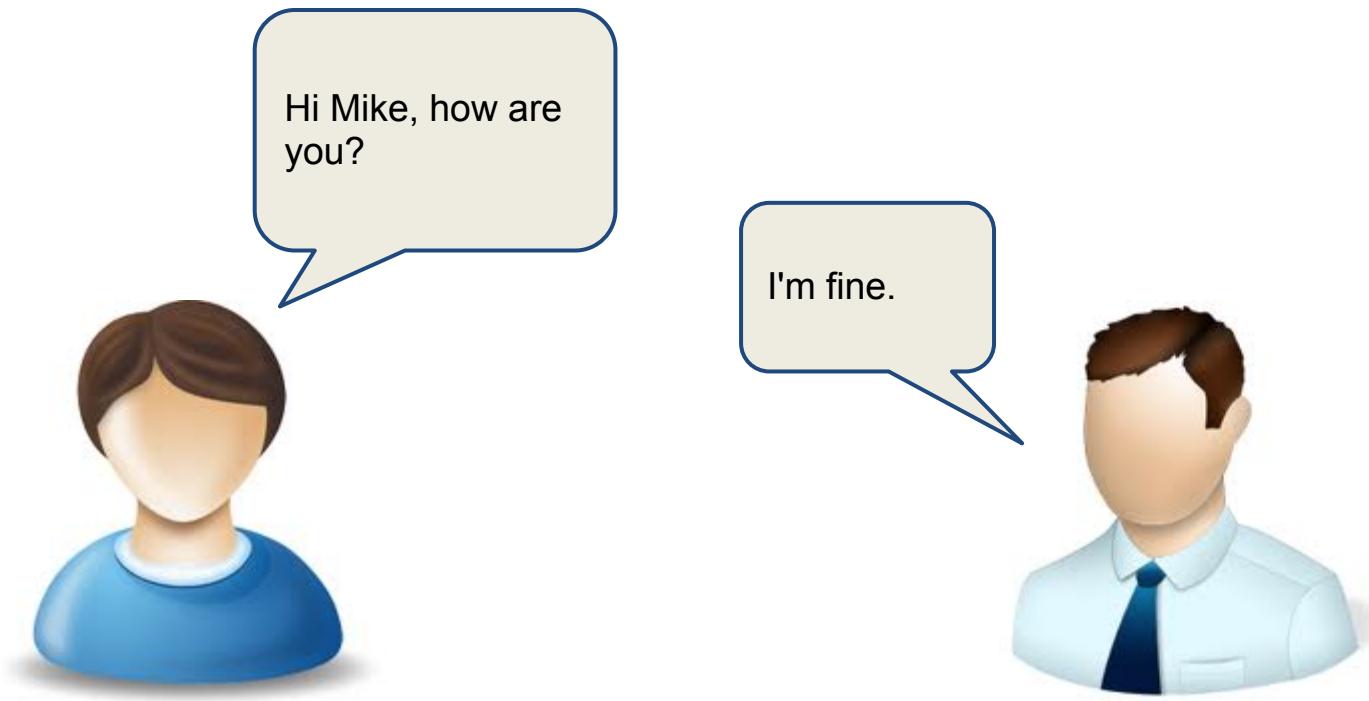


`https://github.com/ucertificate-ui/track1-web-development`



`http://`  
`https://`  
`spdy://`

`http://www.facebook.com/`  
`http://www.google.com/search.html?q=what+is+a+url`  
`http://listen.grooveshark.com/muse/origin+of+symmetry/hypermusic`



Mike

english://**mike**/status



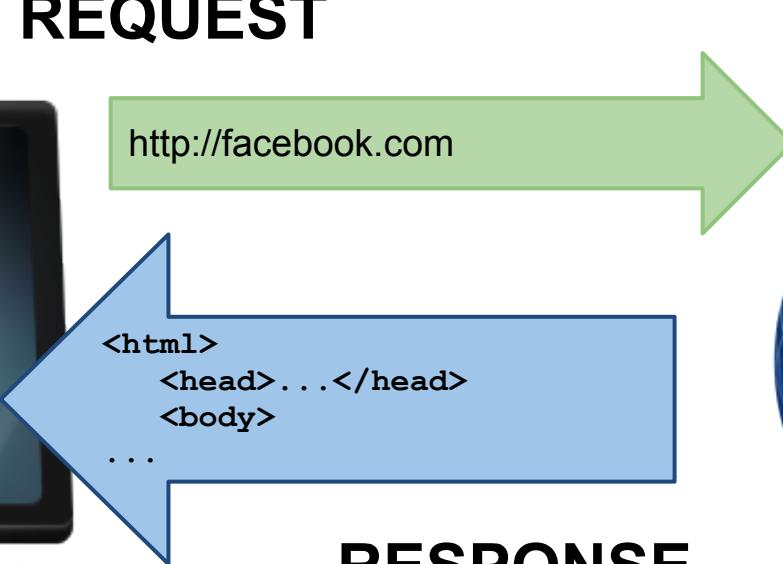
**REQUEST**

`http://facebook.com`

```
<html>
  <head>...</head>
  <body>
    ...
  </body>
</html>
```

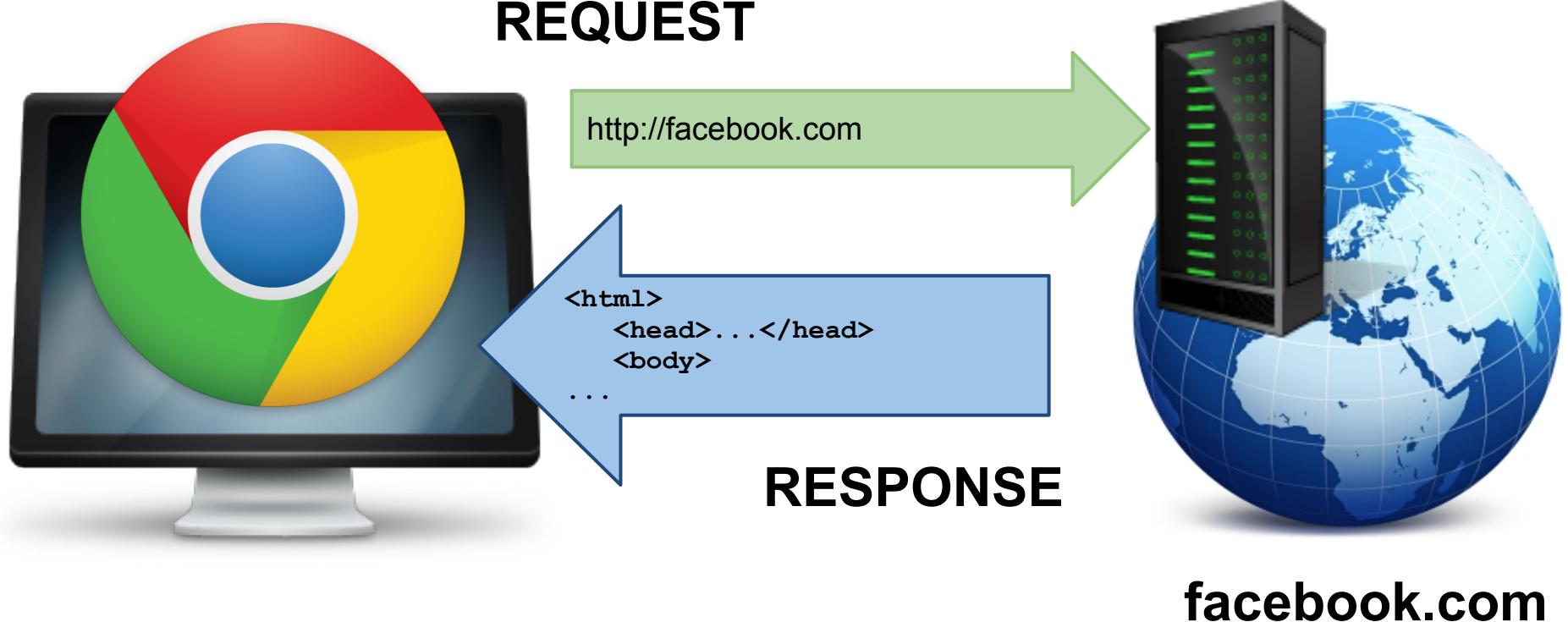
**RESPONSE**

**facebook.com**



# HTTP REQUEST

**GET** / HTTP/1.1  
**Host:** www.facebook.com  
**Connection:** keep-alive  
**Cache-Control:** no-cache  
**User-Agent:** Mozilla/5.0 (Macintosh; Intel Mac OS X 10\_8\_2)  
AppleWebKit/537.11 (KHTML, like Gecko) Chrome/23.0.1271.64  
Safari/537.11  
**Accept:** text/html,application/xhtml+xml,application/xml;q=0.9,\*/\*;q=0.8  
**Accept-Encoding:** gzip,deflate,sdch  
**Accept-Language:** en-US,en;q=0.8,es-419;q=0.6,es;q=0.4  
**Accept-Charset:** ISO-8859-1,utf-8;q=0.7,\*;q=0.3  
**Cookie:** ...



**How does facebook know I'm Logged in ???**



# Online Resources

## HTTP is a Stateless Protocol.

The server does not keep track of previous requests.



Hi, I'm Mike, my password is 1234.

Ok, you're mike, here's your code: 12er3re53r3ft7.

*Everyone on this computer can be mike now!*  
**BROWSER MUST REMEMBER THE CODE!!!**

Hi, I'm Mike again, my code is 12er3re53r3ft7.

Ok, you're mike, keep going...



**facebook.com**

# Cookies!!!



- Simplest key-value storage.
- Stored as a header on the request/response body.
- Can be set either by the Server or Client.
- Once set, it gets sent with every request/response.
- One set of cookies per authority/domain.
- Unaccessible for other domains.
- 4K maximum storage limit.

...

**Cookie:** SESSIONID=12er3re53r3ft7;  
friends=2143124321,31243214,12342314312;  
settings=chat:1,online:0...



# HTTP RESPONSE



HTTP/1.1 200 OK

**Cache-Control:** private, no-cache, no-store, must-revalidate  
**Expires:** Sat, 01 Jan 2000 00:00:00 GMT  
**Strict-Transport-Security:** max-age=60  
**X-Content-Type-Options:** nosniff  
**X-Frame-Options:** DENY  
**X-XSS-Protection:** 1; mode=block  
**Set-Cookie:** SESSIONID=...  
**Content-Encoding:** gzip  
**Content-Type:** text/html; charset=utf-8  
**X-FB-Debug:** hEAHXJ...  
**Date:** Tue, 27 Nov 2012 19:36:47 GMT  
**Transfer-Encoding:** chunked  
**Connection:** keep-alive

```
<!DOCTYPE html>
<html lang="en" id="facebook" class="js">
<head>
...

```

# HTTP Response Codes



## 2XX Success

- 200 OK



## 3XX Redirection

- 301 Moved Permanently
- 302 Found (a.k.a Moved Temporarily)
- 304 Not Modified



## 4XX Client Error

- 400 Bad Request
- 401 Unauthorized
- 403 Forbidden
- 404 Not Found



## 5XX Server Error

- 500 Internal Server Error

# HTTP Verbs

**GET**

*read*

GET /books

---

**POST**

*create*

POST /books

---

**PUT**

*update*

PUT /books/hunger-games

---

**DELETE**

*delete*

DELETE /books/hunger-games



# Online Resources

How do I generate **HTTP**  
**requests?**



# Browser's Address Bar



<https://www.google.com/search?q=http+requests>



GET <https://www.google.com/search?q=http+requests> HTTP/1.1



# HTML Resource linking

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



GET <http://www.domain.com/myscript.js> HTTP/1.1

```
<link type="stylesheet" href="mystyles.css"></script>
```



GET <http://www.domain.com/mystyles.css> HTTP/1.1



# HTML Forms

```
<form method="get" action="/search">  
  <input type="text" name="query">  
  <input type="hidden" name="invisible" value="secret">  
  <input type="submit" value="search">  
</form>
```



GET [http://www.domain.com/search?  
query=some+query&invisible=secret](http://www.domain.com/search?query=some+query&invisible=secret)



# HTML Forms

```
<form method="post" action="/users">
  <input type="text" name="name">
  <input type="text" name="surname">
  <select name="gender">
    <option value="male">
    <option value="female">
  </select>
  <input type="submit" value="Add user">
</form>
```



POST <http://www.domain.com/users>  
Content-Type: application/x-www-form-urlencoded

name=some+name&surname=some+surname&gender=male



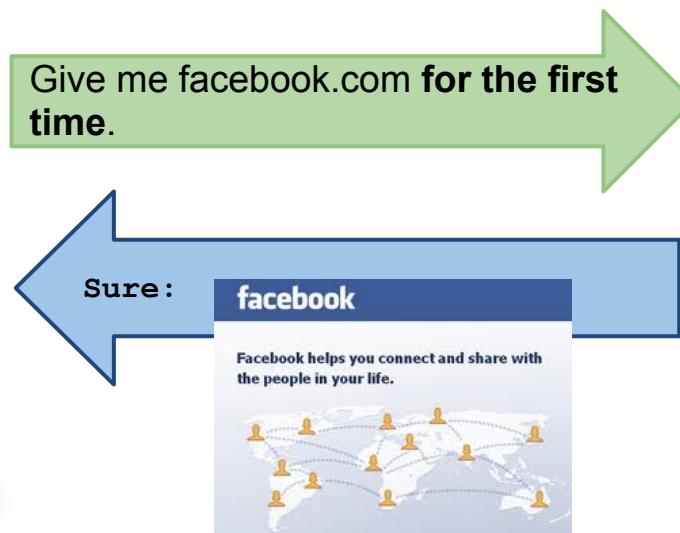
# Javascript XHR

```
// create an xhr object that allows us to make  
// any kind of custom http request.  
var xhr = new XMLHttpRequest();  
// open a url connection  
xhr.open("GET", "http://www.domain.com/search?q=hi");  
// set headers if necesary  
xhr.setRequestHeader("Accept","application/json");  
// perform request  
xhr.send();
```



GET <http://www.domain.com/search?q=hi>  
Accept: application/json

# Cache



**facebook.com**

# Cache



Has facebook.com been **modified?**

Nope.



**facebook.com**

Local cache for  
facebook.com:





Wrapping up...

# Let's Make a Widget!



# Let's make a Widget!

- Remember:

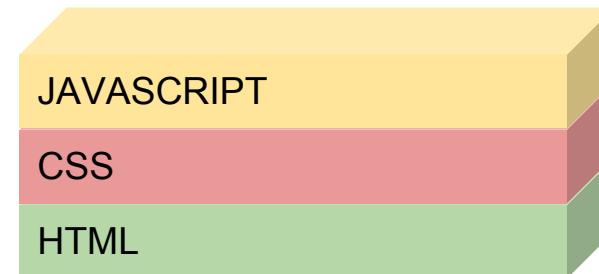
Widgets are



**Self-Contained  
Reusable  
Composable  
Customizable  
Styleable**

Components

and we make them with





Search on Twitter html5  

**Simplib** @SimplibTweet RT @YouriJedlinski: Hello #creative minds, join our team @SimplibTweet, we need #SEO #designers #developers #rails #ror #html5 #JavaScript @rails @html5 @SEO

**Youri Jedlinski** @YouriJedlinski Hello #creative minds, join our team @SimplibTweet, we need #SEO #designers #developers #rails #ror #html5 #JavaScript @rails @html5 @SEO

**Gilderlan Braz** @gilderlanbraz Serviço legal /vintageJS - add some awesome retro and vintage style to your images with the HTML5 canvas element <http://t.co/2yTpDsBE>

**The Job Matchers** @1stopbet 3 Online Christmas Games - ActionScript Flash jQuery HTML5 Adobe Flash at <http://t.co/29qQkZaG> (Kent, WA): We are... <http://t.co/akRYPrCa>

**song kyunghee** @hskschool HTML5 for App Developers: Eclipse <http://t.co/TRWRwSar>

**magia** @utatanebito HTML5のアウトラインについてぐぐったら分かり易いサイトがあった！なんで最初にググらなかったの！とも思うけど、そのタイミングはその時ではなかったのだよ。今日は別件しかできなかつたから明日組み終わらす！

**babel** @babel RT @AppsFuel: @AppsFuel will teach you how to create #html5 mobile apps. See you in Naples the next 15 Nov @AppCircus Campania In.Hub <http://t.co/KVbfzjhm>

**Unknown** @graciopaulucci @germansaez pareciese que acá en Argentina ningún diseñador web conoce HTML5.

**song kyunghee** @hskschool HTML5 Tutorial Video - Part 2: Setting Up <http://t.co/n2MnfMQS>

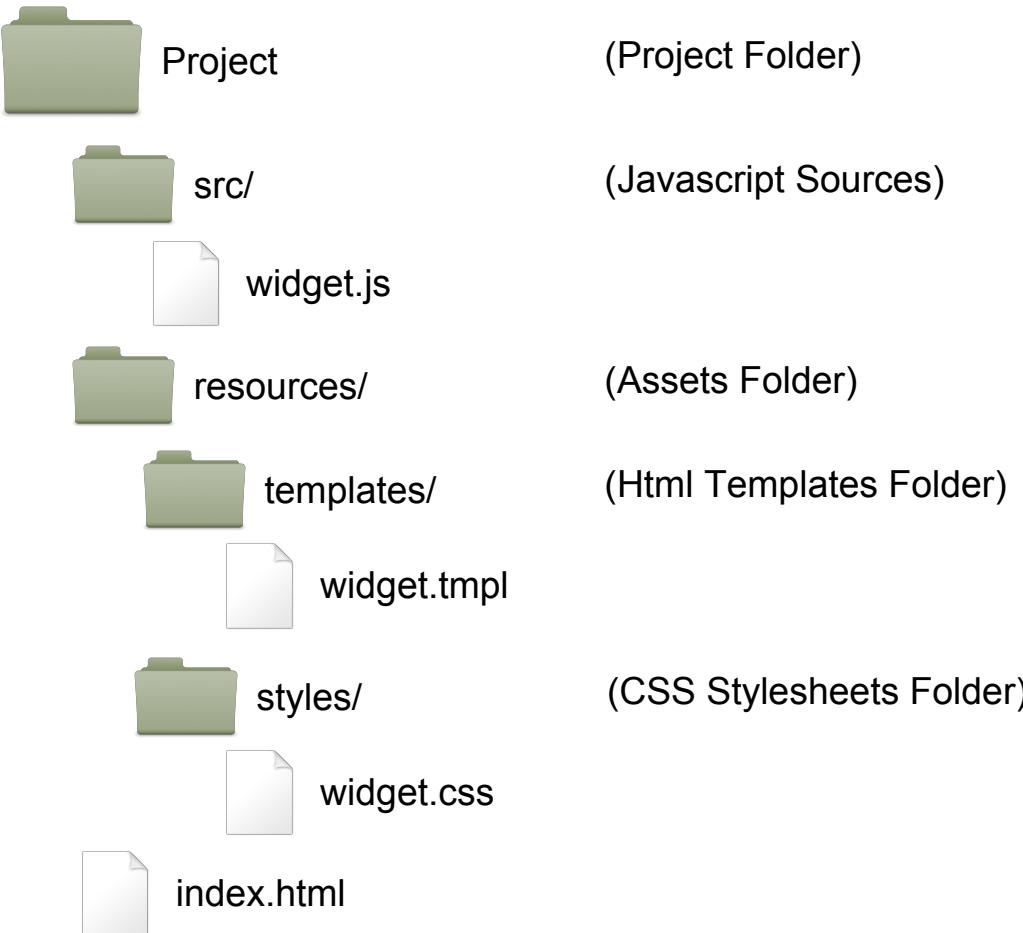
**song kyunghee** @hskschool Google I/O 2011: HTML5 versus Android: Apps or Web for Mobile Development? <http://t.co/pXwNykvOv>

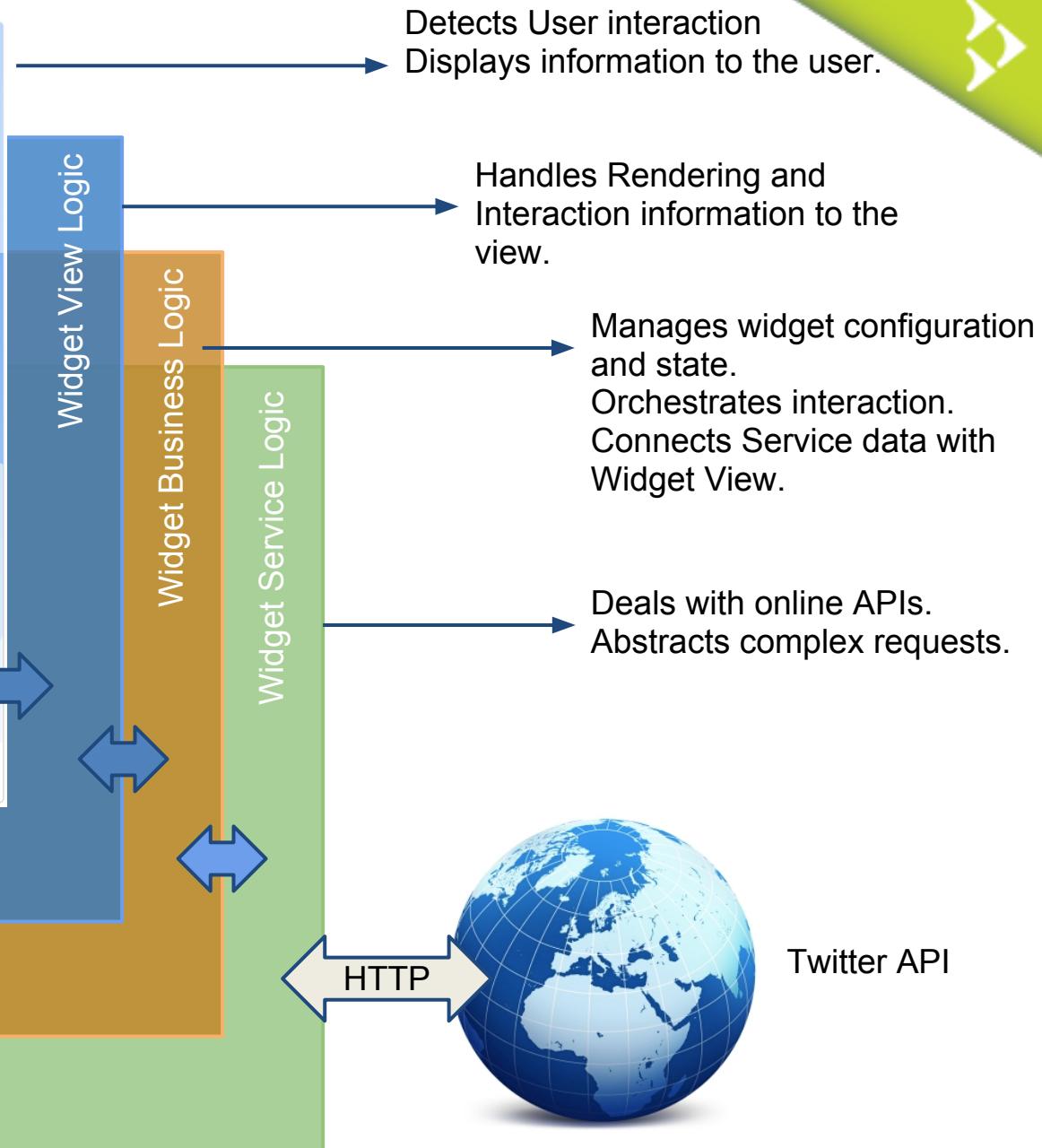
Twitter Search Widget

Example widget: Twitter search widget

# Showcase

# Project Structure







# Now with jQuery! Showcase

Search on Twitter html5  

**Simplib** @SimplibTweet RT @YouriJedlinski: Hello #creative minds, join our team @SimplibTweet, we need #SEO #designers #developers #rails #ror #html5 #JavaScript @rails @html5 @SEO

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**Unknown** @germanez2012 @mrciese @aurelio\_araujo @mgun\_diseño or web conoces HTML5?

**song kyunghee** @hskschool HTML5 Tutorial Video - Part 1 <http://tiny.cc/meyarw>

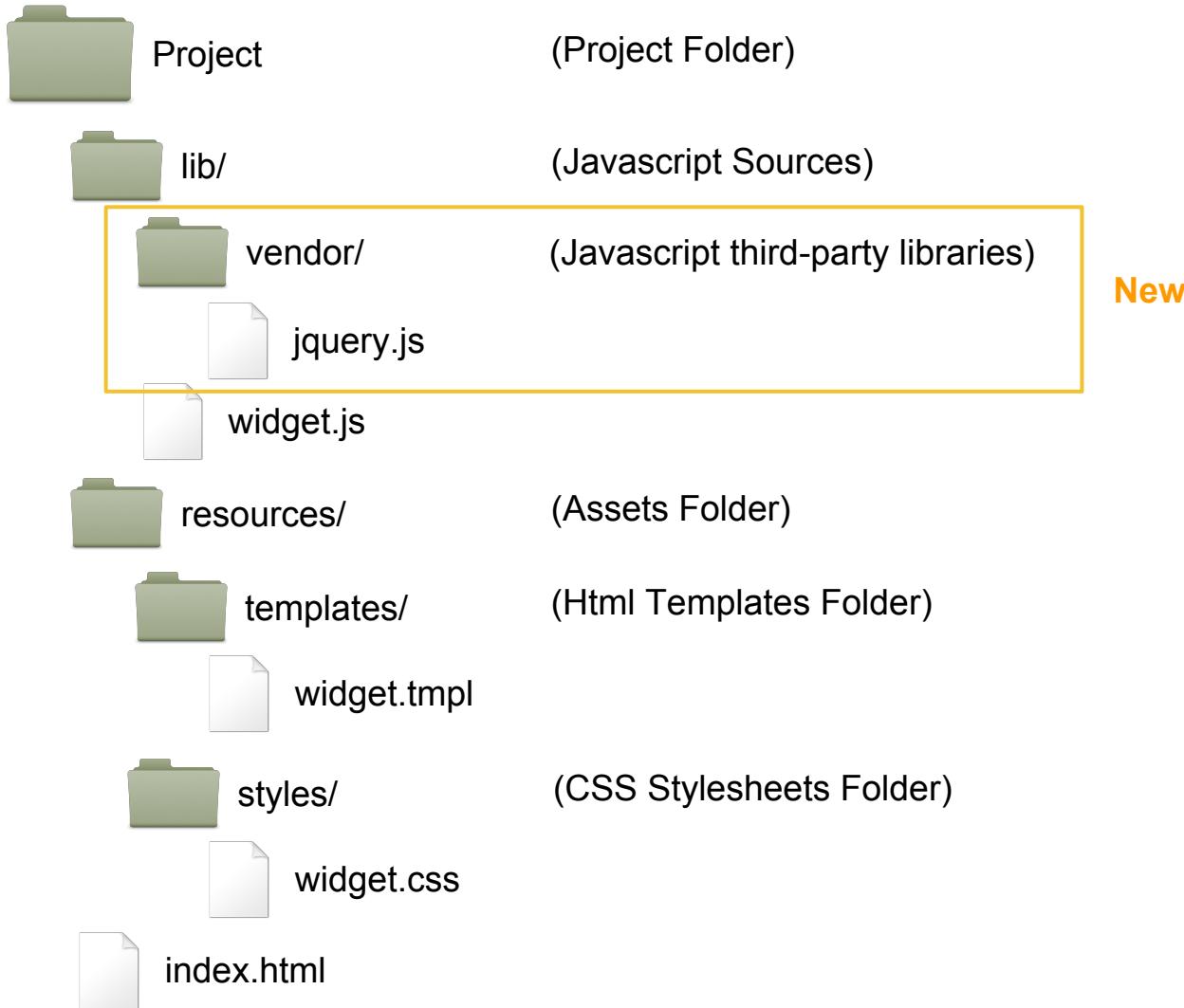
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Twitter Search Widget





# Project Structure





# SHOWDOWN

Plain Javascript

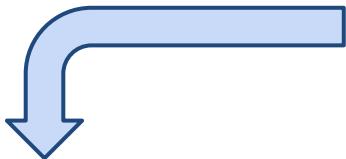


View Logic (TwitterSearchWidgetView)	110 LoC (Why?: Helper Methods)	74 LoC
Bussiness Logic (TwitterSearchWidget)	32 LoC	31 LoC
Service Logic (searchTweets())	38 LoC (Why?: Request Logic Boilerplate)	9 LoC

- + More Stable
- + More Secure
- + More Readable



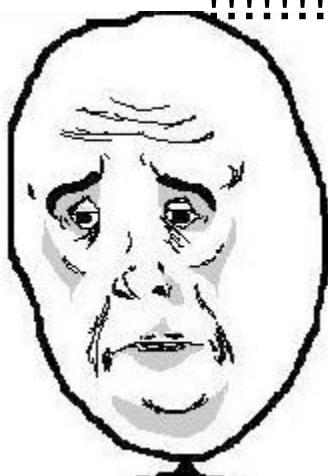
# SHOWDOWN



Plain Javascript

DAMN  
**attachEvent()**

!!!!!!



**jQuery**  
write less, do more.



**OMG! It works!**

Thank  
you!