

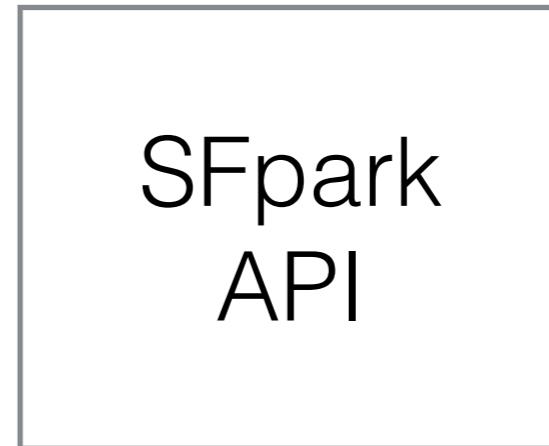
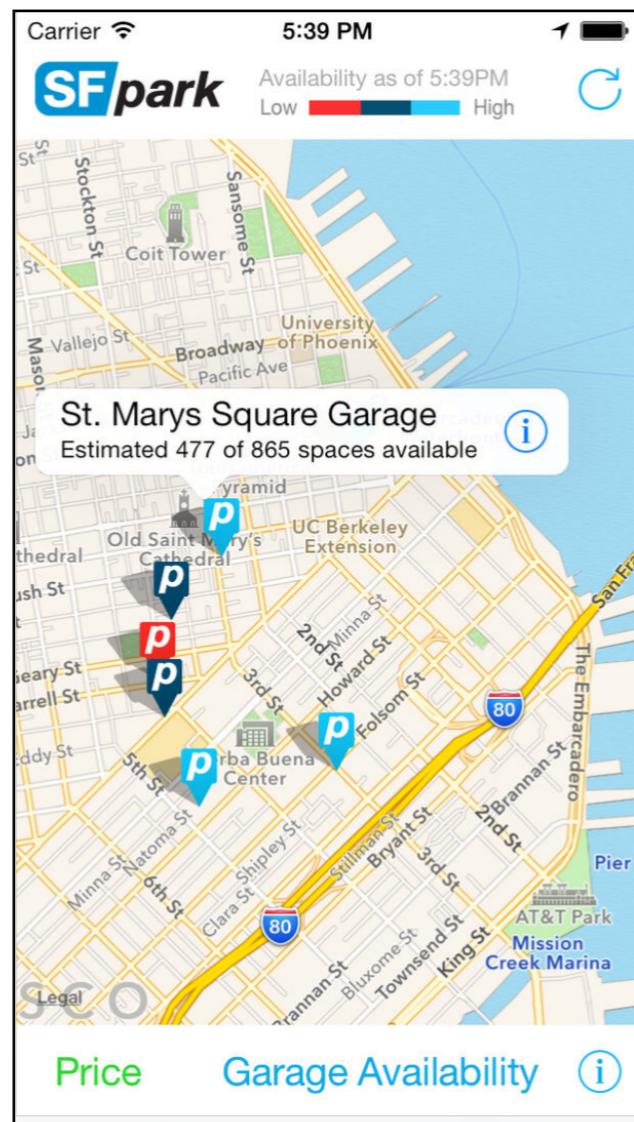
Intro to APIs

CP 255 Urban Informatics
UC Berkeley

What's an API?

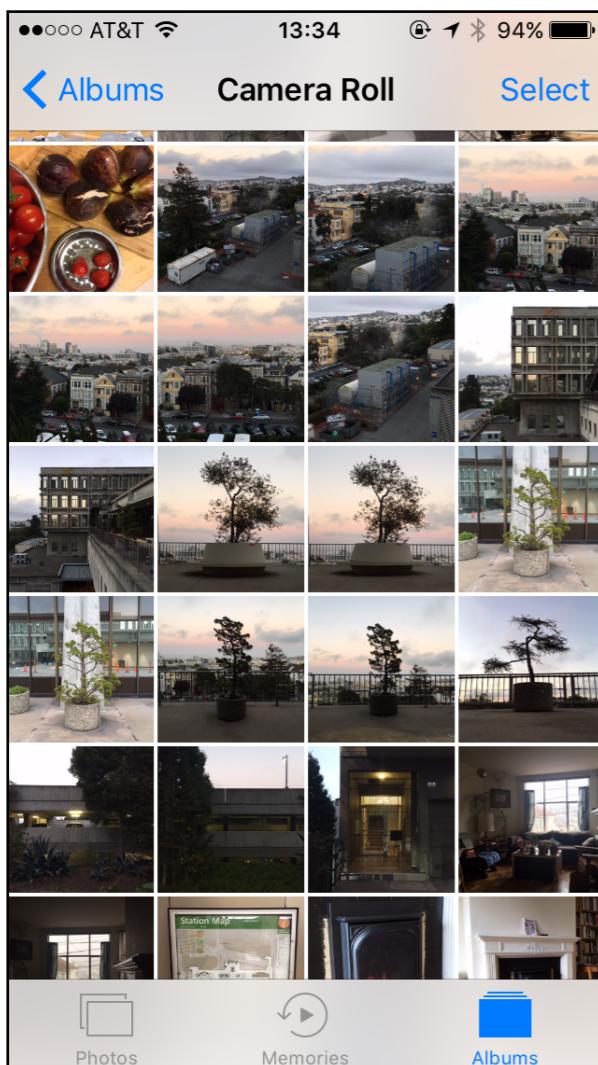
- “Application Programming Interface”
- A **code-based interface** for outside developers to interact with a piece of software, anything from a code library to a website to a database system

APIs in action



Parking app

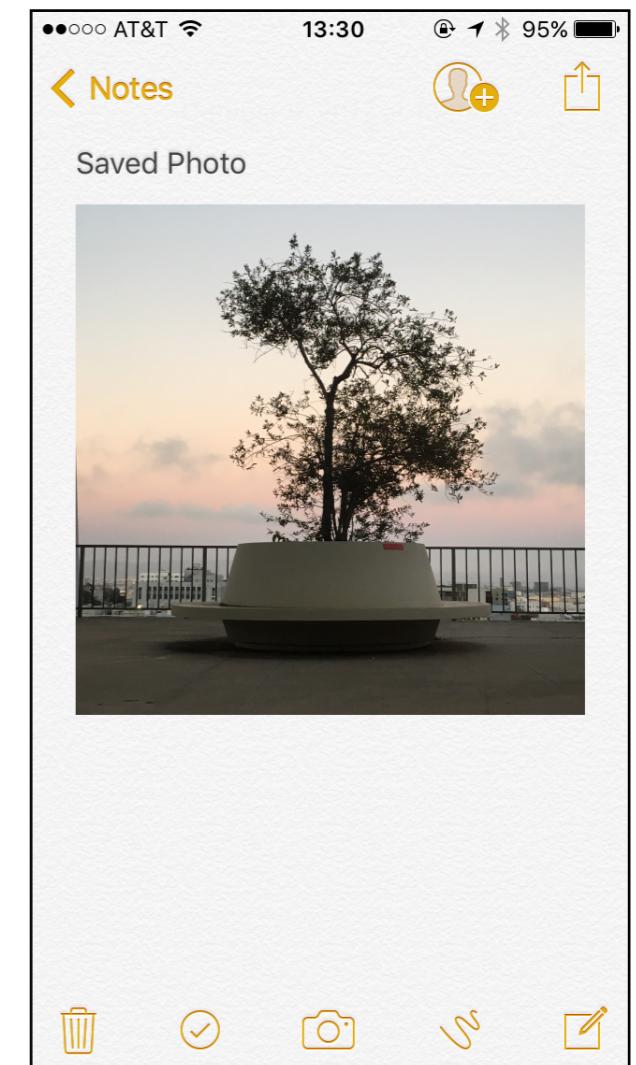
APIs in action



..... → ←

iOS/app
APIs

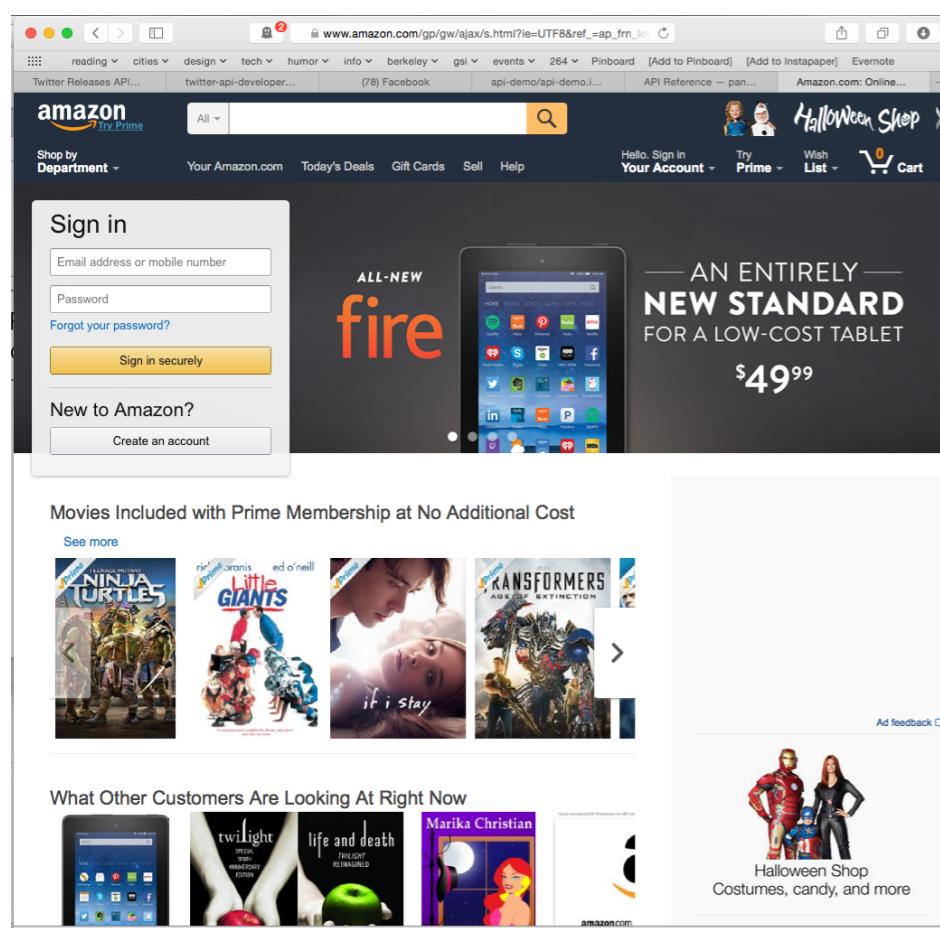
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Photos

Sent to another app

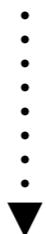
APIs in action



Amazon Recommendations API

APIs in action

```
df = pd.DataFrame()
```



Pandas
API



	depth	magnitude
0	48.82	4.50
1	9.52	4.70
2	11.18	2.97
3	4.09	2.65
4	26.07	4.60

- An API is a **code-based interface** for outside developers to interact with a piece of software
- APIs create a **clear menu of access points**, shielding the inner workings of the software from outside view and allowing them to change as needed
- APIs are usually **transactional**: you invoke a command and then receive its results

Categories of APIs

APIs in a coding language

1. *functions*

my_function()

2. *arguments*

my_function(args="x")

3. function returns a value

APIs over the web

1. “*URL endpoints*”

http://my.domain/endpoint

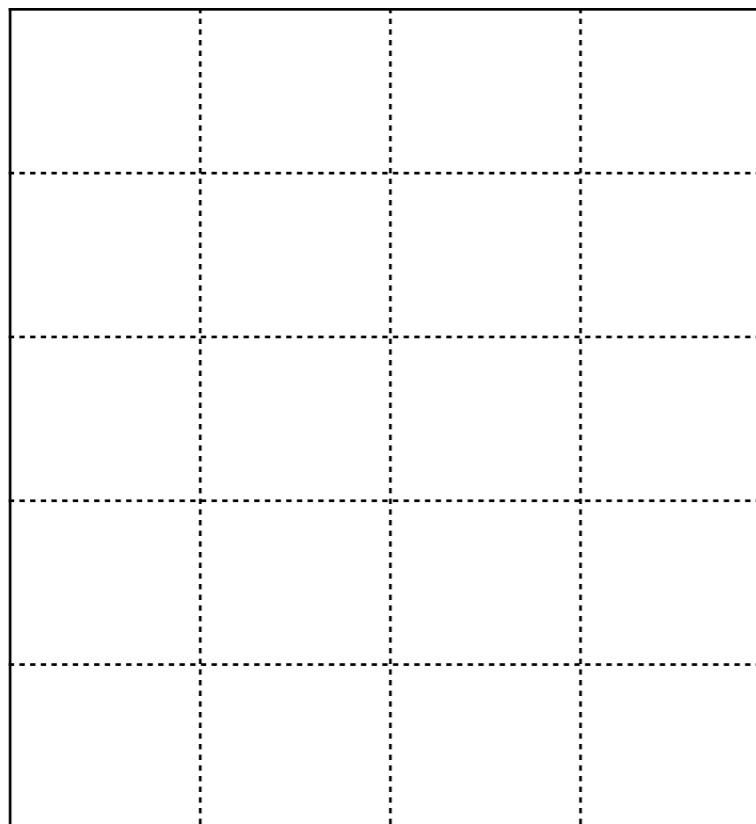
2. “*query parameters*”

?args=x

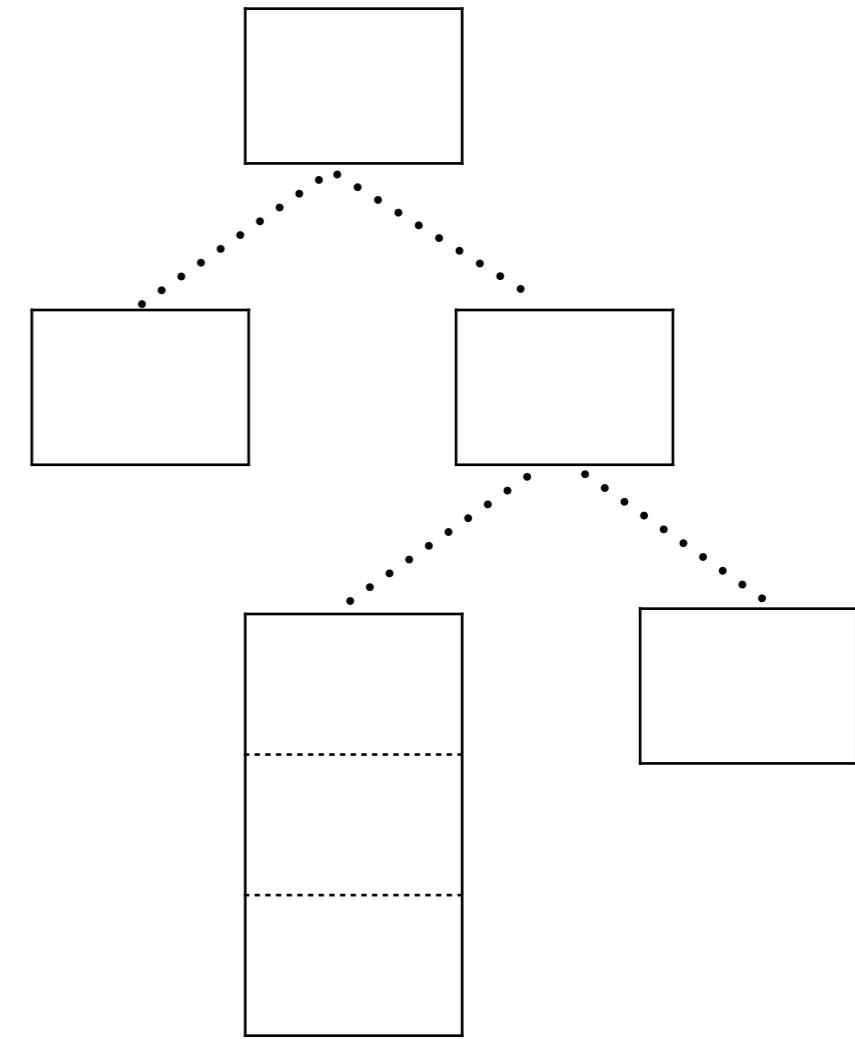
3. web request returns a value

Data formats

Table
(DataFrame, CSV)



Nested arrays
(Python dictionary, JSON, XML)



- APIs that operate over the web have **URL endpoints** and **query parameters**, which are similar to functions and arguments
- They usually return data as **nested arrays** in JSON format, which you can reassemble into tables

Now on to APIs to
Access Data
From Open Data Portals