API's + Data

Application Programming Interface
Large sets of data. doesn't make sense to download all of it. not practical
API lets programmers access a trickle of data that is relevant from a massive set

JSON (JavaScript Object Notation)

“Name” : “Sam”

“Favorite color”: “Green”

“Phone Number”: 123-456-7890

“ID”: 4242

Label + Data; Key + Value pairs
not quotes arnd numbers

JSON (JavaScript Object Notation)

“Name” : “Sam”,

“Favorite color”: “Green”,

“Phone Number”: 123-456-7890,

“ID”: 4242

commas

JSON (JavaScript Object Notation)

{

“Name” : “Sam”,

“Favorite color”: “Green”,

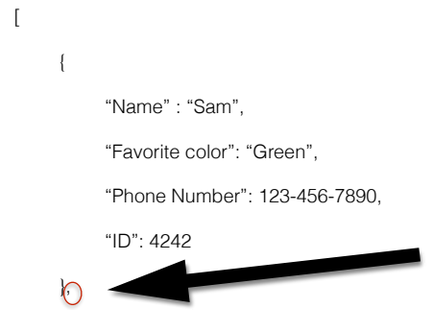
“Phone Number”: 123-456-7890,

“ID”: 4242

}

JSON Object

JSON (JavaScript Object Notation)



```
[
    {
        “Name” : “Sam”,
        “Favorite color”: “Green”,
        “Phone Number”: 123-456-7890,
        “ID”: 4242
    },
    {
        “Name” : “Sam”,
        “Favorite color”: “Green”,
        “Phone Number”: 123-456-7890,
        “ID”: 4242
    }
]
```

JSON Array
CSV has fewer characters
JSON has labeled data

Read a JSON File

API's

http://openweathermap.org/api

https://developer.nytimes.com/

https://dev.twitter.com/web/javascript

https://www.mysportsfeeds.com/

https://developers.google.com/gmail/api/quickstart/js

some API are totally public; some require authentication (user ID or key) to track users
most have rules about how many and/or how often requests for data can be made (ie, 1000 per month, not more than 1 per second)

CSV, TSV, JSON + XML files can be loaded into P5

API's: Demo with openweathermap

http://api.openweathermap.org/data/2.5/forecast/city?id=524901&APPID={APIKEY}

http://api.openweathermap.org/data/2.5/weather?zip={zip code},{country code}

http://api.openweathermap.org/data/2.5/weather?zip=11201,us&APPID=EnterYour_API_KEY_HERE

Show log in

API's: Demo with openweathermap

{"coord":{"lon":-122.09,"lat":37.39},

"sys":{"type":3,"id":168940,"message":0.0297,"country":"US","sunrise":1427723751,"sunset":1427768967},

"weather":[{"id":800,"main":"Clear","description":"Sky is Clear","icon":"01n"}],

"base":"stations",

"main":{"temp":285.68,"humidity":74,"pressure":1016.8,"temp_min":284.82,"temp_max":286.48},

"wind":{"speed":0.96,"deg":285.001},

"clouds":{"all":0},

"dt":1427700245,

"id":0,

"name":"Mountain View",

"cod":200}

look at demo
parse it out with spaces so can find the proper key label

```
{
"coord":
    {
        "lon":-122.09,
        "lat":37.39
        },
"sys":
    {
        "type":3,
        "id":168940,
        "message":0.0297,
        "country":"US",
        "sunrise":1427723751,
        "sunset":1427768967
        },

"weather":[
        {
            "id":800,
            "main":"Clear",
            "description":"Sky is Clear",
            "icon":"01n"
            }],

"base":"stations",

"main":{
    "temp":285.68,
```

```
“function setup() {
  var temp = getTemp(weatherData);
  console.log(temp);
}

function getTemp(data) {
  var main = data.main;
  var t = main.temp;
  return t;
}”
```

description under weather?

```
"weather":[
        {
            "id":800,
            "main":"Clear",
            "description":"Sky is Clear",
            "icon":"01n"
            }],


    function getCurrentConditions(data){
      var weather = data.weather;
      var info = weather[0];
      var currently = info.description;
      //console.log(currently);
      return currently;
    }
```

Review:

- Look for an API with good documentation
- Study the documentation for how the data will be returned
- Practice with a “dummy” file first
- Make sure you have your API Key + ID and are using it for each call
- Watch where you make the calls. You’ll be limited as to how many you make. Not wise to put in your draw loop