

# CSc 317

## JSON, API



# API

- Application Programming Interface
- An interface constructed to allow other users, or other software, to **control, get information from, or provide information to**, some other piece of software

# Lots of things in software are APIs

For instance

- The Android APIs - <https://developer.android.com/reference>
- Reddit API - <https://www.reddit.com/dev/api/>
- Facebook API - <https://developers.facebook.com/docs/apis-and-sdks>
- Flickr API - <https://www.flickr.com/services/api/>

# API - for PA 6

- Application Programming Interface
- An interface constructed to allow other users, or other software, to **control, get information from, or provide information to**, some other piece of software

For PA 6 specifically, you'll be using the **Flickr API to get information** (images and image meta-data).

# Fetch some Photos

- Use the Flickr API to fetch
  - 10 recent photos
  - Include the image **description** and **geolocation** information
  - Fetch the info in both XML and JSON formats
  - `getRecent`

# JSON - JavaScript Object Notation

- Two ways to think about it
  - A text-based representation of a javascript object
  - A text based representation of nested **dictionaries**, **lists**, **strings**, and **integers**

# JSON - For Instance

```
{ "username" : "jdoe17",  
  "bio" : "Some dude on the internet",  
  "following" : ["paul751u", "theOwenator", "unauth7"],  
  "acct_age_wks" : 121  
  "settings" :  
    { "notifications" : "off",  
      "acct_type" : "private",  
      "dual_auth" : "off" }  
}
```

# JSON - org.json.\*

```
String jsonString = " . . . "
```

```
{ "username" : "jdoe17",  
  "bio" : "Some dude on the internet",  
  "following" : ["paul751u", "theOwenator", "unauth7"],  
  "acct_age_wks" : 121  
  "settings" :  
    { "notifications" : "off",  
      "acct_type" : "private",  
      "dual_auth" : "off" }  
}
```

```
JSONObject json = new JSONObject(jsonString);
```

```
String username = json.getString("username");
```

```
JSONArray following = json.getJSONArray("following");
```

```
String notification = json  
    .getJSONObject("settings")  
    .getString("notifications");
```



# Tiobe rankings display

- <https://www.tiobe.com/tiobe-index/>
- Write an application to display TIOBE rankings, fetched from the web
- Steps:
  - Fetch the JSON file
  - Get elements with JSONObject
  - Display as shown in screenshot
  - <https://benjdd.com/courses/cs317/fall-2020/files/tiobe.json>

