**SI 106: Programs, Information, and People | Winter 2016**

**Final Project**

**Project Plan Due:** Wednesday April 6 at 11:59 pm (250 points) **Project plan review** in section 4/7

**Final Project due:** April 18 at 2 PM (before lecture) (1750 points)

**OVERVIEW**

You have 2 options for what you can do for your final project.

1. **An API mashup project,** using 2 different APIs/data sources to get data from the internet, parse the data you get back, and present output in a clear way.
2. **Another type of project,** which you must propose to the instructional staff.

**PROJECT PLAN**

Submit your project plan by April 6 at 11:59 pm. You can find the assignment on Canvas, under Assignments, **Final Project Plan**. This is intended for you to plan out the project, after which you will get feedback from the instructional staff.   
  
**If you would like to take option (2) and propose a different type of project, do so in the project plan. The instructional staff will let you know if your plan is approved then**. In any case, you will get feedback and/or suggestions.  
  
**REQUIREMENTS**

Your application must fulfill the following requirements to get full credit.

* **Get data from at least 2 sources**.
  + One data source may be a source that we’ve used in the class (Flickr, Facebook). One must be a different API, or a text file.
  + If one of your sources is a text file, you must do parsing on it (e.g. it may not be a file with a list of words. But it may be a text of a book or article(s) that requires parsing to get interesting information from it like frequencies of words or characters).
  + At least one of your sources must be an API.
  + Text files we have provided for problem sets do not count, though you may use them in addition, if you like.
  + *If you choose option (2)* and *the instructional staff has approved your plan, you do \*not\* need to fulfill this requirement of getting data from at least two sources. Otherwise, you are expected to fulfill this requirement.*
* **Create some output meant for human consumption:** nicely formatted text, output in the console, or a .CSV file that you could import into a spreadsheet or visualization program. In other words, if any of the instructional staff ran your project, they should understand the output even if you had not talked to them about the project at all.
* **Define a class**.
  + You must create at least one instance of the class and use that instance in the program.
  + The class must have at least 2 methods besides the constructor/\_\_init\_\_ method, which you must invoke at some point in the program.
  + The class must have least 2 instance variables.
* **Define and make invocations to at least five functions or methods**.
* **For at least 3 functions or methods, create one or more test cases** that test whether functions produce the correct outputs on particular inputs, or have the correct side-effects. Tests must not be trivial (e.g. testing whether something that is always a dictionary is a dictionary will not get credit).
* **Import and use at least one Python module**, either a built-in one (like random) or one that you install with pip (like requests).
* **Use at least one list comprehension and/or a call to map, filter, or reduce**. This must not be trivial: e.g. [x for x in my\_list], which just creates a copy of my\_list, will not get credit.
* **Use at least one non-trivial sort** (where you provide a key function for sorting). The sort must be useful in your project, so plan around this! See project plan.
* **Do something creative**. Your project should make sense, and should require more creative thought than lightly editing any of your problem sets.
* **Include a readme**. Fill out the provided README template file and include it with your project submission.
* **Include all files needed to run your project**. If your project depends upon external text files or image files, you must include them in your submission. Just like problem sets, we will not grade projects that do not run.

You may use code that we have provided or that you have used before! **But you may *not* use that code to fulfill requirements in the final project.** For example, if you use the Post class that is provided in PS10, that’s fine, BUT that will notcount for credit for any project requirements (the class, the five functions/methods, etc).