

## SI 206 Data-Oriented Programming

**Project Name:** Data-Oriented programming with APIs and Visualization

### Homework Objective:

Demonstrate ability to:

- Create a fully-working program without any scaffolding
- Create and modify tables in a SQLite Database
- Utilize APIs (including researching possible methods)
- Utilize Visualization software (including researching options)
- Follow proper coding and submission conventions

\*\*\*Project of your choice is an option. Your optional project needs to be approved by **Nov 27th** and your proposal should address how you will be hitting on each of the objectives above. (If you will not be meeting an objective make sure to say why and what you will be doing instead.

### Deliverables and Submission Process:

1. **Proposals for alternate assignments due Nov 27th.**
2. **You must submit a plan by December 1st** - APIs you plan on using, visualization tools/package you want to implement, etc. Make sure to include what data you will be collecting.
3. **You must have all of your data collection done (and fully commented) by December 11th.** Students who demo their fully completed project by 12/11 (in class) will receive 3% extra credit of their project score. (Note, this is 3% of their score, not 3% of 310).
4. **You must submit a report on your project and a zipped copy of all of your code by December 15th.** Absolutely not late assignments will be accepted.

### Background:

In this assignment you will be using the skills learned from the course to create your own Social Media/software package tracker.

### PART 1 - Basic work (150 pts)

- Caching setup
- Utilize the API for a social media site or work tool of your choice (Facebook, GitHub, Instagram, Gmail, YouTube or any other site you have an active account with). **Twitter is not an option.**

- Access exactly 100 interactions (posts, emails, commits, likes, etc)
- Find the days that each of these interactions took place (Sunday - Monday)
- Write the data to a Database
- Create a “report” - (screen display, file output, or other easy-to-read format) that shows how active you are on each day on the site.
- If days of the week is not a natural data point, make sure to specify your other metric in the Dec 1st plan.

## **PART 2 - Report ( 50 pts)**

In addition to your API activity results, you will be creating a report for your overall project. The report must include:

1. Your goals
2. Which goals you achieved
3. What problems you faced
4. Your social media “report”
5. Instructions for running your code.
6. Documentation for each function you wrote (Code must be fully formatted and you must include ALL resources used.)
7. You must also clearly document all resources. The documentation should be of the form:

| Date | Issue Description | Location of Resource | Result<br>(did it solve the issue?) |
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You will be graded on clarity, completeness, and presentation (no typos, neatly formatted, etc.)

## **ADD-ON A - Add additional API sources (Max 60 points)**

- Earn 15 points for each additional API for a maximum 60 additional points

## **ADD-ON B - Add additional data points (20 points)**

- Break each day down not time of day as well (use 12:00am - 5:59am, 6:00am - 11:59pm, 12pm - 5:59 pm, and 6:00pm - 11:59pm). This gives you 28 data points instead of 7.
- If tim is not a natural data point, make sure to specify your other metric in the Dec 1st plan.

## **ADD-ON C - Add additional API sources (30 points) - AND VERY CHALLENGING**

- Earn 10 points for each unique/cool/different visualization you show of the data. (Note, you can only get a maximum of 10 points if you only have one data source, maximum 20 points for two data sources and maximum 30 points for three data sources).
- Suggestions include comparing social media accesses on each day of the week, a google map with the locations of your Facebook friends, a Word Cloud, etc.
- In all cases you should be creating something that you can host on the Internet so that you can share it. You will not get the full 10 points if your application doesn't show a deeper understanding of the code - change the default colors, include legends and chart names, etc. from any sample code you use.

Here is an example. <https://plot.ly/~colleenV/6/twitter-vs-facebook/> I have used Twitter as a comparison, not as one of the APIs.

#### **Integrity Policy:**

All materials submitted by students must be their own work - you may not submit material from previous semesters or examples taken from class or the Internet. **Students may NOT discuss the homework with others.** ***Any instances of cheating will receive a 0 on the assignment and one letter grade deduction in the final course grade.*** If you are unsure about the integrity of your submission, you have 48 hours after submission to withdraw your submission.