This project is due at 11:59:59pm on December 4, 2013 and is worth 40% of your grade. You must complete it with a partner. You may only complete it alone or in a group of three if you have the instructor's explicit permission to do so for this project.

1 Description

The goal of the project is to conduct a miniature version of a "real" research project. You will first pick a topic, and argue in a written research proposal that this is a topic worth exploring, and that you are capable and prepared to do so. You will design and implement a solution to the problem you have chosen, and quantitatively evaluate your solution. You will then write up the results of your project in a draft final report, which, after review, you will turn into a final report. Finally, you will give a 25-minute presentation of the results of your project in class.

We emphasize that this is a "research project", and not a "programming project". Although the implementation of your solution is an essential component, it is only one aspect of the project, next to other equally important components, such as the evaluation and the presentation of your results.

You are free to choose any project topic related to this course (with instructor approval). For example, we have collected a large amount of data on online social networks (e.g., a large collection of tweets from Twitter). This suggests an interesting avenue to explore, as the data has not been looked at by researchers before. Finally, if you are doing large-scale data analysis, we will try to get computing resources that are appropriate for the amount of data analysis you aim to do.

2 Requirements

2.1 Teamwork

You will form groups of two to do the projects (if necessary, one group of three will be allowed). To collaborate effectively, you should both be involved in all of the major design decisions.

Important: *You alone are responsible for finding a partner. The class forum (newsgroup) located on Piazza is a particularly good resource for this—there will be a thread there that serves exactly this purpose. Right before or right after lecture, as well as during* TA *lab hours, are also a good time to look for partners.*

We often receive complaints that somebody cannot find their partner, or that their partner continues to promise things that are never delivered. To address this concern, the policy is **you flake, you fail**. Simply put, if you disappear, or are generally not pulling your own weight at any time during the semester, you get an F in the course right then. End of story. If you don't completely flake, but are under-responsive, we reserve the right to design an appropriate (but still fair) way of redistributing points. If your partner is flaking on you, do not wait until the end of the semester to let the course staff know; let us know *immediately*.

Of course, disasters happen that may pull you away from campus. You are responsible for notifying your partner and the course staff if a major time conflict arises in your life. In the real

world, you don't just disappear from your job for a week. You tell people you have to go. The same thing applies here.

One useful bit of advice: work together with your partner. We don't mandate pair programming, but it really works. You'll be more than twice as effective as you might if you split the work up and did it separately. Also, you'll avoid the sort of rude surprises that often arise when partners have different expectations.

2.2 Meeting with instructor

You should spend time thinking about what sort of project would most interest you. This can range from something involving iOS/Android applications, web sites, analysis of social data, and so forth. You should discuss with your partner, and feel free to catch the instructors during office hours to explore ideas.

Regardless, you are *required* to meet with your partner and the instructors by September 30, 2013 in order to explain your idea and get feedback. This is necessary to ensure that you have chosen a project that is of sufficient scope for the course, and is also small enough that you can realistically accomplish something within the semester's time. The instructors will post a sign-up sheet where you can claim spots to meet.

2.3 Project proposal

Once you have decided on a topic and have met with the instructors, you and your partner should write up a project proposal by October 9, 2013. The proposal should contain the motivation behind your project, a description of the hypotheses you wish to test, an in-depth literature search on the topic, a summary of what is known and what is currently unknown, and a proposal for the technical approach you and your partner plan to take to investigate your hypotheses. If your project has prerequisites (e.g., if you are doing analysis and you need data), you should explain where you plan to meet them (e.g., where will you get the data from?). As a rough guide, your proposal should be approximately 5 pages in 10-point font.

2.4 Interim report

To ensure you are making sufficient progress on your project, you are required to submit an interim report on November 6, 2013. This report should be an expanded version of your proposal and should include a summary of your current status, and any initial results. As a rough guide, your proposal should be approximately 10 pages in 10-point font.

2.5 Presentation

At the end of the semester, we have reserved four class days for students to present the results of their projects. The instructors will provide a sign-up sheet where you can select a slot to present on. At a high level, you should aim for a 20-minute presentation with approximately 5-10 minutes for questions. We emphasize that this should be a *high-quality* presentation, on par with some of the formal presentations we have seen over the course of the semester.

2.6 Final report

Finally, you should write up a final report on your project, to be submitted by December 10, 2013. This report should be written in a style similar to the papers we have read throughout the semester. It should be a greatly expanded version of your interim report, and should contain a discussion of all of your results, what you accomplished/didn't accomplish, conclusions, and a discussion of future work. We recommend that you get friends to proofread your report, and the instructors will not be kind if we find obvious grammar or spelling errors. As a rough guide, your proposal should be approximately 20 pages in 10-point font.

3 Submitting your project

3.1 Registering your group

You and your partner should first register as a team by running the `/course/cs5750f13/bin/register` script. You should pick out a team name (no spaces or non-alphanumeric characters, please) and run

`/course/cs5750f13/bin/register project <teamname>`

This will either report back success or will give you an error message. If you have trouble registering, please contact the course staff.

You must register your team by 11:59:59pm on September 9, 2013.

3.2 Submitting your project proposal

For the interim project report, you should submit a 5-page PDF that summarizes your motivation, hypotheses, and proposed technical approach. You should submit this document by running the `/course/cs5750f13/bin/turnin` script by running

`/course/cs5750f13/bin/turnin project-milestone1 </path/to/file.pdf>`

The file should be named `proposal.pdf`. Again, the script will print out every file that you are submitting, make sure that it prints out all of the files you wish to submit!

You must submit your proposal by 11:59:59pm on October 9, 2013. No slip days are allowed on the milestone.

3.3 Submitting your interim report

For the interim project report, you should submit a 10-page PDF that summarizes your motivation, technical approach, and progress thus-far. You should submit this document by running the `/course/cs5750f13/bin/turnin` script by running

`/course/cs5750f13/bin/turnin project-milestone2 </path/to/file.pdf>`

The file should be named `interim-report.pdf`. Again, the script will print out every file that you are submitting, make sure that it prints out all of the files you wish to submit!

You must submit your milestone by 11:59:59pm on November 6, 2013. No slip days are allowed on the milestone.

3.4 Submitting your final report

For the final project report, you should submit a 20-page PDF that summarizes the project. This document should have section such as introduction, related work, background, methodology, findings, conclusions, and future work. In other words, you should write your report in a similar style to the papers that we read throughout the semester. You should submit this document by running the `/course/cs5750f13/bin/turnin` script by running

```
/course/cs5750f13/bin/turnin project </path/to/file.pdf>
```

The file should be named `report.pdf`. Again, the script will print out every file that you are submitting, make sure that it prints out all of the files you wish to submit!

You must submit your milestone by 11:59:59pm on December 10, 2013. No slip days are allowed on the milestone.

4 Grading

The grading in this project will consist of

10% Project proposal (due October 9, 2013)

10% Interim report (due November 6, 2013)

20% Project presentation

60% Final report (due November 6, 2013)

5 Advice

A few pointers that you may find useful while working on this project:

- Check the Piazza forum for question and clarifications. You should post project-specific questions there first, before emailing the course staff.

- Finally, get started early!