Third Mini-Project, 36-402, Spring 1998

Your Mission

Your mission is to

- Find a data set (something new to you or something that you've looked at before, but now you can ask/answer new questions with tools from 402),
- Explore the data or the problem generating the data a little bit, to come up with some interesting research questions
- Apply some techniques learned in 402 to try answer the research questions
- Write up a report of your analyses and conclusions.

Finding Data

Here are some suggestions and guidelines.

- Data from any research project, or extracurricular activity at CMU, that you may be involved in is an obvious choice.
- Using data from another course you are taking concurrently, or one you have taken in the past, is fine with me *as long as* you are answering new questions for 402 that you did not or could not consider when you looked at the data last. You should obtain the other instructor's permission to use the data for 402, if it is a concurrent course.
- In the past I've suggested several starting places on the WWW for you to begin searches of data if you can't think of other data sources.
- If all else fails, come talk to me.

Collaboration, Past Analyses

You may define teams of 2–3 people to work on the same problem if you like, or you may work alone.

The data analysis or research questions must be new, i.e. something you've never done, or never done this way, before. If you've analyzed the data in some other way for another class or project, you should definitely summarize those analyses, for comparison with your current work, in your writeup of this miniproject.

In either case—working in a team, or working on data you've seen before—my grading standards will be a little higher than if you were working alone on data you've never worked on before. This is not meant in any way to discourange teams, or taking a fresh look at old data. Rather, it just reflects the reality that two heads are better than one, and that you should see things on a second look that you didn't see on the first look.

On Writeups

A good generic outline for project reports is:

0. Executive summary (state background, problem, and conclusions in one page or less);
1. Description of problem, problem background, and data;
2. Summary of analyses performed (what, why, how, results);
3. Conclusions;
4. Technical Appendices;
5. Bibliography and Credits

Parts 1–3 should have as little technical material as you can possibly get away with: a few well-chosen graphs, the names of the techniques you applied and what parts of the data were used, and perhaps one or two parameter estimates or p-values is the most you should think about. Part 4 should contain the "story" of your technical analyses. However, it should be possible to understand what you've done from parts 1–3, without looking at part 4 at all.

You are welcome to discuss your project with others in and out of class, but I would like a list of people you discussed this with, as well as a list of any written or other sources you consulted (books, Web pages, etc.) in Part 5 of your report.

Sharing the final reports

Depending on how much free class time there is in the last week of classes I may ask you to briefly summarize your project orally for the rest of the class, and/or I may distribute your final project report to the rest of the class. It would be a shame to waste the opportunity for each of you to learn at least a little about the other projects, interesting data analysis approaches, etc., that your classmates are doing.

Timeline, Deadines

- *Thu and Fri Apr 9–10* Make appointments through Heidi Rhodes (`heidi@stat.cmu.edu`) to meet me in my office to discuss your final project data set, the composition of your "team" if you have one, guesses about possible research questions, etc.
- *Mon Apr 20* Rough drafts due in my office or mailbox in the Statsitics Department by 5:00pm. The rough drafts should include parts
  - (1) Description of problem, problem background, and data;
  - (2) Summary of analyses performed (what, why, how, results);
  - (4) Technical Appendices

  of the generic project writeup format outlined above. The purpose of the rough draft is to convince me you are on the right track to having something to say about your project.
- *Tue Apr 28* Final drafts due in class.