

CrowdGrader is a system that we will use in for peer review of one problem in Homework 6, and possibly future homeworks. For peer-reviewed homeworks, two types of submissions are required:

- Groups of up to three students submit written solutions to all three problems as usual.
- **In addition**, each individual student uploads a solution to one specified problem to CrowdGrader.

This document includes instructions to set up an account on CrowdGrader, as well as guidelines for submitting and reviewing solutions. Please read this document carefully and follow the instructions to complete Homework 6 properly.

Registration

- **Gmail account.** CrowdGrader is an external web service, which uses infrastructure provided by Google; all users require a Gmail account to log in. If you do not already have a Gmail account, you need to create one.

The Federal Educational Records Privacy Act (FERPA) prohibits the release of your educational records to *anyone* (except your parents if you are under 18) without your explicit permission, including your identity and which classes you are taking. Thus, we cannot require you to use a Gmail account that is already tied to your identity. Fortunately, as of this summer, Google now allows the creation of anonymous accounts. **If any of the following conditions apply, please create an anonymous Gmail account to use with CrowdGrader.**

- You have *any* concerns about CrowdGrader learning your identity or the fact that you are taking this class.
- You have *any* concerns about Google learning your identity or the fact that you are taking this class.
- You have *any* concerns about revealing your usual Gmail address to the CS 374 course staff.

To maintain anonymity, you should use a private/incognito browsing session to create your anonymous Gmail account and each time you use that account to sign into CrowdGrader. We also recommend first logging out of your existing Google accounts (and all other web accounts, like Facebook, Amazon, Apple, etc.) and closing other open windows and tabs.

- **CrowdGrader.** Log into CrowdGrader at <http://www.crowdgrader.org> using the Gmail account of your choice.
- **Self-enroll.** Open the following pages to register for the assignments. You need to register before you can submit anything.
 - HW 6.2: http://www.crowdgrader.org/crowdgrader/venues/join/524/meweqa_wasyba_powymo_vocaqy
- **Tell us who you are.** Finally, fill out the secure web form at <https://illinois.edu/fb/sec/6047623> telling us your name, NetID, and the Gmail address you plan use with CrowdGrader. This form will be the only link between your CrowdGrader Gmail account and your actual identity. We will not share your Gmail address with anyone, and we will not send mail to your Gmail address.

Submission

- **Visit the correct CrowdGrader page.** Each problem on CrowdGrader has its own web page, which includes the actual problem descriptions, due dates, a sketch of the grading instructions, and a link “+ SUBMIT” to the submission page. Links to problems you have already registered for appear on your main CrowdGrader page; here is the direct link:

– HW 6.2: http://www.crowdgrader.org/crowdgrader/venues/view_venue/524

- **Declare your groups.** As usual we encourage groups of up to three students to submit common solutions; however, *every student must individually submit a solution to CrowdGrader*. Members of the same group are allowed (but not required) to submit identical solutions.

On the submission page, the link “EDIT GROUP MEMBERSHIP” leads to another page where you can identify your group members (by the Gmail addresses they use for Crowdgrader). After the groups are formed, submissions from one member can be seen by other members of the same group. Members of the same group will not be asked to review each others’ submissions, and (we believe) nobody will be asked to review more than one submission from the same group.

Each student must identify *all* other members of their homework group.¹ If student *A* identifies students *B* and *C* as group members, but *B* and *C* only identify each other, CrowdGrader will identify two homework groups: $\{A\}$ and $\{B, C\}$. To prevent any misunderstandings, we recommend that all group members do this step at the same time, in the same room.

Do not submit anything before groups are formed, or Bad Things™ will happen.

- **Prepare an anonymous submission.** Prepare a copy of your written submission with no identifying information—no names, no NetIDs, no gmail addresses, no section numbers, no hair color, nothing. This anonymity will ensure both that the reviewing process is fair and that CrowdGrader cannot collect unnecessary information from your submission. CrowdGrader will automatically associate your submission with you (via your Gmail address).
- **Submit your solution.** There are two ways to submit solutions on the submission page. You are free to use either; please do *not* use both.
 - The link “EDIT CONTENT” leads you to a page with a text editor where you can enter your solutions directly. The text editor supports a subset of \LaTeX .
 - The link “ATTACH NEW FILE” allows you to upload a file as your submission. If you already typeset your solution and print it for submission, you can just upload the file (after removing all identifying information).

If you normally write your solutions by hand, you can upload a scan or a photograph of your written solution (with all identifying information hidden), but please verify that the file you submit is still readable *even when printed in black and white*. (Do not submit a low-resolution low-contrast photograph of a first-draft solution scrawled with a light pencil on dull gray paper.) However, we strongly encourage you to either type or typeset your solutions, to guarantee that reviewers can at least *read* them easily.

- **Submit your written solution as usual.** Don’t forget to *also* submit your hardcopy solution, *with* names and NetIDs of all group members, in the appropriate drop box in the basement of Siebel, before the submission deadline.

¹Strictly speaking, this isn’t true. In fact, the group membership lists define a directed graph, where an edge $A \rightarrow B$ means *A* has identified *B* as a group member, and the strong components of this graph define the groups. But just to play it safe, each student *should* identify all other members of their homework group.

Reviewing, Feedback, and Scores

- **Reviewing.** Once the due date passes, we enter the review phase. Each individual student (not in groups) must review five other solutions. You can request a review by first pressing “YOUR REVIEWS” on the main page for the problem, then request for a new submission to review.

Please follow the review instructions and the scoring rubric closely, and please provide at least a few sentences of narrative comments explaining your score. Detailed solutions will be provided on the course web site. We expect that reviewing five submissions should take you about one hour.

- **Feedback.** When the review period ends, the submission page for the problem will show your the comments from other students. Here you can give feedback to the reviews by clicking “EDIT FEEDBACK” on each review, and give it a score between -2 and $+2$. Positive feedback will increase the review score for that reviewer. This is the chance to reward those who gave helpful comments on your solution!
- **Scores.** Once everyone has had a chance to give feedback to the comments, the instructor will ask CrowdGrader to compute a “crowd grade”, which will appear on the submission page for each problem. The crowd-grade is a weighted average of two scores: One for your actual submission (a weighted average of the reviewers’ scores), and one for your reviews. Reviewers are considered more accurate their score for each submission is close to the average score for that submission. Scores from more accurate reviewers are weighted more heavily in the final score for each submission. More accurate reviewers and reviewers with more positive feedback receive higher review scores.

The details are unfortunately complicated; determining accurate and informative scores from the raw data is ultimately a statistical machine learning problem. For the technical details of the grading algorithms, see the original CrowdGrader papers by Luca de Alfaro and Michael Shavlovsky, available at <http://doc.crowdgrader.org/publications>.

- **Effect on your grade.** The actual score computed by CrowdGrader has *absolutely no* effect on your course grade in CS 374. However, to get credit for your *paper* solution for the crowd-graded problem, you must submit a solution on CrowdGrader and review five other submissions. We trust that you will submit both your solutions and your reviews in good faith. Your actual *grade* for the homework problem will be based on your written solution, as usual.