Eric Roberts
CS91

Handout #25
March 13, 2000

Final Project

Project registration forms due: **Monday, March 20**
Abstract due: **Monday, April 3**
Miniconference/web sites due: **Finals period (exact time to be announced)**

The handout describes the final project for CS91. Because it is not due until the very end of the semester, you don't have to worry too much about it at this point. My reason for distributing this handout now is so that you can be thinking about possible topics and partners well in advance of the end-of-term crunch.

The basic idea behind the project is for you—working together in a small group of between two to four people—to investigate some issue in the practice of computer science and engineering that raises significant ethical questions. The deliverables for the project are as follows:

- *Registration form.* The first step in the process is to choose a topic and a project group of between two to four people. When you have figured out who your partners will be and what you propose to do, please send me an e-mail message listing the members of your group and what topic you would like to work on. Because I will not allow two different groups to work on the same topic area, sending a response early ensures the widest possible choice of area. In any case, all project registration forms must be received by Monday, March 20.
- *Abstract.* By Monday, April 3, each group must submit an abstract of their project, which should be no more than 300 words in length. Be sure to include the title of the project and the names of your team members.
- *Miniconference presentation.* In place of the final exam for this class, we will hold a CS91 miniconference on "Ethical Issues in Computer Science." Each group is responsible for giving a 20-minute presentation of the topic, along with an overview analysis of the ethical issues involved. The project group is responsible for organizing the presentation, which may involve a single speaker or several members of the team. The presentation will be evaluated on the basis of its clarity and the success with which information is conveyed to the audience.
- *Web site.* Because it is relatively short, the oral presentation can highlight only the main points and cannot cover any topic in complete detail. To provide the in-depth analysis, your project team is also required to construct a set of pages for the World Wide Web that goes into much more detail. Because web pages are hypertext documents it is appropriate—and indeed expected—that your pages will contain links to pages at other sites. Even so, your web site should present a running narrative and analysis that is complete in itself, relying on the external links primarily as supplementary background or reference material.

Choosing a topic

The first step in the final project consists of choosing a project. The topic must be one in which the use of computers raises profound ethical issues, but must not be one that has been covered extensively in class. Some possible projects include:

1. *The Y2K problem.* For the last couple of years, I have had project groups at Stanford undertake projects on the Y2K problem and its anticipated costs. Now that

we have survived the millennium rollover with relatively little trouble, it would be interesting to undertake a retrospective analysis of the problem, looking not only at the history of the problem and the work that was done to overcome it, but also at the question of why the hype surrounding the issue was so out of proportion to reality.

2. *The Uniform Computer Information Transactions Act (UCITA).* Computer vendors have recently undertaken a major push to get states to pass the Uniform Computer Information Transactions Act, more commonly known as UCITA. This act would protect companies against most forms of liability and dramatically increase the legal standing and enforceability of shrink-wrap licenses. UCITA has been opposed by many different constituencies, most of which are listed on Cem Kaner's web page at **`http://www.badsoftware.com`**.

3. *The use of computing technology to support grassroots democratic movements.* At a 1996 panel entitled "Would the Internet have saved Anne Frank," Peter Leyden, after describing his experiences in China and Tibet, argued that the increasing use of communications technologies would have a democratizing effect on those cultures. To what extent is this position supported by historical precedent? What barriers stand in the way?

4. *Computing and the disabled.* Later in the term, we will talk about the issue of unequal access to computing based on issues such as gender, race, and class. Another constituency that has been denied equal access to computing is the disabled community, even though the Americans With Disabilities Act requires that companies meet the needs of that community. On the other hand, computers hold for the promise of improving life for people with certain disabilities as illustrated by the existence of reading machines for the blind. What are the extent of legal protections for disabled users? What technological strategies exist to improve access?

5. *Caller ID.* Many telephone companies now offer a service known as "Caller ID," in which your telephone can be augmented to display the phone number of the caller. The phone companies have defended this service largely as a convenience for private subscribers seeking to shield themselves from unwanted calls. In reality, the biggest customers have been commercial operations seeking to develop databases of telephone numbers for marketing appeals. What are the privacy issues involved in this debate? What is the current status of the law regarding Caller ID in the United States?

6. *The privatization of public information.* The flip side of privacy is access to information. Under the Reagan and Bush administrations, there was a growing tendency to grant to private companies the exclusive right to market certain types of government information, much of which was collected at public expense. What competing interests are at work here?

7. *Participatory design*. One strategy for ensuring that the introduction of technology does not have a negative impact on workers is the European philosophy of participatory design, which holds that workers need to be involved in all phases of the design and deployment of software systems. The foundations of this technique are discussed in the film *Computers and Context,* which I brought with me to Swarthmore. What progress has been made in introducing participatory design into the United States since the film was made in the mid-1980s? What are the strengths and weaknesses of this approach?

8. *The revival of Star Wars.* In his most recent budget request, President Clinton announced increased funding for developing a "Star Wars" system for ballistic missile defense. Why is this proposal surfacing again? What are the software

issues for such a system today? What aspects of the debate have changed since the 1980s?

9. *Women and computer science at the college level.* In 1998, one of my project groups at Stanford looked at how gender affects the way in which children use computers in school at the elementary and secondary level. I would be very interested to see a project that examined how colleges and universities are addressing these same issues. There are many existing studies of this topic, but most of them are old enough that the situation may have changed.
10. *Community networks.* For the last two decades, there have been a number of grassroots movements to offer free Internet access to communities that cannot afford the costs. A project that examined the history and evolution of the community network movement could be a very interesting one.
11. *Governance and online communities.* As more and more people participate in online communities, the problems of maintaining some semblance of order in those communities becomes increasingly severe. Without some structure, online communities can easily degenerate into places in which few people want to participate. At the same time, there is a strong suspicion of organizational structures that might be able to provide the necessary regulation. A project in this area could survey existing online communities to find out what sorts of structures have been tried.
12. *Studies of the effect of the Internet on personal lives.* Two years ago, a Carnegie Mellon report found a correlation between depression and Internet use at home. Earlier this year, a study directed by Norman Nie at Stanford found similar evidence of Internet isolation. What are the details of these studies? How have their results been received?
13. *Computer crime.* Far beyond the hacking incidents we discussed in the course, the computer has the potential to become an enormous resource for criminals. What types of computer crime have already been identified? What are the potential dangers? What safeguards should be put in place?
14. *Online pornography.* In 1996, Congress passed the Communications Decency Act (CDA), which sought to criminalize making "indecent" or "patently offensive" online communications available to any person under age 18. Although the original CDA was overturned by the courts in 1997, support in Congress for some type of Internet content regulation remains high. The Internet has become a major repository for materials that the majority of the population—and the vast majority of parents—consider to be obscene and indecent. There is therefore significant public pressure to offer some way—technological or legal—to ensure that minors do not have access to that material. What strategies exist for maintaining freedom of expression while providing parents with some assurance that their children will not have free access to pornographic material online.

In addition to these projects, you might also look at the CS201 web page at Stanford (**`http://cse.stanford.edu/class/cs201`**), which includes links to the projects my students have done over the last several years. You may choose one of these topics if you feel that you can do a much better job than your predecessors or if the topic has changed so much that the old web site is now obsolete.

If you want to choose a topic other than those on the list at the beginning of this handout, you must get my approval beforehand by sending me a short description of your proposal. Use your imagination.

Only one group will be allowed to choose any particular topic, so send in your registration forms early. First come, first serve.

Evaluation

The division of labor for your project team is up to you to decide, but you should attempt to balance responsibilities among the team members so that no one is overloaded. Because the oral presentation is short, only one person—two at the most—should actually deliver the talk. It may therefore make sense to assign to other team members the task of supervising the development of the Web page. Even so, the work for the projects should be done as a team, with all members providing some input to each component of the task.

All members of the project team will receive the same grade, even though there will clearly be individual differences in the level and quality of effort. Thus, it is in the interest of every team member to ensure that the quality of all aspects of the project remains high.