Ethics

In computer science, two types of studies with humans are common:

1. Minimal risk experiments with human participants
   - ask human to do something, remember something, etc.
   - NO injecting with experimental compounds, no risk of death, etc.

2. Exempt research
   - anonymous surveys
   - data mining of human records, such as CVS logs
Research with Human Subjects is constrained by US law.

Most universities have an Internal Review Board (IRB) to ensure compliance with US law and protect themselves from lawsuits.

All research with human subjects at Maryland must be approved by UMD’s IRB.
Human subject: living individual about whom an investigator conducting research obtains (1) data through intervention or interaction with the individual, or (2) identifiable private information (45 CFR 46).

Research is defined by the U.S. HHS Dept as “a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge.” (45 CFR 46)
Note: Experimentation for the purpose of improving your teaching and not for publication does not require IRB approval.

Note: there are special rules involving videotaping of minors regardless of the purpose.

Note: If you submit a grant that proposes research with human subjects to NSF, you must send NSF your IRB approval number.
To receive UMD IRB approval, you file an application

Details of an IRB Cover Sheet

1. Target Population: The study population will include (Check all that apply):

- pregnant women
- minors/children
- human fetuses
- neonates
- prisoners
- students
- individuals with mental disabilities
- individuals with physical disabilities

2. Exemption Category

“Exempt” does not mean that you do not have to file an IRB application. It means that your application can be quickly approved.
Exemption Category #2: anonymous
surveys, anonymous observation of public
behavior

Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (a) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (b) any disclosure of the human subject’s responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects’ financial standing, employability, or reputation.

Exemption category #2 does not apply to research with children, except for research involving observations of public behavior when the investigator(s) does not participate in the activities being observed.
Exemption Category #4

Analysis of anonymous or public records

Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.
Parts of a UMD IRB application

① Abstract

② Subject Selection

-how will you recruit subjects?

Two Important Issues

① No coercion: no one who doesn’t want to participate should feel they have to participate.

- boss cannot pick out who participates

- teacher cannot choose which students participate

- contacting individuals directly is risky because they may feel pressure to say yes
My recommendation
- advertise via broadcast mechanisms: email group lists, put up signs, advertise in newspapers, speak in class (broad audience, but no direct contact of an individual)
2) **Equitable selection**

anyone who wants to participate should be allowed to participate.

— idea: advertise on a very public forum, like a webpage

Sometimes you have to limit participation to people with certain characteristics

— Java programming experience
— people with experience with Google

This you must explain and justify.
Parts of a WMD IRB Application, cont.

3) Procedures

- what does the study participant have to do? or
- what records are you using and how will you use them?

- questionnaires
- tasks
- talk-aloud
- work alone or with others
- compensation
4 Risks and Benefits

risk: never say “no risks”
instead say “everyday risks of using a computer, risk of nervousness due to study participation, etc.”
benefits: usually none
cash gift does not count
sometimes “participants get exposure to... or practice with...” etc.
also “society could benefit from this research in the future”
5) Confidentiality
-don’t use the word “anonymous”
-instead, talk about
1) each participant mapped to
   a numeric ID
2) all notes have only the
   numeric ID on them
3) only documents with participants’
   names are consent forms and
   a key that maps names to IDs
4) Only so-and-so have access
   to the key
5) Only so-and-so have access to
   the notes, tapes, files etc.
Confidentiality, cont.

- Will you have audio tapes, video tapes, screen capture, etc.?
- Who has access?

- Will you destroy notes, files, tapes, etc. If so, when and how?

- Storage in locked cabinet in locked office recommended. You must say where notes, data, etc. will be stored,
6. Information and Consent Forms
   - What will you tell participants about your study?
   - Any deception?
   - How will you obtain informed consent?
     (hint: use a Consent Form)

7. Conflict of Interest
   example: you are investigating a piece of software and your advisor is CTO of the software company that makes it.
   → financial profit based on study results
CONSENT FORM

Use the template offered by the UMD IRB.
For some reason, UMD IRB does not value brevity or simple words.
Special Issues with Consent Forms

Audio taping/Videotaping/Photographs/Digital Recordings

[Include the following information in the What about confidentiality? section]
This research project involves making [audiotapes/videotapes/photographs] of you. [Then explain why the tapes/photos are being made, who will have access to them, where they will be stored, and when (or if) they will be destroyed]

___ I agree to be [videotaped/audiotaped/photographed] during my participation in this study.
___ I do not agree to be [videotaped/audiotaped/photographed] during my participation in this study.

Research Projects Involving Data Collection in a Classroom

[Include the following information in the Do I have to be in this research? Can I stop participating at any time? Section]

Participation is not a course requirement. You and your class members have non-research options for earning the same amount of credit [describe the options for earning the same amount of credit. The options must not be more difficult than participation in the research.]
Demand Characteristics

What do participants think is being demanded of them?

or

How does the very act of being in an experiment affect subject performance?

- feel like someone is paying attention to them
- feel pressure to perform well
- feel need to meet experimenter's expectation
Tips:
(1) Make clear that system is being tested, not participant (if true)
(2) Tell them verbally about your confidentiality efforts
(3) Offer drinks and snacks
(4) Consider an easy warm-up task to put participant at ease
(5) Thank the participant profusely.
(6) Participate as a subject in an experiment often so you remember how it feels.