Ethics

Reminder

- Final exam
  - The date for the Final has been decided:

  - Saturday, November 16th
  - 8am – 10am
  - 01-2000

- No makeup finals!

Project Notes

- Parking Lot Problem: due Nov 11th

- Team Evaluations: due Nov 12th

New plan

- Today: Ethics
- Tuesday: Final Review
- Then we are done!

Before we start

- Any questions

A question for you

- Why are you entering the computer field?

Ethics

- Programmers and the "Hacker" mentality.
  - hacker n. [originally, someone who makes furniture with an axe]
    - A person who enjoys exploring the details of programmable systems and how to stretch their capabilities, as opposed to most users, who prefer to learn only the minimum necessary
  - Non-criminal

Ethics

- Notable early "hackers":
  - Brian Kernighan, Dennis Ritchie
    - Creators of C
  - Jim Gosling
    - Creator or emacs / Head architect of Java
  - Richard Stallman
    - Head of the Free Software foundation
  - Steve Wozniak, Steve Jobs
    - Inventors of the Apple II
  - Bill Gates

Ethics

- But this is the early 21st Century!
  - Computers are a mainstay of everyday life.
    - Not only "hackers" have computers
  - Age of the Software "Professional"
    - Not only "hackers" program computers
  - Age of the Internet
    - Not only "hackers" communicate with computers
  - Age of Imbedded Software
    - Not only computers have computers.

Software Engineering Code of Ethics

- Adopted 1999
- Approved by both
  - ACM – Association of Computing Machinery
  - IEEE Computer Society
- Developed by multinational task force with input from
  - Industry
  - Government
  - military
  - academia

Software Engineering Code of Ethics

- Eight Principles:
  1. Public
  2. Client and Employee
  3. Product
  4. Judgment
  5. Management
  6. Profession
  7. Colleagues
  8. Self

Software Engineering Code of Ethics

- Public
  - Software engineers shall act consistently with the public interest.
- Client and employer
  - Software engineers shall act in a manner that is in the best interests of their client and employer, consistent with public interest.

Software Engineering Code of Ethics

- Product
  - Software engineers shall ensure that their products and related modifications meet the highest professional stands possible.
- Judgment
  - Software engineers shall maintain integrity and independence in their professional judgment

Software Engineering Code of Ethics

- Management
  - Software engineering managers and leaders shall subscribe to and promote an ethical approach to the management of software development and maintenance
- Profession
  - Software engineers shall advance the integrity and the reputation of the profession consistent with the public interest.

Software Engineering Code of Ethics

- Colleagues
  - The software engineer should be fair an supportive of their colleagues
- Self
  - Software engineers shall participate in lifelong learning regarding the practice of their profession and shall promote an ethical approach to the practice of the profession.

Software Engineering Code of Ethics

- Comments?

The issue of software ownership

- To copy or not to copy?

The issue of software ownership

- What the law says:
  - Software can be copyrighted
  - Software can be licensed
  - Software algorithms can be patented

The issue of software ownership

- What others believe

  – "There are no property rights in cyberspace."

  -- John Perry Barlow

Not all software is proprietary

- There is a "camp" of programmers that believe, when it comes to software, that collaboration is far better than competition.
- Motivation for the movement to distribute source code freely with encouragement to build on and derive from this free code base
- Choice of developer as to which category his/her software belongs

Non-proprietary software

- Open Source
  – A development methodology
  – E.g. Apache, Linux, Netscape
- Free Software
  – A licensing philosophy
  – E.g. GNU, Free Software Foundation

Open Source

- A development methodology
  – Typical:
    • Group of developers (or a company)
    • Keep source as a closely keep trade secret
    • Maintain tight control over code base
    • E.g. Try getting the source to Windows
  – Open Source:
    • Source code is free to whomever wants it.
    • Modification of the code is encouraged
    • Community coding…Fascist management.
    • E.g. Linux.

Free Software

- ``Free software'' is a matter of liberty, not price. To understand the concept, you should think of ``free'' as in ``free speech,'' not as in ``free beer.''
- Movement started in 1984 as a response to the growing number of proprietary implementations of UNIX.
  – Richard Stallman – Free Software Foundation
  – GNU = GNU's Not Unix.

Free Software

- A licensing philosophy:
- Free software is a matter of the users' freedom to run, copy, distribute, study, change and improve the software.
  – Freedom 0 -- The freedom to run the program, for any purpose
  – Freedom 1 -- The freedom to study how the program works, and adapt it to your needs (access to source is required)
  – Freedom 2 -- The freedom to redistribute copies so you can help your neighbor
  – Freedom 3 -- The freedom to improve the program, and release your improvements to the public, so that the whole community benefits. (access to source is required)
- Free Software implies Open Source but not visa-versa.

Free Software

- Free Software does not mean that you cannot charge $$ for it
  - Just means that if you change or distribute, you must distribute source as well as binaries so that others may build on your changes.
- Precludes the notions of:
  - Proprietary Software
  - Trade Secrets
  - Software Patents

The GNU Public License (GLP)

- "Copy-left"
  - *Copyleft* is a general method for making a program free software and requiring all modified and extended versions of the program to be free software as well.
  - True for all derivative works, even those that use object libraries.

The Lesser GLP

- GNU Lesser General Public License (LGPL)
  - permits use of the library in proprietary programs

My own lessons learned

- The law is the law
  - For better or worse
- Remember the user
  - Know where your software is going and take appropriate care.
- Do the right thing
  - No absolute right or wrong.
  - To thy own self be true

That's all folks

- Tomorrow:
  - Review for final
  - Course evaluations

- Thanks for playing!