CPSC 499: Computers & Society

Lecture 1: Course overview

Handouts: Survey

www.cs.gonzaga.edu/faculty/bowers/courses/cpsc499

About this class ...

Please read the syllabus!

This class covers various topics in Software Engineering ...

- Professional Ethics (incl. IEEE/ACM Code of Ethics)
- Security/Privacy Issues
- Legal Issues (liabilities, intellectual property)
- Impacts of Technology
- Professional Development
About this class ...

Grading

○ 30% … Weekly Exercises (homework)
○ 10% … Quizzes (short, not every week)
○ 30% … Class participation
○ 30% … 3 Final Essays

Required Textbook

○ A Gift of Fire, Fourth Edition (by S. Baase)

Survey ...
Ethics & Software Engineering

“Ethics” is broadly about “how best to live” ...

○ What is the best way to achieve a “good” life?

○ That is, a life that is excellent and worthy of admiration

○ What actions are “right” or “wrong” (and when)?

“The most important thing is not life, but the good life”

(in Plato’s Crito)

Ethics & Software Engineering

In your personal life, ethics (morals) often not codified ...

○ actions, beliefs, reflection

In a professional work environment ...

○ formal codes and standards that members are held to

○ e.g., the legal and medical professions
Ethics & Software Engineering

Professional ethics in Engineering ...
- 1st codes circa 1912, 1st formal canons in 1946
- Expected to learn ethical standards (e.g., ABET)

Professional ethics in Software Engineering ...
- Much newer field but has its own ethics code
- IEEE/ACM Software Engineering Code of Ethics (90’s)

Ethics & Software Engineering

Engineering ethics focuses on avoiding catastrophes ...
- Physical injury or loss of life due to ethical failures
- Challenger explosion, Ford Pinto fires, Union Carbide/Bopal

In Software Engineering ...
- We also want to avoid catastrophes
- But there are other potential harms as well …
- E.g., privacy, financial loss, social/cultural implications
Software Engineering vs Engineering

Long delivery cycles in Engineering ...
- Engineering projects have many-year lifecycles
- … and multiple layers of oversight
- Hard for malicious (or careless) engineers to sneak past standards / safety checks

Increasingly shorter delivery cycles in software
- Software developers often release software (& frequently)
- Often without review by managers, lawyers, etc.
- And little ethical oversight (who is thinking about ethics?)

Software Engineering vs Engineering

Increasingly larger scale of markets in software
- Software can be used by (marketed to) entire world
- May or may not be intentional
- Can lead to legal & cultural issues
**Ethics in Different Contexts**

**Individual**
- Our own personal ethics

**Business / Organization**
- Have their own policies and culture
- Ultimately run by individuals, but as representatives

**Government / Society**
- Also has own policies and culture / values
- Some laws may reflect ethical rules / expectations

**Basic Types of Ethical “Theories”**

**Deontological**
- Absolute/universal ethical rules & principles
- E.g., “do not lie”

**Consequentialist**
- Focus on the consequences of actions
- E.g., in utilitarianism an act is “right” if it increases aggregate utility (happiness to all parties)

**Virtue Ethics**
- Focus on character traits like being honest or generous

**Natural Rights**
- Respect the fundamental rights of others
- E.g., rights to life, liberty, and property
In Class Exercise ...

1. Individually, do questions 1 and 2

2. Find a partner, do question 3

3. Pause, listen to:
   www.npr.org/2017/08/18/544365040/tech-companies-blacklist-white-supremacist-site

4. With your partner, do question 4

Ethical Responsibilities

Ethically Prohibited

○ An act that is ethically unacceptable
○ E.g., stealing and lying

Ethically Obligatory

○ An act that is ethically required (obligation)
○ E.g., protect privacy / confidentiality

Ethically Acceptable

○ An act that adheres to the ethical code
Ethical Distinctions

Wrong vs Harm

○ Harm alone doesn’t imply unethical (e.g., accepting a job may cause harm to those who also wanted it)
○ Unethical behavior may not cause harm

Ends vs Means (Goals vs Constraints)

○ How a goal is achieved may be ethical / unethical
○ E.g., a business may want to maximize profits
○ It can do this in an ethical or an unethical way

Personal Preference vs Ethics

○ Personal feelings of right or wrong may not correspond to ethically right or wrong

Ethical Distinctions

Laws vs Ethics

○ Some laws may enforce ethics
○ Ethical principles often proceed / inform laws

○ Many laws have little to do with ethics
○ E.g., conventions like driving on the right-hand side
○ Or laws that help certain special interests

Copyright and patent laws have aspects of each

○ Enforce “property” rights, some conventions, and some special interest aspects