Today

- Class Overview
- Survey
- Exercise
- Meet with Faculty Advisor (after class)

Homework

- Exercise Set 1 (out)
Broad Overview

Topics
- Professional ethics (including ACM/IEEE Codes of Ethics)
- Societal impacts of technology (and analysing impacts)
- Legal issues (liabilities, intellectual property)
- Security and privacy issues
- Professional development

Grading
- 30% Weekly homework (exercise sets)
- 15% Quizzes (most weeks)
- 25% Class participation
- 30% Essays

Quizzes
- over lecture material, readings, exercise sets (all “fair game”)
- no make up quizzes

Academic Honesty
- work to be done individually, unless otherwise specified
- often asking you to give your (honest/thoughtful) opinions

Required Textbook

... Pre-Survey ...
Ethics and 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 worth of distinction

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

In your personal life ethics (morals) often …

• based on your beliefs (cultural, religious, political, …)

• shown through your actions

• refined/shown through reflection … ability to evaluate, weigh, reason about what to do / what is right

In a professional work environment …

• via formal codes and standards that members are held to

• e.g., in the legal and medical professions

• but, still requires our ability to reflect!
Ethics & Software Engineering

Professional ethics in Engineering ...

- 1st codes circa 1912, 1st formal canons in 1946
- Engineers 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 (90s)

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

⇒ Our focus in this class is on non-catastrophic implications/harms
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?)

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 (Interconnected) 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
Some 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 ...

- Individually, do questions 1 and 2
- When done, find a partner, do question 3
- Pause, listen to: www.wbur.org/hereandnow/2018/08/06/alex-jones-apple-facebook-spotify
- With your partner, do question 4