16 Related topics

• Software assumed a central role
  – it should contribute to the society’s well-being
  – should not be a growing threat
• Software engineers are at the center of this significant social development
  – should think about the big picture and be well versed in ethical issues.
Computer crime

• Glaring example of professional ethics failure
  – variants of theft or vandalism

• Computer forensics
  – gathering evidence that is needed for criminal convictions
  – intersection between software engineering and criminal justice
Computer Ethics Codes

- Some people think software needs a brand new form of ethics
- Responsibility of software engineers is a classical responsibility between one person to another
  - present in human society through the ages
- Natural law is a conceptual ethical framework
  - can serve as the foundation of the conduct
Professional groups

• They developed more specific guidelines
• Example of medicine
  – Hippocratic oath
• Software engineering (ACM/IEEE)
  – Software engineering code of ethics and professional practice
Software engineering code of ethics - excerpt

• 1. Software engineers shall act consistently with the public interest.

• 2. Software engineers shall act in a manner that is in the best interests of their client and employer consistent with the public interest.

• 3. Software engineers shall ensure that their products and related modifications meet the highest professional standards possible.
Information Diversion and Misuse

- The novel capabilities of computers amplify numerous ethical issues
- Diversion and misuse of information
  - computers have a capability to collect information on an unprecedented scale
  - to process this huge amount of information through data mining algorithms.
- Information may end up in the wrong hands
Confidentiality

• Privacy and confidentiality rights
  – rooted in natural law

• Hippocratic oath
  – “Whatever I see or hear in the lives of my patients, whether in connection with my professional practice or not, which ought not to be spoken of outside, I will keep secret, as considering all such things to be private.”
Protecting confidentiality

• Individuals must have the right to consent how to use information about them
  – right to know the collected information, correct it, and even to withdraw it from the database,
  – customers can withdraw their name and phone number from the phone book

• Software engineers should be vigilant about this threat and monitor how their projects observe confidentiality.
Threat to freedom

• Society that allows diversion of the information will find its freedom under serious attack
  – Big Brother (government) who knows more about you then yourself
  – private snooping agencies (activists) with some petty agenda focused on your every move and thought

• Unfortunately within technological reach
Software management

- Business schools
- Operations management
- Business law
- Human resources management
- Accounting and finance
- Marketing and sales
- Economics, quantitative analysis
- Business policy and strategy
Process management

• Quality and predictability of processes
• Standards
  – ISO 9000
  – Capability Maturity Model (CMM)
• Organizations that certify compliance
• Customers frequently require certification
Product management

• Scope of the product
• Readiness for the release
• Cost and profitability
• Collaborate with the sales department and monitor relations with the users.
• Quality management
  – reject low quality commits, baselines, versions
Ergonomics (human factors)

• Optimal height of chairs ...
• Cognitive issues
  – complexity
  – learning the systems
Marketing personas

• Aggregate users into groups based on their goals and habits
• Personas get names, fake vitas
Example personas

• Institutional Repository (IR)
• Centralized archive at a University
• Alternative mode of publishing
• Professor Charles Williams
  – humanities
  – posts teaching materials
  – concerned with technical difficulties of IR
Personas (2)

• Rahul Singh
  – graduate student
  – spends most of his time in the lab
  – uses the IR to identify collaborators.

• Professor Anne Chao
  – has her own web site and a blog
  – active in the traditional scholarly publications
Personas (3)

• Julia Fisher
  – starting her graduate studies
  – active in various social events
  – her source of professional information and scholarly references is almost exclusively Internet
  – IR is a part of her strategy how to get relevant information and how to publish her early results.