

# Ethics

... in previous section, we learned that social and professional issues can be dealt with from two aspects: ethics and legal. In this section, we discuss ethical dilemmas and guidelines ...

# General Ethics

- Ethics – the science of morals (“do the right thing”) in human conduct
  - often interchangeably with ‘moral’
  - however, avoid using the opposites interchangeably
  - ‘immoral’ tend to be associated with issues that are of sexual nature
- May be difficult to distinguish between ‘ethical’ and ‘not ethical’ – judgment based on a complex set of criteria including common sense, instinct and wisdom
- Behaving ethically is natural and practical: honest, keep promises, not steal, do our jobs.
- **How important is ethics in our everyday life?**

# Computer Ethics

- “**Computer Ethics** is a branch of practical philosophy which deals with how computing professionals should make decisions regarding professional and social conduct.” – Wikipedia
  - more specifically for computing professions, otherwise similar to ethics in other fields
- Special due to unique properties of computers:
  - logical malleability
  - impact on society
  - invisibility factor

# Spectrum of morality

- Different societies have different moral beliefs on rights and wrongs
- Moral beliefs change over time
- Strongly differentiated professions give power and responsibility, e.g. police, doctors
- Computer professionals do not normally have strongly differentiated roles
- But they have ability and opportunity that demands responsibility, e.g. knowledge to create virus

# Ethical Issues

- First and foremost, to identify and realise that you are confronting an issue – an ethical one
  - try an exercise: <http://library.thinkquest.org/26658/cgi-bin/1-2.cgi>
- What next?
  - state the ethical problem
  - check facts
  - list options of actions
  - choose actual action: based on ethical principles, theories and standards/guidelines (code of conduct)

# Ethical Issues: Examples

- Company to deliver a computer system to a customer and you believe it still has serious bugs
- Supervisor asks you to make unauthorized copies of copyrighted software
- You are assigned to a job for a client whose business you find objectionable
- You are a manager and discover your employees are spending a lot of time on non-work related activities on the net. To monitor or not to monitor?
- To collect information from visitors to the web site

# Ethical Theories

- Attempt to achieve the same goal: to enhance human dignity, peace, happiness and well-being
- Assume that people are rational and make free choices. However,
  - people act emotionally, and make mistakes
  - sometimes to forced to make decision, i.e. not free choice
- Two important and conflicting Ethical theories:
  - [Kantianism](#)
  - [Consequentialism](#)

# Deontological

- Emphasize duty and absolute rules, to be followed whether they lead to good or ill consequences in particular cases
- **Kantianism** of Immanuel Kant is a Deontological theory
  - Universality: follow rules of behavior that we can universally apply to everyone
    - if lying is right, then everyone can lie; so, it is always wrong to lie
  - Rationality: follow from logic
    - **example?**
  - Act so that you always treat others as an end, and never as a means to an end *only*
    - **example?**



# Consequentialism

- Deals with consequences of actions rather than the actions themselves
- **Utilitarianism** is a Consequentialism theory
  - the moral worth of an action is determined solely by its contribution to overall utility: that is, its contribution to happiness or pleasure as summed among all people
  - the right action is the one which brings ‘the greatest benefit to the greatest number of people’
    - it may be right to lie if it does not harm anyone, while making some people happy

# Kantianism vs Utilitarianism

- Pros and Cons?
- 
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# Ethical Issues: A Discussion

- What should Alice do? How will the Ethical theories be applicable here?



# Ethical Standards and Guidelines

- Usually set by professional bodies to offer guidance to members, and set standards for the professional body
- Major bodies: Association for Computing Machinery (ACM), Institute of Electronic and Electronics Engineering (IEEE), British Computer Society (BCS)
- Major ethical standards:
  - ACM/IEEE Software Engineering Code of Ethics and Professional Practice
  - ACM Code of Ethics and Professional Conduct
  - BCS Code of Conduct and Code of Practice

# Code of ethics: purposes

- Assure the public that we are serving their interest
- Inform members about issues that they might not be aware of
- Guidance to resolve ethical dilemma
- Remind members of the importance of professionalism in their occupations

# Professional relationship

- Employer – employee
  - loyalty, job security, development opportunity
- Client – professional
  - service, finance, trust
- Professional – professional
  - credit, reputation, unity, standard promotion
- Society – professional
  - responsibility, contributions, rights

# ACM/IEEE Software Engineering Code of Ethics and Professional Practice

- 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 the public interest
- PRODUCT – software engineers shall ensure that their products and related modifications meet the highest professional standards possible
- JUDGMENT – software engineers shall maintain integrity and independence in their professional judgment

- **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 reputation of the profession consistent with the public interest
- **COLLEAGUES** – software engineers shall be fair to and supportive to 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



# ACM Code of Ethics and Professional Conduct

- Four sections:
  - Section 1: fundamental ethical considerations
  - Section 2: more specific considerations of professional conduct
  - Section 3: more specifically to individuals who have a leadership role
  - Section 4: requirements to comply with this code

# ACM Section 1: General Moral Imperatives

- Contribute to society and human well-being
- Avoid harm to others
- Be honest and trustworthy
- Be fair and take action not to discriminate
- Honor property rights including copyrights and patent
- Give proper credit for intellectual property
- Respect the privacy of others
- Honor confidentiality

# ACM Section 2: More Specific Professional Responsibilities

- Strive to achieve the highest quality, effectiveness and dignity in both the process and products of professional work
- Acquire and maintain professional competence
- Know and respect existing laws pertaining to professional work
- Accept and provide appropriate professional view
- Give comprehensive and thorough evaluations of computer systems and their impacts, including analysis of possible risks
- Honor contracts, agreements and assigned responsibilities
- Improve public understanding of computing and its consequences
- Access computing and communication resources only when authorized to do so

# ACM Section 3: Organizational Leadership Imperatives

- Articulate social responsibilities of members of an organizational unit and encourage full acceptance of those responsibilities
- Manage personnel and resources to design and build information systems that enhance the quality of working life
- Acknowledge and support proper and authorized uses of an organization's computing and communication resources
- Ensure that users and those who will be affected by a system have their needs clearly articulated during the assessment and design of requirements; later the system must be validated to meet requirements
- Articulate and support policies that protect the dignity of users and others affected by a computing system
- Create opportunities for members of the organization to learn the principles and limitations of computer systems

# ACM Section 4: Compliance with the Code

- Uphold and promote the principles of this Code
- Treat violations of this Code as inconsistent with membership in the ACM

# BCS Code of Conduct and Code of Practice

- Code of Conduct – this Code sets out the professional standards required by the Society as a condition of membership:
  - The Public Interest
  - Duty to Relevant Authority
  - Duty to the Profession
  - Professional Competence and Integrity
- Code of Good Practice – this Code describes standards of practice relating to the contemporary multifaceted demands found in IT:
  - Practices Common to all Disciplines
  - Key IT Practices
  - Practices Specific to Education and Research Functions
  - Practices Specific to Business Functions

## Activity 2

- Your team is working on a computer-controlled laser device for treating cancerous tumors. The computer controls direction, intensity, and timing of the beam that destroys the tumor. Various delays have put the project behind schedule, and the deadline is approaching. There will not be time to complete all the planned testing. The system has been functioning properly in the routine treatment scenarios that have been tested so far. You are the project manager, and you are considering whether to deliver the system on time, while continuing testing, and to make patches if bugs are found.