A Gift of Fire

Fourth edition

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Chapter 9:
Professional Ethics and Responsibilities

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What We Will Cover

- What is Professional Ethics?
- Ethical Guidelines for Computer Professionals
- Scenarios

What is "Professional Ethics"?

- Professional ethics includes relationships with and responsibilities toward customers, clients, coworkers, employees, employers, others who use one's products and services, and others whom they affect
- A professional has a responsibility to act ethically. Many professions have a code of ethics that professionals are expected to abide by
  - Medical doctors
  - Lawyers and judges
  - Accountants

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What is "Professional Ethics"?

- There are special aspects to making ethical decisions in a professional context
- Honesty is one of the most fundamental ethical values; however, many ethical problems are more subtle than the choice of being honest or dishonest
- Some ethical issues are controversial

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Ethical Guidelines for Computer Professionals

Special Aspects of Professional Ethics

- A professional is an expert in a field
  - Customers rely on the knowledge, expertise, and honesty of the professional
- The work of many professionals profoundly affect large numbers of people, some indirectly
- Professionals must maintain up to date skills and knowledge

Ethical Guidelines for Computer Professionals

Professional Codes of Ethics

- Provide a general statement of ethical values
- Remind people in the profession that ethical behavior is an essential part of their job
- Provide guidance for new or young members

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Ethical Guidelines for Computer Professionals

Guidelines and Professional Responsibilities

- Understand what success means
- Include users (such as medical staff, technicians, pilots, office workers) in the design and testing stages to provide safe and useful systems
- Do a thorough, careful job when planning and scheduling a project and when writing bids or contracts
- Design for real users

Ethical Guidelines for Computer Professionals

Guidelines and Professional Responsibilities (cont.)

- Don’t assume existing software is safe or correct; review and test it
- Be open and honest about capabilities, safety, and limitations of software
- Require a convincing case for safety
- Pay attention to defaults
- Develop communication skills

Scenarios

Introduction and Methodology

- Brainstorming phase
  - List all the people and organizations affected (the stakeholders)
  - List risks, issues, problems, and consequences
  - List benefits. Identify who gets each benefit
  - In cases where there is no simple yes or no decision, but rather one has to choose some action, list possible actions

Scenarios

Introduction and Methodology

- Analysis phase
  - Identify responsibilities of the decision maker
  - Identify rights of stakeholders
  - Consider the impact of the options on the stakeholders (consequences, risks, benefits, harms, costs)
  - Categorize each potential action as ethically obligatory, prohibited, or acceptable
  - When there are multiple options, select one, considering the ethical merits of each, courtesy to others, practicality, self-interest, personal preferences, etc.

Scenarios

Scenario 1: Protecting Personal Data

- Your customer is a community clinic that works with families with problems of family violence. It has three sites in the same city, including a shelter for battered women and children. The director wants a computerized record and appointment system, networked for the three sites. She wants a few laptop computers on which staffers can carry records when they visit clients at home and stay in touch with clients by email. She asked about an app for staffers' smartphones by which they could access records at social service agencies. At the shelter, staffers use only first names for clients, but the records contain last names and forwarding addresses of women who have recently left.

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Scenarios

Scenario 2: Email System With Targeted Ads

- Your company is developing a free email service that will include targeted advertising based on the content of the email messages (similar to Google's Gmail). You are part of the team designing the system. What are your ethical responsibilities?

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Scenarios

Scenario 3: Webcams in School Laptops

- As part of your responsibilities, you oversee the installation of software packages for large orders. A recent order of laptops for a local school district requires webcam software to be loaded. You know that this software allows for remote activation of the webcam.

Scenarios

Scenario 4: Publishing Security Vulnerabilities

- Three MIT students planned to present a paper at a security conference describing security vulnerabilities in Boston's transit fare system. At the request of the transit authority, a judge ordered the students to cancel the presentation and not to distribute their research. The students are debating whether they should circulate their paper on the Web. Imagine that you are one of the students.

Scenarios

Scenario 5: Specifications

- You are a relatively junior programmer working on modules that collect data from loan application forms and convert them to formats required by the parts of the program that evaluate the applications. You find that some demographic data are missing from some forms, particularly race and age. What should your program do? What should you do?

Scenarios

Scenario 6: Schedule Pressures – Safety-critical

- Your team is working on a computer-controlled device for treating cancerous tumors. The computer controls direction, intensity, and timing of a 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 tested so far. You are the project manager, and you are considering whether to deliver the system on time, while continuing testing and making patches if the team finds bugs.

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Scenarios

Scenario 7: Schedule Pressures – Product to market

- You are a programmer working for a very small start-up company. The company has a modest product line and is now developing a truly innovative new product. Everyone is working 60-hour weeks and the target release date is nine months away. The bulk of the programming and testing is done. You are about to begin the beta testing. (See Section 8.3.1 for an explanation of beta testing.) The owner of the company (who is not a programmer) has learned about an annual industry show that would be ideal for introducing the new product. The show is in two months. The owner talks with the project manager. They decide to skip the beta testing and start making plans for an early release.

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Scenarios

Scenario 8: Software License Violation

- Your company has 25 licenses for a computer program, but you discover that it has been copied onto 80 computers.

Scenarios

Scenario 9: Going Public

- Suppose you are a member of a team working on a computer-controlled crash avoidance system for automobiles. You think the system has a flaw that could endanger people. The project manager does not seem concerned and expects to announce completion of the project soon. Do you have an ethical obligation to do something?

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Scenarios

Scenario 10: Release of Personal Information

- You work for the IRS, the Social Security Administration, a movie-rental company, or an Internet service provider. Someone asks you to get a copy of records about a particular person. He will pay you $500.
- You know another employee sells records with people's personal information.

Scenarios

Scenario 11: Conflict of Interest

- You have a small consulting business. The CyberStuff company plans to buy software to run a cloud data-storage business. CyberStuff wants to hire you to evaluate bids from vendors. Your spouse works for NetWorkx and did most of the work in writing the bid that NetWorkx plans to submit. You read the bid while your spouse was working on it and you think it is excellent. Do you tell CyberStuff about your spouse's connection with NetWorkx?

Scenarios

Scenario 12: Kickbacks and Disclosure

- You are an administrator at a major university. Your department selects a few brands of security software to recommend to students for their desktop computers, laptops, tablets, and other devices. One of the companies whose software you will evaluate takes you out to dinner, gives you free software (in addition to the security software), offers to pay your expenses to attend a professional conference on computer security, and offers to give the university a percentage of the price for every student who buys its security package.

Scenarios

Scenario 13: A Test Plan

- A team of programmers is developing a communications system for firefighters to use when fighting a fire. Firefighters will be able to communicate with each other, with supervisors near the scene, and with other emergency personnel. The programmers will test the system in a field near the company office.

Scenarios

Scenario 14: Artificial Intelligence and Sentencing

- You are part of a team developing a sophisticated program using artificial intelligence techniques to *help judges* make sentencing decisions for convicted criminals.

Scenarios

Scenario 14: Artificial Intelligence and Sentencing (cont.)

- Suppose judges in your state use a sentencing decision system that displays similar cases for the judge to view. You are a programmer working for your state government. Your state has just made it a criminal offense to use a cellphone while taking a college exam. Your boss, a justice department administrator, tells you to modify the program to add this new category of crime and assign the same relevancy weights to cases as the program currently does for using a cellphone while driving a car (already illegal in your state).

Scenarios

Scenario 15: A Gracious Host

- You are the computer system administrator for a mid-sized company. You can monitor the company network from home, and you frequently work from home. Your niece, a college student, is visiting for a week. She asks to use your computer to check her email. Sure, you say.