

**PROFESSIONAL
PRACTICES
IT
LECTURE 04**



Professional Ethics & Codes of Conduct

Lecture 4

Ethical Decision Making: Case 3

- Sana works in a large provincial agency dealing with alcoholism and drug abuse.
- Agency administers programs for individuals with alcohol and drug programs.
 - Maintains a large database of information on clients who use agency services.
 - Some data files contain names and current addresses of clients.
- Sana has been asked to look at the track records of treatment programs.
 - Reporting # of clients seen each month for past five years, length of client treatment, number of clients who return after program completion, criminal histories of clients.

Ethical Decision Making: Case 3

- Sana has been given access to all files in the agency's mainframe computer
 - This data is needed to put together in the report.
- After assembling data:
 - She downloads it to the computer in her office.
- The agency is pressuring her to finish report on the deadline.
 - Sana decides she must work from home over the weekend.
 - She copies data onto several disks and takes them home.
 - After finishing report she leaves the disks at home and forgets about them.

Applying the Code: Case 3

- This case resembles case 2, but raises several additional issues.
- Issues involving confidentiality
 - Principle 1.7 deals with privacy
 - Principle 1.8 deals with confidentiality
- Principle 2.8 also applies:
 - Constraining access to authorized systems
- Principle 3.5:
 - Organizational leaders have obligations to “verify systems are designed and implemented to protect personal privacy and enhance personal dignity”
- Also Principle 3.3:
 - (Appropriate and authorized uses of organization’s resources)

Applying the Code: Case 3

- Government agency should have had policies and procedures to protect identity of its clients
 - Sana's friends and relatives might accidentally discover files and inappropriate uses information.
 - Note that the files Sana used did not need to have names or other information in the records. ■
- Agency should have removed identifying information from files Sana was allowed to use.
 - If this happened, it wouldn't have mattered that Sana copied files to her computer.
- Sana, unfortunately, was not attentive to ethical issues ahead of time.

Ethical decision making: Case 4

- Computer company is writing first part of an “efficient accounting system”.
 - Will be used by government.
 - Expectation is that this will save taxpayers a considerable amount of money each year.
- Software engineer in charge of design assigns different parts of system to his staff.
 - Reports, Internal Processing, User interface
- Manager is shown the system, and agrees it matches requirements.
- System is installed, but staff find the interface so difficult to use that their complaints are heard by upper-level management

Ethical Decision Making: Case 4

- Result of complaints:
 - upper-level management will not invest any more money in developing the new accounting system
 - they go back to their original, more expensive system

Applying the Code: Case 4

- This case highlights issues involving quality of professional work
- Code of Ethics advocates that:
 - professional strive to achieve the highest quality in both process and products (2.1)
- Principle 3.4: users and those affected by a system must have their needs clearly articulated
- Assumption in this case:
 - Failure to deliver a quality product is directly attributable to failure to follow a quality process.
 - Most likely the problems with interface could have been discovered in review process – peers or users (2.4)
- When harm results (in this case with taxpayers), failure to implement quality process clearly violates ethical behavior.

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Ethical decision making: Case 5

- Contractor is determining requirements for an employment agency.
 - Client describes what is needed when displaying applications whose qualifications appear to match those for a particular job. ■
 - Client also further states that names of white applicants are to be displayed ahead of nonwhites.
 - Further states that names of male applicants are to be displayed ahead of female applicants.
- Recall: ethical code asserts an ACM member will be “fair and take action not to discriminate”

Applying the Code: Case 5

- This case highlights issues involving fairness and discrimination
- In this case, system designer is asked to build a system that, it appears
 - will be used to favour white males and
 - discriminate against non-whites and females
- From this it would appear that:
 - system designer should not do what he or she is told, plus
 - should also point out the problematic nature of what is being requested and ask client why this is being done
- Making the inquiry is consistent with 2.3, 2.5 and 4.1.

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Applying the Code: Case 5

- If client answers that they plan to use information to favour white males, then:
 - Computer professional should refuse to build the system as proposed.
- To go ahead and build the system would violate:
 - 1.4 (fairness)
 - 2.3 (respecting existing laws)
- It would also be inconsistent with:
 - 1.1 (well-being)
 - 1.2 (avoiding harm)

Ethical decision making: Case 6

- A software development company has just produced a new software package.
 - It incorporates new tax laws and prepares both individual and small business tax returns
- The president of the company knows that the program has a number of bugs
 - He also believes the first firm to put this kind of software on the market is likely to capture the largest market share.
- The company widely advertises the package.
 - When the product is shipped, it includes a disclaimer of responsibility for errors resulting from the use of the program.

Ethical decision making: Case 6

- The company expects it will receive a number of complaints, queries, and suggestions for modification.
- The company plans to use these to make changes and eventually issue updated, improved and debugged versions.
- The president argues that this is general industry policy:
 - “Anyone who buys version 1.0 of a program knows this and will take proper precautions.”
- Because of bugs, a number of users filed incorrect tax returns and were penalized by Rev Canada.

Applying the Code: Case 6

- This case highlights issues involving legal liability for unreliable code
- Software company (and president in particular) violated several principles in the ACM code of ethics
- Since he was aware of bugs in the product, he did not strive to achieve the highest quality (Principle 2.1)
- By failing to inform consumers about bugs to system, principle 2.5 was violated.
- Here the risks to users is so great they have to pay penalties for mistakes which result from the program.
 - By law companies can make disclaimers only when they are in “good conscience” (Disclaimer does not meet legal test, violated principle 2.3)
- President also violates Principle 3.1

Ethical decision making: Case 7

- Small software company is working on an integrated inventory control system
 - very large national shoe manufacturer
 - system gathers sales data daily from stores across Canada.
- Data is used by following departments:
 - accounting
 - shipping
 - ordering
- Inventory functions are critical to the smooth operation of the system and the corporation.

Ethical decision making: Case 7

- James is a quality assurance (QA) engineer with the software company
 - He suspects the inventory functions of the system are not sufficiently tested
 - However, they have passed all contracted tests. ■
- He is being pressured by his employers to sign off on the software.
- Legally he is only required to perform those tests which found their way into the contract
- However, his considerable experience in software testing leads him to be concerned over risks of incorrect system behavior

Ethical decision making: Case 7

- Despite insisting, James' company states:
 - "We will go out of business if we do not deliver the software on time."
- James replies:
 - "If inventory subsystem fails, it will significantly harm our client and their employees."
- If the potential failure were to threaten lives, it would be clear to James that he should refuse to sign off

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- If the potential failure were to threaten lives, it would be clear to James that he should refuse to sign off
- However, given the reduced degree of threatened harm, James is faced by a difficult decision.

Applying the Code: Case 7

- This case highlights issues involving software risks.
- Principle 1.2 stress responsibility of computing professional to avoid harm for others
 - Principle 1.1 requires concern for human well-being
 - Principle 1.3 mandates professional integrity
 - Principle 2.1 defines quality as an ethical responsibility
- These principles may conflict with agreements and commitments of an employee to the employer and client.

Applying the Code: Case 7

- The ethical imperatives of the code suggest that:
 - James should not deliver a product he believes to be inferior
 - nor should he mislead the client about the quality of the product (1.3)
- He should continue to test, and has been told of the financial repercussions of not delivering the system.
 - At the very least, the client should be informed of his reservations.

Ethical decision making: Case 8

- A software consultant is negotiating a contract with a local municipality
- Designing their traffic control system (TCS)
- She recommends they select the TCS system out of several available system on the market.
- The consultant fails to mention that she is a major stockholder of the company producing TCS software.

Applying the Code: Case 8

- This case highlights issues involving conflicts of interest.
- Principle 2.5: computer professionals must “strive to be perceptive, thorough and objective when evaluating, recommending and presenting system descriptions and alternatives.”
- Principle 1.3: implies a computer professional must be honest about “any circumstances that might lead to conflicts of interest”
 - IT professionals have special skills
 - It is their responsibility to ensure clients are fully aware of the options.
 - Also their responsibility to ensure professional recommendations are not modified for personal gain.

Ethical decision making: Case 9

- Hugo is working on a project for his computer science course.
- Instructor has allotted a fix amount of computer time for the project.
 - This time is enforced by the computer system.
- Hugo runs out of time, but has not yet finished the project.
- Instructor cannot be reached.

Ethical decision making: Case 9

- Hugo worked last year as a co-op programmer in the department.
- He is very familiar with procedures used to increase time allocations to accounts.
- Using what he learned last year, he is able to access the master account.
- Then he gives himself additional time.
- He now completes his project.

Applying the code: Case 9

- Principle 1.5 (property rights) has been violated.
- Principle 2.8: specifies that ACM members should “access communication resources only when authorized to do so”.
- By violating 2.8, Hugo is also violating Principle 2.3 (“know and respect existing laws”)
- As a student member of the ACM, Hugo must follow the code of ethics...
- ... even if he does not consider himself a computing professional.

Nine cases: summary

- Illustrate broad range of issues facing an IT professional.
 - Code does not prescribe what an individual must do
 - But it does identify some decisions as unacceptable. ■
- Ethical decision often involve balance amongst several factors.
 - Computer professionals therefore have to choose amongst the conflicting principles.
 - Goal is to ahead to the spirit as much as to the letter.

Nine cases: summary

- All of the cases also portrayed individuals acting in constrained situations.
 - Institutional environment usually influences ethical decisions.
 - Such environments can either facilitate or constrain ethical behavior.
 - Leadership roles set the tone.
 - Some of the problems shown in the cases resulting from a lack of ethical leadership.

Other applicable codes

- Canadian Information Processing Society (CIPS):
 - Code of Ethics & Standards of Conduct
 - <http://www.cips.ca/about/ethics/english/ethics.pdf>
- IEEE Computer Society & ACM:
 - Software Engineering Code of Ethics and Professional Practice
 - <http://www.computer.org/computer/code-of-ethics.pdf>
- Council of Professional Engineers
 - Guideline on the Code of Ethics
 - http://www.ccpe.ca/e/files/guideline_code_with.pdf