CS 4873-A: Computing and Society

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Week 5: Professional Ethics
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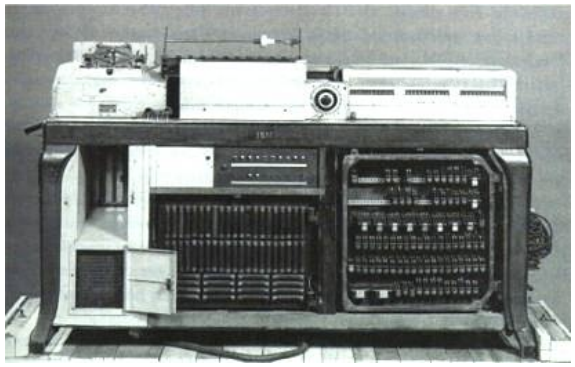
Do computer professionals need to worry about ethics like lawyers or physicians?

The need…


WALLY, I DISCOVERED A DEADLY SAFETY FLAW IN OUR PRODUCT. WHO SHOULD I INFORM?
www.dilbert.com scottadams@aol.com
NO ONE. THE STOCK WOULD PLUNGE AND WE'D HAVE MASSIVE LAYOFFS. YOUR CAREER WOULD BE RUINED.
1-27-04 ©2004 Scott Adams, Inc./Dist. by UFS, Inc.
BUT MY NEGLIGENCE COULD CAUSE THE DEATHS OF A DOZEN CUSTOMERS.
THE FIRST DOZEN IS ALWAYS THE HARDEST.
© UFS, Inc.

A Computer Professional's Story

- Jacobus Lentz, Dutch inspector of population registries before World War II
- Partnership with the Nazi Government
- Role in Hitler's Final Solution



A Computer Professional's Story

- Lentz was in a position of great responsibility
- But lacked a moral compass
- Didn't anticipate the consequences of his actions
  - He allowed his creativity, technical ability, and industriously to be abused by the Nazis.

Do computer professional need to worry about ethics like lawyers or physicians?

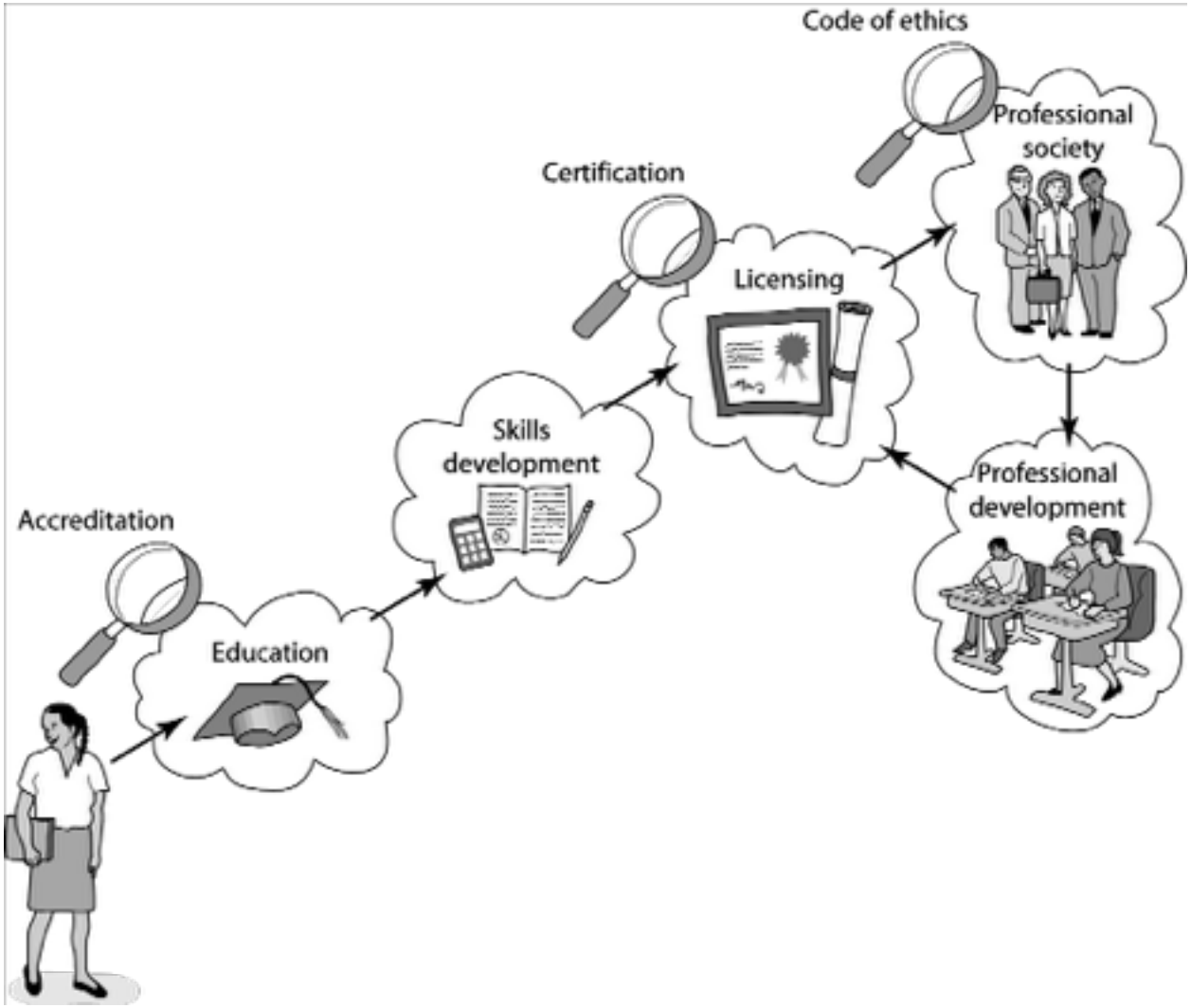
Privacy and security
Recall Therac-25
Financial decisions (e.g., tax software)

What is a profession?

Characteristics of a Profession

- Initial professional education
- Accreditation
- Skills development
- Certification
- Licensing
- Professional development
- Code of ethics
- Professional society

Attributes of a Mature Profession



Attributes and uniqueness of the computing profession

Is Computing a Mature Profession?

History

- Computer profession was not a fully developed profession (e.g., license, certification, formal training and/or apprenticeship not required to be a programmer or a system analyst)

- IEEE Board of Governors established steering committee (May, 1993).
- ACM Council endorsed Commission on Software Engineering (Late 1993).
- Joint steering committee established by both societies (January, 1994).

Preamble of Code

Software Engineering Code of Ethics: 8 Key Principles:

- Public
- Client and Employer
- Product
- Judgment
- Management
- Profession
- Colleagues
- Self

PUBLIC - Software engineers shall act consistently with the public interest

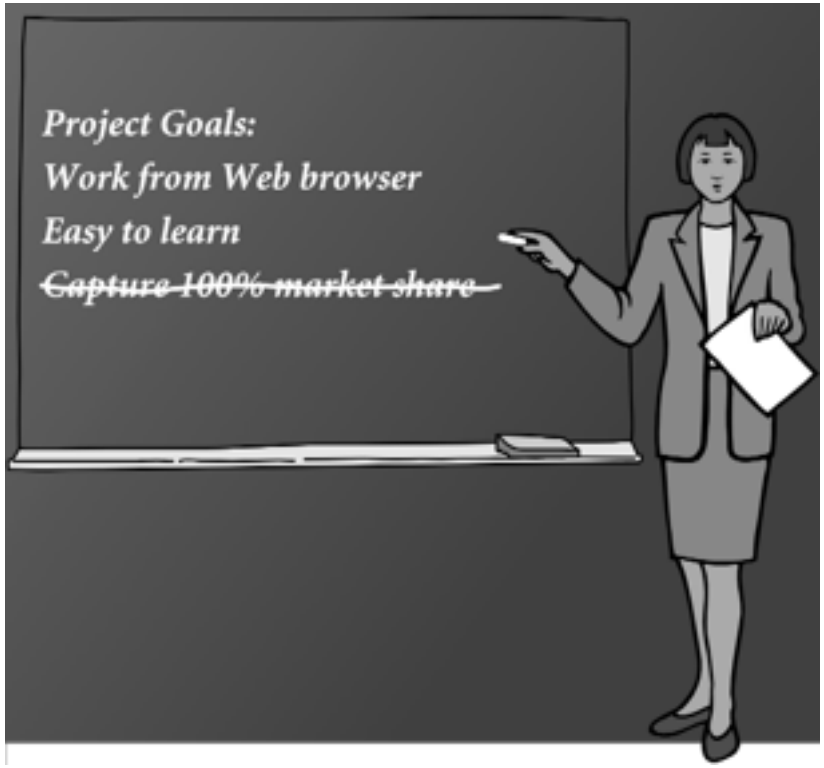
Clause 1.03
Approve Software Only If It Is Safe

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

Clause 2.02
Don’t Use Software Obtained Illegally

PRODUCT - Software engineers shall ensure that their products and related modifications meet the highest professional standards possible

Clause 3.02
“Ensure Proper and Achievable Goals”



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

Clause 6.01 Help Create An Environment Supporting Ethical Conduct

COLLEAGUES - Software engineers shall be fair to and supportive of 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

Clause 8.02 Improve Ability to Create High Quality Software

Analysis of the Code

- The code is expressed as collection of rules
- The rules in turn are based on principles grounded in different ethical theories
- When we encounter a situation when two rules conflicts, the preamble urges us to ask questions that will help us consider the principles underlying the rules

Analysis of the Code

- Questions demonstrating the multi-faceted grounding of the code:
  - Who is affected? (utilitarianism – collective goodness)
  - Am I treating other humans with respect? (Kantianism – mentally reversing roles)
  - Would my decision hold up to public scrutiny? (Virtue ethics – reflection on moral character)
  - How will those who are least empowered be affected? (Social contract theory)
  - Are my acts worthy of the ideal professional? (Virtue ethics – imitation of morally superior role models or exemplars)

Alternative List of Fundamental Principles

- Be impartial
- Disclose information that others ought to know
- Respect the rights of others
- Treat others justly
- Take responsibility for your actions and inactions
- Take responsibility for the actions of those you supervise
- Maintain your integrity
- Continually improve your abilities
- Share your knowledge, expertise and values

Class Discussion– Analyze the Software Engineering Code of Ethics

Sam Shaw calls the East Dakota State University seeking advice on how to improve the security of his business's local area network. A secretary in the department routes Mr. Shaw's call to Professor Jane Smith – an internationally recognized expert in the field. Prof. Smith answers several questions posed by Mr. Shaw regarding network security. When Mr. Shaw asks Prof. Smith to recommend a software package to identify security problems, Prof. Smith tells him that NetCheks got the personal computer magazine's top rating. However she does not mention that the same magazine gave a "best buy" rating to another product with fewer features but a much lower price. She also fails to mention that NetCheks is a product of a spin-off company started by one of her former students and that she owns a 10% stake in the company.

Analyze whether Prof. Smith's actions were ethical.

Class Discussion -- Software Recommendation

- Relevant fundamental principles:
  - Be impartial
  - Disclose information that others ought to know
  - Share your knowledge, expertise, and values

Class Discussion -- Software Recommendation

- List of clauses associated with these fundamental principles:
  - (Public) 2.06 Be fair and truthful in all matters
  - (Public) 2.08 Donate professional skills to good causes
  - (Judgment) 3.06 Disclose conflicts of interest
  - (Judgment) 3.07 Avoid conflicting financial interests
  - (Profession) 6.09 Place professional interests before personal
  - (Profession) 6.13 Share software knowledge

Conclusion

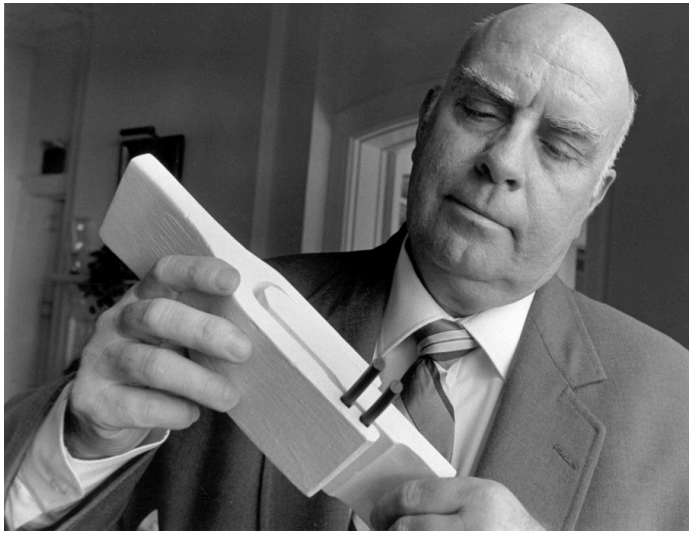
- Professor Smith should have revealed her conflict of interest to Mr. Shaw.

Whistle-Blowing

- A whistle blower is someone who breaks ranks with an organization in order to make an unauthorized disclosure of information about a harmful situation after attempts to report the concerns through authorized organizations channels have been ignored or rebuffed.
- Examples situations:
  - Actions/products of employer can potentially harm the public
  - Fraudulent use of tax dollars

Roger Boisjoly/NASA

- Engineer at Morton Thiokol – NASA contractor for the Challenger Space Shuttle
  - Met with accident 73 seconds after launch; gas leak from a booster rocket



Morality of Whistle-Blowing

Whistle-Blowing as a Moral Duty