Computing Professions & Professional Ethics

Professional Ethics in Computing

Lecture 04

(Largely based on lecture by Dr John Cartlidge)

Previously (a *review*)

- Introduction to Moral Theories & Critical Reasoning:
  1. Virtue Theory
  2. Act Utilitarianism
  3. Rule Utilitarianism
  4. Deontological
  5. Contractarianism
  6. Rawls' Theory of Justice
  7. Noddings' Ethics of Caring
- …and in the workshops you have applied the theories
  - Using critical reasoning (deliberative ethical discussions)
- You will continue to apply the theories throughout the course, but we won't be learning any new theories

Upcoming topics

1. Professionalism (22 & 24 Oct)
2. Privacy (29 Oct & 1 Nov)
3. Intellectual and Intangible Property (5 & 7 Nov)
4. Critical Thinking (12 & 14 Nov)
5. Trust, Safety and Reliability (19 & 21 Nov)
6. How Computing is Changing Who We Are (26 & 28 Nov)
7. Computing and Vulnerable Groups (3 & 5 Dec)
8. Autonomous and Pervasive Technologies (9 & 11 Dec)

NOTE: The groups have been randomised this week… CHECK which group you are in See the list on Moodle.

Qu: Which group will be taking notes for the wiki this week?

- Also, remember, that you can ***all edit*** the wiki notes…it is a ***collaborative resource*** to help you all learn and revise
- Think about the Prisoner's Dilemma: You can all chose to not edit the notes (i.e., defect) – in which case you save time but at the end the notes are low quality, or you can choose to edit the notes (i.e., cooperate) in which case the notes will grow into a useful resource that is beneficial to all of you!

NOTE TAKING GROUP – GROUP 4

http://www.virtualdiceroll.com/1/en/one-die

This week

- We are going to learn about professional ethics of computing
- Learning outcomes:
  - The meaning of ***professionalism*** (in computing context)
  - To understand what counts as a ***profession*** and what makes a person ***a professional***
- What we are going to be doing:
  - Explore *various definitions of professionalism* and to *identify common requirements*
  - *Examine significance to potential professionals and the general public*

BEING A PROFESSIONAL

What does *professional* mean?

1. In 1913, Jim Thorpe (after winning gold medals at the 1912 Olympics) had his medals taken away because he had previously received money for playing baseball (and was therefore ruled *a professional*)
2. The police describe a murder that has the hallmarks of an assassination as "*a professional job*"
3. A personal profile on a dating site states "*Single professional woman, seeks single professional man*"

Qu: What does *professional* mean in these contexts?

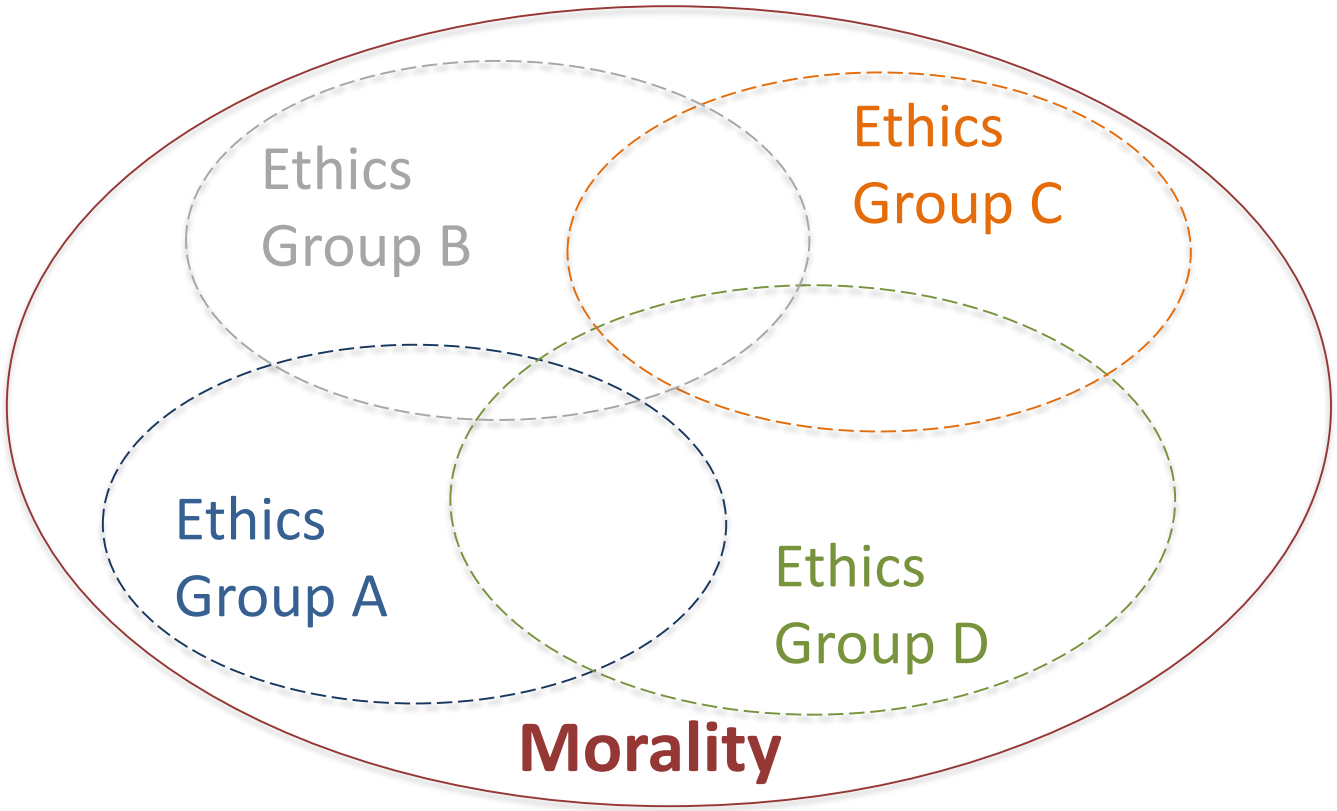
Professions & Codes

Ethics is a set of ***morally permissible* standards of a *group*** that each **member of the group** (*at his/her rational best*) wants every other member to follow even if their doing so would mean that he/she must do the same

[Michael Davis, *Profession, Code, & Ethics*, p.40]

Today, we will ask:

- What do we mean by a *set of standards*?
- And *what group* are we talking about?



Immoral

(Killing, stealing, lying, etc…)

Let's begin by focusing on the relevant group…

people who work in the *computing professions*

COMPUTING PROFESSION

Professional Standards of Computing:

Why we care

- Computer professionals exercise considerable control over issues that affect the whole of society. For every…
  - Computer system: at least one "sys admin" has access to all files. The sys admin has enormous power over a business. What happens if malicious, or incompetent?
  - Database: at least one "db admin" has access to all of the data
  - WWW info request: your info generally passes through many computers and systems, with each having at least one person that has access to all your information sent and received
  - Journey (Bus, train, plane, taxi): at least one person made decisions that affect passenger safety through vehicle hardware/software
  - Hospital Admission: computer systems control life support, provide info on blood typing, allergies, medicine, etc.

Discuss...

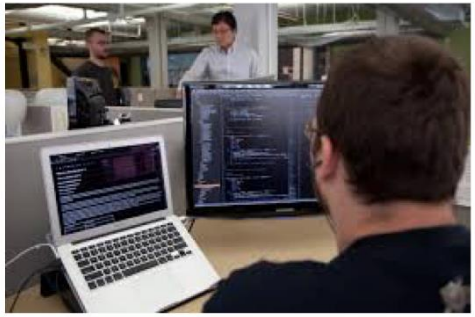
Other professions, such as teachers, pharmacists, and airline pilots can strongly affect your life….

Qu: How do these three compare to computing professionals with respect to:

- **required education,**
- **licensing, and**
- **level of trust?**

The Meaning of Professionalism

We readily see identify a doctor or lawyer as being a professional – why is that?



Some Requirements ?

- Paid occupation
- Intellectual activity
- Skills and ability beyond labour tasks
  Involves responsibilities and obligations
- Prolonged training
- Formal qualification
- Degree of autonomy to provide services
- Body of people following standards

(1) According to Bayles

Bayles, Michael. *Professional Ethics. 1984*

Every profession:

- Requires extensive training
- Involves significant intellectual effort
- Provides an important service to society

Features **common** to most professions:

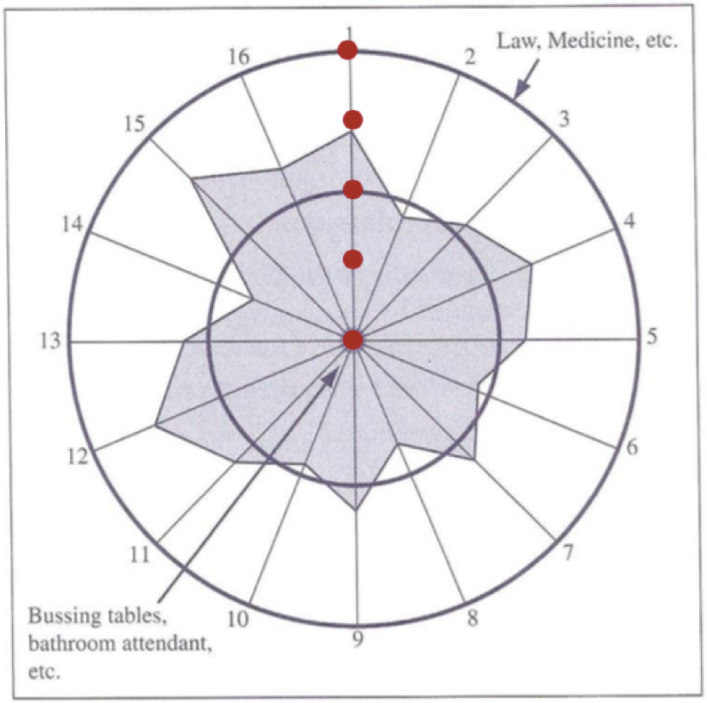
- Certification of licensing
- Organisation of members
- Autonomy in one's work

(2) The Good Works Project

Wendy Fischman & colleagues, the Good Works Project, Harvard Grad School of Education

- A broader definition of professional:
  - "It encompasses any career in which the worker is awarded a degree of autonomy in return for services to the public that are performed at a high level."
  - "According to this definition, it is within the power of the individual worker to behave like a professional, should she or he choose to do so."

According to Kultgen (1988) (3)



- Author + Philosopher John Kultgen
- Presents 20 Attributes neccesary for a vocation to be a profession (first 16 in this wheel)
- Each Spoke – Attribute
- Outer Rim – "standard professions" e.g. doctors
- Inner Rim – Honest occupations but not professionals e.g. fruit pickers
- Small inner circle –"not a professional"
- Plotted a ficticious occupation – just about professional

Kultgen's *Core* Attributes

1. Involves skill based on a theoretical foundation
2. Requires extensive education
3. Requires passing an exam
4. Organised and represented by one or more professional organisations
5. Adheres to a code of conduct
6. Provides altruistic service
7. Requires members to assume responsibility for the affairs of others
8. Is indispensible for the public good
9. Licensed members, so their work is sanctioned by the community
10. Members independent practitioners, serving individual clients
11. Members have fiduciary (a legal or ethical trust) relationship with clients
12. Members do their best to serve clients impartially
13. Members compensated by fees or fixed charges

Qu: Do medicine and law have all 13 characteristics?

Kultgen's *Further* Attributes

14. Members highly loyal to colleagues
15. Members regularly contribute to professional development
16. Members' prestige is based on guaranteed service
17. Members use individual judgement in applying their profession
18. The work is not manual
19. Profits do not depend on capital
20. Professional status is widely recognised

Qu: Choose a profession other than law/medicine – which attributes does it have?

[Michael Davis (2002), whose definitions on ethics/morality we used week 2]

(4) Davis's moral basis for professions

- *"A profession is a number of individuals in the same occupation voluntarily organised to earn a living by openly **serving a certain moral ideal in a morally permissible way** beyond what law, market, and morality would otherwise require."*
- *"It is impossible to satisfy the definition of profession without (something like) a **code of ethics** …"*
- A professional puts profession first
  - i.e., professional code takes precedence over an employer/law
  - that is why a journalist will go to jail rather than reveal a source
- Code of ethics *does not* need to be enforced by the group or other authority (i.e., a promise to follow the code is enough)

Computing professions?

- Under Davis's definition (4):
  - Occupations associated with computing are **not** (apart from perhaps Software Engineering)
- Under Fischman's Good Works Project (2):
  - They **do qualify** as professions (as no code of ethical conduct is required)
- Under Bayles (1)/ Kultgen (3):
  - Degree of professionalism **varies considerably**, when we apply criteria

Qu: Should computing professions be changed to fall in line with Davis's definition?

ETHICAL STANDARDS

Specifying Standards

- Codes of conduct include:
  - **Rules:** certain things we must do (obligations) and certain things we must not do (prohibitions)
  - **Principles:** truths that are to be consistently maintained unless there is a compelling reason to do otherwise
  - **Ideals:** goals that are inherently good to achieve (but failure is not necessarily wrong – the ideal may be impossible)

Codes of Conduct / Ethical Standards

- Computing societies in most technologically advanced countries have adopted ethical codes. We consider two…

1. The British Computer Society (BCS):
   - ***Code of Conduct***: http://www.bcs.org/category/6030
   - Most widely followed code for UK
2. ACM/IEEE (Association for Computing Machinery):
   - *ACM/IEEE* ***Software Engineering Code of Ethics and Professional Practice***: www.acm.org/about/se-code
   - *ACM Code of Ethics & Professional Conduct: http://www.acm.org/about-acm/acm-code-of-ethics-and-professional-conduct*
   - Best-known codes in the USA

Rules (BCS Code of Ethics)

- **Obligations:** *You shall…*
  - have due regard for public health, privacy, security and wellbeing of others and the environment (1a)
  - conduct your professional activities without discrimination on the grounds of sex, sexual orientation, marital status, nationality, colour, race, ethnic origin, religion, age or disability, or of any other condition or requirement (1c)
- **Prohibitions:** *You shall **NOT**…*
  - claim any level of competence that you do not possess (2b)
  - disclose or authorise to be disclosed, or use for personal gain or to benefit a third party, confidential information except with the permission of your Relevant Authority, or as required by Legislation (3d)

http://www.acm.org/about/se-code#short

Principles: (ACM/IEEE SE Code of Ethics and Professional Practice)

1. **PUBLIC** - Software engineers shall act consistently with the public interest
2. **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
3. **PRODUCT** - Software engineers shall ensure that their products and related modifications meet the highest professional standards possible
4. **JUDGMENT** - Software engineers shall maintain integrity and independence in their professional judgment
5. **MANAGEMENT** - Software engineering managers and leaders shall subscribe to and promote an ethical approach to the management of software development and maintenance
6. **PROFESSION** - Software engineers shall advance the integrity and reputation of the profession consistent with the public interest
7. **COLLEAGUES** - Software engineers shall be fair to and supportive of their colleagues
8. **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

Ideals

- A standard for computer professionals included in a code adopted by three Swedish trade unions…
  - "Computer professionals develop systems that use technology in such a way as to satisfy the interests of the user"
- It's good for computer professionals to develop systems that satisfy users, but sometimes it is impossible.
- Nevertheless, it is good to strive to reach this ideal.

Becoming a professional

- Computing has *no single event* giving entry into profession
  - Unlike physicians taking the Hippocratic Oath, or lawyers passing the bar exam
- "Professional" obligations commonly come as codes of conduct dictated by an employer
- Presently, no explicit credential that one can have to establish as a computer professional
  - education, experience, examination *not required*

Should software engineers be licensed the way that lawyers or accountants are?

DISCUSS

Professionalism & the law

- There are no means of enforcing codes of conduct
- Some professions require a government license (accountancy, law, civil engineering)
  - Most computing professionals are currently *not* licensed
  - A "trial" of Software Engineer licenses in Texas (1990s)
  - ACM - > licenses counter-productive as software engineering is too immature to be defined with precision (a license would therefore give the public false security)
- Today's computer professionals are not required to be qualified under: education, experience, or examination
  - But employers/governments can enforce own standards
- But, computing professionals & their employers are still subject to lawsuits from customers harmed as result of faulty software

Summary

- Definitions of professional:
  - Good Works Project is least restrictive (high degree of autonomy, high level of public service)
  - Kultgen's definition includes most attributes
  - Davis requires a profession's members serve a particular moral ideal, in a morally permissible way, beyond what the law, the market, and morality would otherwise require.
- Most advanced countries have codes of ethics:
  1. BCS *Code of Ethics*
  2. ACM/IEEE *Software Engineering Code of Ethics and Practice*
- Computer professionals are not licensed by law, except for Software Engineers in Texas, USA.
  - The ACM explicitly opposes licensing of software engineers

For workshop …

- Before workshop, read the following:
  - BCS *Code of Ethics*; and
  - ACM/IEEE *Software Engineering Code of Ethics and Professional Practice*
  - Both available on Moodle

The Ten Commandments of computer ethics (created in 1992 by the Computer Ethics Institute, more details available on Wikipedia)

1. Thou shalt not use a computer to harm other people
2. Thou shalt not interfere with other people's computer work
3. Thou shalt not snoop around in other people's computer files
4. Thou shalt not use a computer to steal
5. Thou shalt not use a computer to bear false witness
6. Thou shalt not copy or use proprietary software for which you have not paid (without permission)
7. Thou shalt not use other people's computer resources without authorization or proper compensation
8. Thou shalt not appropriate other people's intellectual output
9. Thou shalt think about the social consequences of the program you are writing or the system you are designing
10. Thou shalt always use a computer in ways that ensure consideration and respect for your fellow humans

What do you think about these "commandments"? Do you have any issues about them, or they look fine to you? How does this differ from the BCS Code of Conduct? What moral theories apply here (either set of rules)?

Additional Reading

- Chapter 1 of the book Ethics for the Information Age (Quinn, 2013)
- Chapter 1 of the book Ethics in a Computing Culture (Brinkman and Sanders, 2013)
- Thomas Wadlow. Who Must You Trust. ACM Queue, Vol. 12, No. 5, March 2014.
- Arvind Narayanan and Shannon Vallor. Computing Ethics, Why Software Engineering Courses Should Include Ethics Coverage. Communications of the ACM, Vol. 57, No. 3, March 2014.
- Chapter 3 of the book Ethics and Computing (Bowyer, 2001)