Slides #14

Legal and Ethics

CMPT 276

Topics

1) What is open source?
2) Keeping secrets
3) Are there any ethical issues as a developer?
4) How gender-diverse is software development?

Open source development

Open source development

- Open source development is:
  software development where the source code of a system is published and volunteers are invited to participate in its development.
- Open source systems
  - Linux operating system:
    - Used in servers, developers, mobile phones, etc
  - Android, Apache web server, mySQL (database), LibreOffice.

Open source issues

- Open Source Issues: **(gcc compiler - open source)**
  - Should our product use open source components?
  - Should our product be developed as open source?
- More companies are using open source development.
  - Business model is not reliant on selling software but on...

    selling support for that product
- Possible advantages of open source:
  - developed cheaper and faster,
  - creates a community of users for the software.

Open source licensing

- Open-source =.. **source code freely available**
  - Does not mean that anyone can do as they wish with that code.
- Developer (company or individual) still owns the code and can... **give it a legally binding license**
- Carefully consider the license of

  all components being used in a system
  - Ex: File-system, network "stacks", audio decoders, etc.

License models

- GNU General Public License (GPL) **(gcc under GPL)**
  "Reciprocal" license, "copyleft", "Viral open source"
  - If your program includes any GPL code, then..

  you must license your software under GPL
- GNU Lesser General Public License (LGPL)
  - If you statically-link to LGPL code, it too must be LGPL
  - If you dynamically link to the code (like a DLL), it need not be LGPL (could have any licence).
- Berkley Standard Distribution (BSD) License
  - Non-reciprocal license...
  - Code may be included in proprietary systems that are sold for profit (closed-source).

Simplified BSD License

GPL License File

<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

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GPLv3 License Details

- It’s copy-left or “viral” open source. Ex:

  Section 5. Conveying Modified Source Versions
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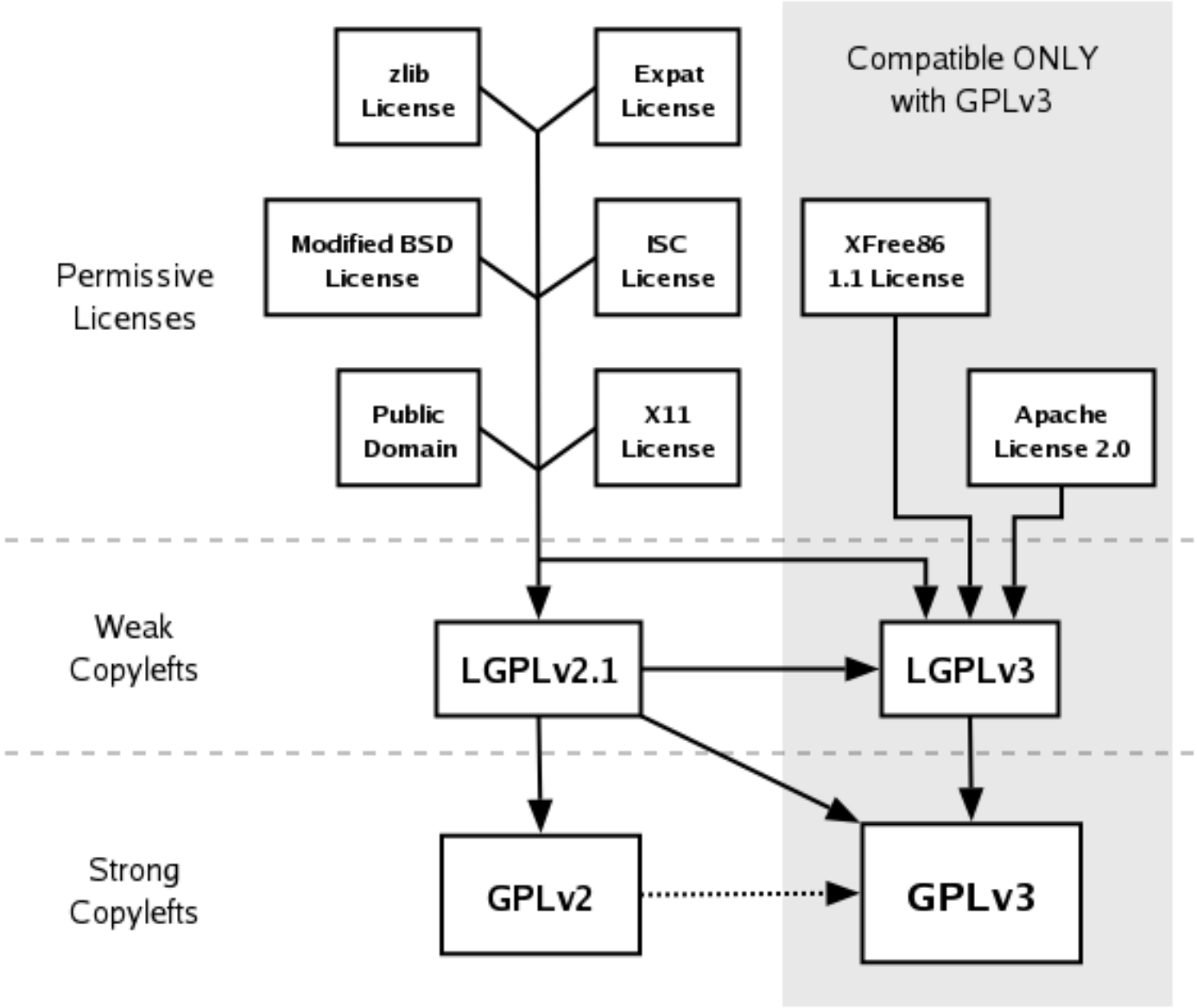


Legal:
NDA & Non-Compete

NDA

- To do business or be employed, confidential information is exchanged.
- NDA
  - .. **non-disclosure agreement (think of job orientation papers)**
  - It is an agreement that confidential information and ideas are of value and must not be shared with others.
- Non-compete
  - A document where one agrees not to compete with the company for a period of time.

NDA Activity

- What are you worth?
  - In 2 years, as a Software Developer, I’d like to earn:
    $ _____ per year

NDA Activity

- Job Offer!
  - You are offered a job at Evil Empire Inc paying twice what you asked for!
  - On the first day of your job, they ask you to sign the NDA found on the following pages.
- Read the legal document carefully.
  - Would you sign it?
  - What issues do you find with this document?

you will be a slave to the company.

See the NDA linked with the notes.

Ethics

Software engineering ethics

- Software developer's responsibility:
  - **competent with technical skills**
  - **honest and ethical (e.g overstate credentials)**
- Ethical:
  - more than upholding the law:
    must follow
    morally correct principles.

Issues of Professional Responsibility

- Confidentiality
  - Abide by NDA (Non-disclosure agreement)
  - Respect employer confidentiality w/ or w/o NDA.
- Competence
  - Accurately represent one's level of competence:..

    Don't accept work beyond competence
- Intellectual Property (IP) rights
  - Understand and protect IP: patents, copyright, etc.
- Computer misuse
  - Don't misuse technical skills or other's computers (playing games at work, spreading viruses).

ACM/IEEE Code of Ethics

- Professional societies have.. **code of ethical practice**
  - Members agree to the code of practice when they join.
- Software engineers have significant opportunities:
  - to.. **do good or cause harm**
  - to enable others to do good or cause harm,
  - to influence others to do good or cause harm.

ACM Code of Ethics:

"To ensure, as much as possible, that their efforts will be used for good, software engineers must commit themselves to making software engineering a beneficial and respected profession."

The ACM/IEEE Code of Ethics

Software engineers shall:

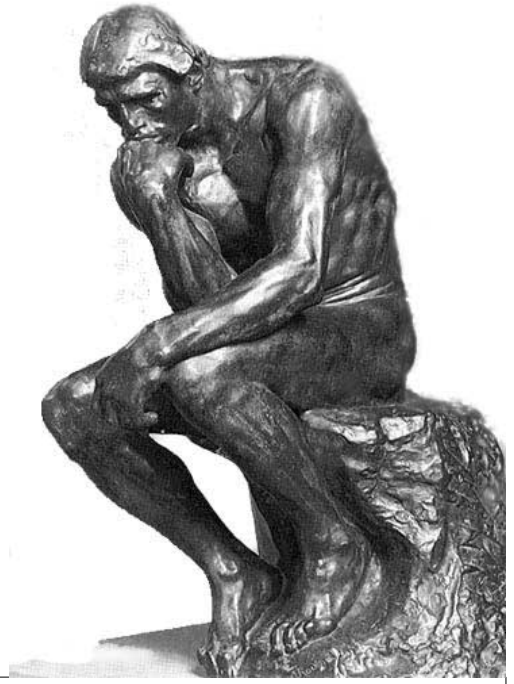
1. PUBLIC: ...act consistently with the public interest.
2. CLIENT AND EMPLOYER: ...act in a manner that is in the best interests of their client and employer consistent with the public interest.
3. PRODUCT: ...ensure that their products and related modifications meet the highest professional standards possible.
4. JUDGMENT: ...maintain integrity and independence in their professional judgment.
5. MANAGEMENT: ...subscribe to and promote an ethical approach to the management of software development and maintenance.
6. PROFESSION: ...advance the integrity and reputation of the profession consistent with the public interest.
7. COLLEAGUES: ...be fair to and supportive of their colleagues.
8. SELF: ...participate in lifelong learning regarding the practice of their profession and shall promote an ethical approach to the practice of the profession.

Possible ethical dilemmas

- Software developers may face ethical dilemmas:
  - **Disagreement in principle**
    with the policies of senior management.
  - Pressure to releases a safety-critical system
    .. **without completing proper testing**
  - Participation in the development of
    military weapons systems
    or nuclear systems.

hacking

walking schoolbus



"A principle isn't a principle
until it costs you something."
- William Bernbach

Examples of Ethical Issues

- Project Maven
  - In 2018 Google was working with the US DoD to apply its artificial intelligence to drone footage.

    Google's AI would be used to identify and label activities in videos in a non-offensive capacity.

    However, this AI could give the military information to conduct offensive "pattern of life" strikes.
  - Google employees wrote a letter to the company in opposition to the project.
  - The backlash lead Google to not renew the contract and develop a policy on how to apply AI.

Google’s Principles on AI

“AI Applications We Will Not Pursue

- Technologies that cause or are likely to cause overall harm...
- Weapons or other technologies whose principal purpose or implementation is to cause or directly facilitate injury to people.
- Technologies that gather or use information for surveillance violating internationally accepted norms.
- Technologies whose purpose contravenes widely accepted principles of international law and human rights.”

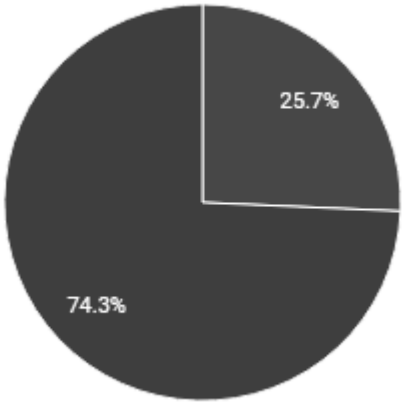
Examples of Ethical Issues

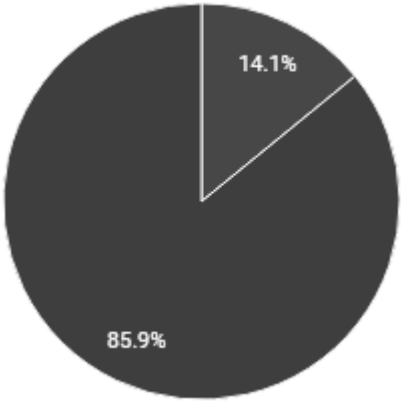
- Amazon's Rekognition
  - Amazon selling to police real-time facial recognition software, powered by Amazon Web Services.
  - Oregon police have an app to cross-reference faces with criminal records via a mug-shot database.
    - They discussed integrating it with body cameras.
  - Civil liberties groups concerned this becomes a tool for authoritarian surveillance.
    - Concern: once deployed, it cannot be un-done.
  - Amazon defends: project had found lost children and could greatly help fight crime.

18-7-18

Diversity Problem

- Computing Science has a diversity problem
  - <20% CS Majors are Female (US)
  - Stack overflow 2015 survey:
    92% respondents male
  - Views by gender % on my YouTube videos (- 2017)
    Android ImageButton Linux fork()



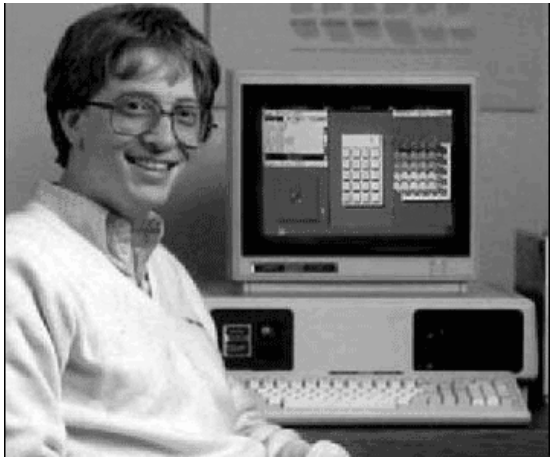


Unconscious Bias

- Identical job applications evaluated differently based on male vs female names.
- Assertiveness in men seen as.. **strong leadership**
  Assertiveness in women seen as.. **bossy**
- Women asking for higher pay seen as less nice and more difficult to work with; men not perceived negatively.
  - SFU removing some flexibility in salaries to reduce gender differences
- Perceiving oneself as unbiased..

  correlates with showing more bias

Culture Problem



1 person is not a programmer. Who?

Culture Problem

- CS stereotype: hackers coding all night
- 1960's Vocational interest scale for programmers:
  - Identified a.. **"disinterest in people"**
  - Created self-fulfilling prophecy
- Companies are working to get beyond this:

https://martinfowler.com/articles/born-for-it.html

Micro Aggression

- Micro Aggression:..

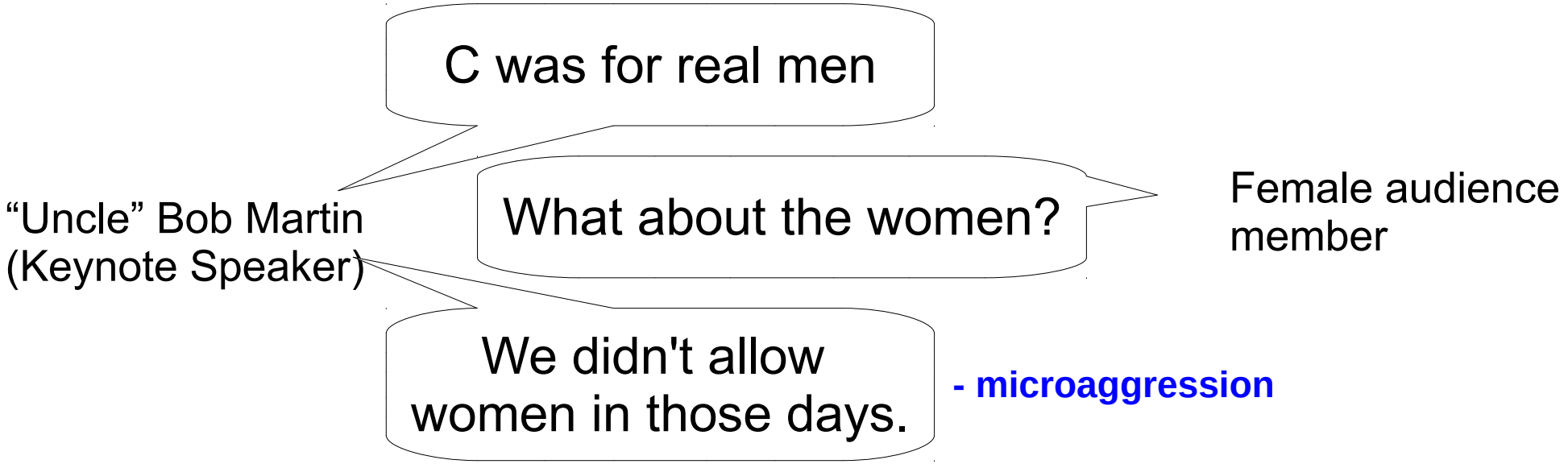
  a casual degradation of a marginalized group

  - Ex:
    “Wow, you are good at programming for a woman!”
    “Girls don’t play WoW.” (9330 google hits)
  - “Boys don’t play WoW” (3 google hits)

- It Adds Up
  - Single one not monumental;
    many each day over the years add up!
  - Often done below level of consciousness

Actual Example

- At ACCU 2012 conference keynote address
  from his apology posted to GitHub: https://gist.github.com/unclebob/2508746



- Comment Section Response
  "Dear Uncle Bob, you should not apologize. It is time to stop this non-existent anti sexism thing and start caring about real problems."

“Google’s Ideological Echo Chamber”

- Google employee wrote 10 page anti-diversity memo
  - He attributed the gender pay gap and under-representation of women to biological differences.
- Memo criticized for:
  - Inaccurate use of study results (debated)
  - Categorizing all women in one way
- Author was fired
  - US National Labor Relations Board found firing legal: “statements regarding biological differences between the sexes were so harmful, discriminatory, and disruptive as to be unprotected [by free speech...]”

In class Examples

- Here are some examples of offensive behaivour I have noticed in course projects over the years:
  - Team members using offensive language (profanity)
  - Using sexual test data in their application
  - Belittling or overriding a female teammates opinions
  - Abrasive/argumentative approach to discussing team decisions
- This type of behaviour is not acceptable in a university or work place.
  - It gets people fired, and makes other people quit.

What you can do!

- When you notice offensive behaviour:
  - .. **Try not to do nothing**
    People who are offensive can think everyone else agrees with them but are too chicken to say what they really think.
  - Raise the issue to encourage retrospection..

    What do you mean by that?
  - If it was a joke, ‘turn the tables’ with a comeback:
    - “Better people than you have been fired for less offensive jokes”
    - “If that was supposed to be a joke, shouldn’t it have been funny?”

Call to Action

- .. **Untrained manager are more biased**
  - An issue when devs are promoted to leaders without training.
- Formalize hiring and promotion criteria
  - Remove "gut feeling" to reduce bias.
- Don't rely on self-nomination or self-evaluation
  - Men more likely to over-rate themselves
- Pay attention to biases
  - Notice your own, and those of others around you
  - Call out your friends, team mates, and instructors!

Summary

- Open source development allows others to see and change the code
  - Can add complex licensing issues.
- NDAs are common-place, but read carefully!
- With great power, comes great responsibility.
- Gender diversity will only get better with all our conscious attention.