CMPT 276 Class 14: Legal and Ethical Issues

Dr. Jack Thomas

Simon Fraser University

Fall 2020

Today's Topics

1. What is **open source**? What are **licenses**?
2. **NDAs** and confidentiality.
3. Codes, standards, official organizations.

Open Source Development

- Software development where the **source code of a system is published** and volunteers are invited to participate in its development.

- Open source systems:
  - The **Linux** operating system. Used in servers, by developers, for mobile phones, etc
  - Android, Apache web server, mySQL (database), LibreOffice.

Open Source Issues

- Open Source **Issues**:
  - 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 is 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**)
  - "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 need not publish changes.
  - Code may be included in proprietary systems that are sold for profit (closed-source).
  - Very similar to the now more popular MIT license.

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>

This program is free software: you can redistribute it and/or modify
it under the terms of the GNU General Public License as published by
the Free Software Foundation, either version 3 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General
Public License for more details.

You should have received a copy of the GNU General Public License
along with this program. If not, see <https://www.gnu.org/licenses/>.

GPLv3 License Details

- It's copy-left or "viral" open source. Ex:

Section 5. Conveying Modified Source Versions

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it

Copyleft Licenses
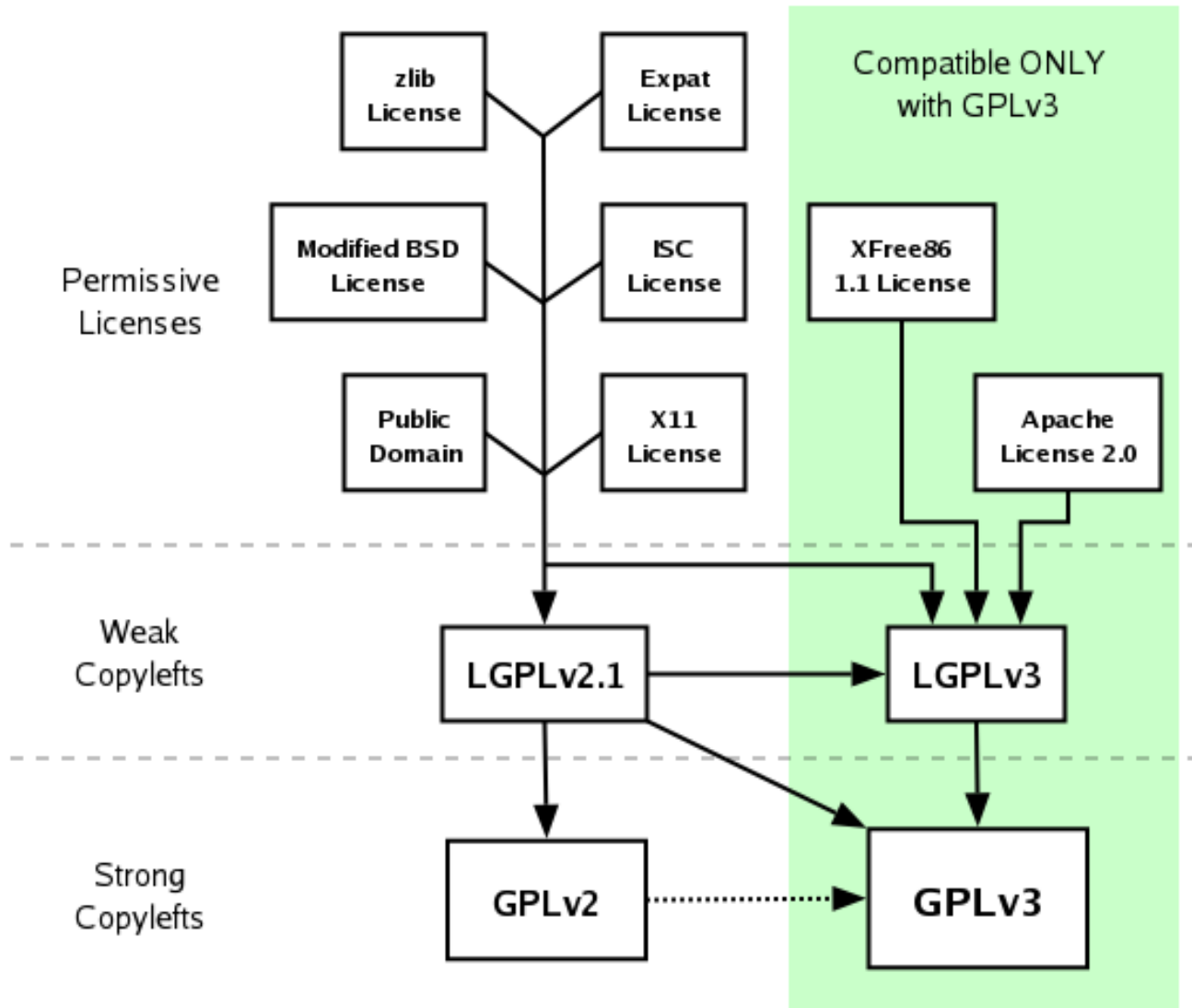
NDA

- To do business or be employed, **confidential information** is exchanged.
- NDA: **Non-Disclosure Agreement**
  - 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.

Breaking NDAs

- NDAs are not the law, but they can be legally enforceable.

- Not meant to cover illegal activity, but shifts the onus onto you to prove the action was illegal if you blow the whistle.

- If you're up against the government or a wealthy corporation, can be difficult, or even dangerous (see: Snowden, Edward).

NDA Class 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 an NDA.
- Let's read that NDA together!

Software Engineering Professional Ethics

- Software developer's "professional" responsibilities:

    1. **Competency** with technical skills.

    2. **Honest and ethical** in their dealings.

- **Professional Ethics**: More than upholding the law, must meet the standards of conduct expected by the software engineering community.

    – Found in many professions, like the bar exam for lawyers, or the Hippocratic Oath for doctors.

The Square Software Engineer's Conception 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 your 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).

The Association for Computing Machinery (ACM) and the Institute of Electrical and Electronic Engineers (IEEE)

- Professional **societies** have a **code** of ethical practice.
  - Members agree to the code of practice to 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.

The Limitations of Professional Organizations

- Internal policing, social standards, and norms are **weak guardrails against abuse**.

- **Institutions will not and cannot save you.**

- The fate of the **Craftsmen's Guilds**.

- "Professional Ethics" is **not morality**.

Canonical Ethical Dilemmas

- There are a certain set of "ethical dilemmas" commonly discussed in software engineering:

  - 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, nuclear systems, surveillance systems, or other controversial projects.

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

Classical Ethical Example: 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" for 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."

The New York Times

S

Amazon Pauses Police Use of Its Facial Recognition Software

The company said it hoped the moratorium "might give Congress enough time to put in place appropriate rules" for the technology.

Credit: https://www.nytimes.com/2020/06/10/technology/amazon-facial-recognition-backlash.html

Tech companies are still helping police scan your face

By Julia Horowitz, CNN Business

As Black Lives Matter protests swept across the United States, IBM, Amazon and Microsoft took a stand: They halted sales of facial recognition technology to American police departments, and called on the government to regulate the powerful emerging technology.

While their announcements made headlines, these tech giants aren't the top suppliers of facial recognition software used by law enforcement, meaning police departments will still be able to buy from plenty of vendors. Clearview AI, Japan's NEC and Ayonix, Germany's Cognitec and Australia's iOmniscient have all said they intend to maintain their relationships with US police forces.

Credit: https://www.cnn.com/2020/07/03/tech/facial-recognition-police/index.html

Corporate Conscience

- **Companies don't have principles** – they can't, they're abstractions.

- Public Relations is just another term for marketing, and these decisions are driven first and foremost by market research determining what stance will generate the most profit.

- But every company is made up of people, both employees and owners, and those people *do* have moral culpability for their actions… right?

Recap: Let The Record Show

- "Open Source" is an umbrella term for **all software where the code itself is freely available**.
  - **Different licenses** create **different conditions** on the use of that code.
- **Confidentiality** in employment is often governed by **NDAs**, which must be read carefully.
- **Professional societies** like the **ACM** and the **IEEE** provide **codes of ethical conduct** for software engineers.
- **Professional ethics** in software engineering normally focuses on **individual, abstract questions**, like whether or not to work on a particular project.
  - Systemic issues, social consequences, and the lived reality of being a software engineer are often overlooked.