Topics

1) What is open source?
2) Keeping secrets
3) Are there any ethical issues as a developer?
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:
  – 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...

• Possible advantages of open source:
  – developed cheaper and faster,
  – creates a community of users for the software.
Open source licensing

• Open-source =..
  – Does not mean that anyone can do as they wish with that code.

• Developer (company or individual) still owns the code and can...

• Carefully consider the license of
  – 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..

• 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

Copyright (c) <year>, <copyright holder>
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The views and conclusions contained in the software and documentation are those of the authors and should not be interpreted as representing official policies, either expressed or implied, of the FreeBSD Project.
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 Licences

Permissive Licenses:
- zlib License
- Expat License
- Modified BSD License
- ISC License
- Public Domain
- X11 License

Compatible ONLY with GPLv3:
- XFree86 1.1 License
- Apache License 2.0

Weak Copyleft:
- LGPLv2.1

Strong Copyleft:
- GPLv2
- GPLv3

20-3-27
Legal:
NDA & Non-Compete
NDA

• To do business or be employed, confidential information is exchanged.

• NDA
  – 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?

See the NDA linked with the notes.
Ethics
Software engineering ethics

- Software developer's responsibility:
  - 
  - 

- 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:..

• 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..
  – Members agree to the code of practice when they join.

• Software engineers have significant opportunities:
  – to..
  – 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.

1) Realistic example which violates principle; 2) The possible consequences.
Possible ethical dilemmas

- Software developers may face ethical dilemmas:
  - with the policies of senior management.
  - Pressure to release a safety-critical system.
  - Participation in the development of military weapons systems or nuclear systems.

"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.

https://www.icrac.net/open-letter-in-support-of-google-employees-and-tech-workers/
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.
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.