

CSE 303: Concepts and Tools for Software Development

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Lecture 15— Societal Implications: Software Quality, Licensing, Defect
Disclosure, ...

The Big Questions

Is software any good? Could society make it better?

Who should be allowed to write software? Is “real” software different?

What responsibility do software writers, users, and sellers have?

Should you be able to restrict software's use? How?

When a critical defect is discovered, who bears responsibility for revealing or fixing it?

Quality Issues

“Kinds” of software??

- Mission-critical: nuclear-missile, hospital equipment, air-traffic control, ...
- Business-critical: Online retailer, stock market, your database, ...
- Computer-critical: operating system, browser, ...
- Get what you pay for: freeware, CSE homework, ...

How do we know what is what?

Bug Issues

- How often is it triggered?
- Can an adversary make it trigger?
- What damage does it do?
- What is a complex piece of software *supposed* to do?

Contrast with cars, buildings, etc.?

Who is to blame?

- *A* writes some C code that has an array-bounds error in it that can be triggered if a function is called with certain arguments.
- *B* uses *A*'s code to develop an application such as a web browser.
- *C* uses the web browser *B* develops.
- *D* sets up a website that *C* visits. The contents of the website trigger the array-bounds error.
- As a result of the error, *C*'s computer connects to *E*'s computer and deletes all the files there.
- *F* knew about the error but didn't tell anybody, in fact had nothing to do with writing the code.

Programmers

Would software be better if “public” code required licensed humans?

Who would do the licensing?

What would you test?

Who would you blame?

Would you still allow “as is” code?

Would anyone use software that cost more?

Software Licenses

What can a software provider require a user to do/not-do/allow?

What about software-library writers?

Is open-source software more secure? Less secure? A lost-in-the-noise feature?

Business Concerns

If you're a business, how high-quality do you want your software?

Worth delaying the product?

Worth slowing down the product?

Worth having fewer features?

Worth charging more?

How do you feel as a customer? Can you determine quality?

When Something Goes Wrong

If a security-flaw is discovered:

- Should we have laws forbidding publicity?
- Should we have laws mandating publicity?
- Should we require patching? Penalties for violation?
- Is actively finding flaws good/bad/depends-what-you-do-with-it?
- Viruses that fix viruses?

Relevant issues: obscurity vs. security, malice vs. negligence, ...

The Plan

Choose 1 of 5 groups (bug pragmatics, people-licensing, software-licensing, business-customer perspective, revealing/fixing security bugs).

Choose 1 or 2 *theses*.

Choose 3-4 arguments for *each side*.

Report on the group's conclusion from weighing the arguments.

Participate!