

Week 14 - Monday

COMP 4290

Last time

- What did we talk about last time?
- Legal issues
 - Copyright
 - Patents
 - Trade secrets

Questions?

Project 3

Assignment 5

Security tidbit

- What if you pay for something for your job (like food or a hotel) and want to get reimbursed?
 - You submit a receipt
- In computerized environments, you will often submit scans of receipts rather than physical receipts
- What if you want to cheat?
 - You need an image that looks like a receipt but has been faked
 - Once upon a time, that took a little bit of creativity and some Photoshop skills
 - Or paying someone with those skills

Security tidbit continued

- As usual, the recent area of threat growth is AI
- AI can generate believable images of receipts with wrinkles in the paper, signatures, and other details
- AppZen, a finance automation company, reported that 14% of fraudulent documents in September were from AI
 - Compared to 0% last year
- AI image generation does put watermarks in the metadata
 - But these can be removed
- Better analysis requires making sure that all the information matches the employee's trip's timeline and doesn't have weird repetition
- Follow the story:
 - <https://arstechnica.com/ai/2025/10/ai-generated-receipts-make-submitting-fake-expenses-easier/>

Summary of copyrights, patents, and trade secrets

	Copyright	Patent	Trade Secret
Protects	Expression of idea, not idea itself	Invention, the way something works	A secret, a competitive advantage
Protected object made public	Yes, all about promoting publication	Filed at patent office	No
Requirement to distribute	Yes	No	No
Ease of filing	Easy, do it yourself	Complicated, usually needs lawyers	No filing
Duration	Life of author + 70 years, 95 years for corporations	19 years	As long as you can keep it secret
Legal protection	Sue if unauthorized copy sold	Sue if invention copied	Sue if secret improperly obtained

Happy Birthday

- The book incorrectly claims that the song "Happy Birthday to You" is so widely known that it would be hard to claim a copyright
- In fact, the song has a long history of copyright with ownership transferred to Time-Warner in 1998
 - Time-Warner collected over \$2 million in royalties for performances of the song in 2008
- Outback, Olive Garden, and other large chains always used to sing some bizarre customized birthday song instead of paying royalties
- Lawsuits in 2016 finally demonstrated that Warner has no right to the song and that it is in the public domain

Hardware and software

- Hardware designs can, in general, be patented
- Firmware is tough
 - The hardware it is stored on can be patented
 - The code itself is hard to copyright
 - Trade secrets are probably the right choice
- Object (machine) code
 - Uncertain! Companies file copyrights, but there is no guarantee they will apply
- Source code
 - You can file a copyright
 - You have to publicize the first and last 25 pages of source code (but those can contain nothing useful)
 - Trade secrets are typical

Documentation, web content, domain names

- The documentation of a program must be copyrighted separately from the source code
- Web content is perhaps the easiest to link to traditional copyrights
 - It's mostly text and pictures
 - Much of the code online is visible, so trade secrets don't work
- Domain names, URLs, company names, product names, and commercial symbols are protected by a **trademark**

URL example

- This is from 2000, a relatively old story
- Hacker magazine 2600 went to register the domain name **verizonsucks.com**
- They discovered that Verizon had already registered it
- They registered **verizonreallysucks.com**
- Verizon sued them under a new law but lost because 2600 was not trying to profit from the domain
- In response, someone registered the longest domain name supported by the system at that time:
VerizonShouldSpendMoreTimeFixingItsNetworkAndLessMoneyOnLawyers.com
- Read more:
 - <http://www.wired.com/techbiz/media/news/2000/05/36210>

Information and the Law

Information as an object

- Traditionally, actual things like cannon balls, horses, and eggplants were sold
- Service industries such as hair stylist or accountant have existed for a long time as well
- Information can also be sold, but it has different properties

Ways information is different

- Information is not depletable
- Information can be replicated (often exactly)
- Information has a small **marginal cost**
 - Marginal cost is the price to make another thing after you've made the first one
 - It's very low for computer-based information
 - Reprinting a newspaper by hand is hard, but distributing software is not
- The value of information is often time dependent
- Information can be transferred intangibly

Information legal issues

- Information has some value, but it's hard to pin down
- There are technological approaches to dealing with piracy, but we need better legal remedies
- Electronic publishing
 - How do you protect content that you have published online only for subscribers?
 - They can copy the material and distribute it
- Data in a database
 - Courts can't figure out what is and isn't protected in a database
 - Can some specific subset be protected?
 - Databases often contain a great deal of public data
- Electronic commerce
 - How do you prove that a digital sale of electronic items actually occurred?
 - What if Steam took your money and didn't give you a game?
 - There are essentially no legal ways to redress a situation where you pay real money for equipment in World of Warcraft or Diablo IV and don't get it

Protecting information

- **Statutes** are laws that say that certain actions are illegal
- Violating a statute can result in a criminal trial
 - The goal is to punish the criminal
- A **tort** is harm that does not come from violating a statute but still runs counter to precedents
 - Perpetrators can be sued, usually for money
- **Contract** law is another form of civil law
 - It involves an offer, an acceptance, and a consideration
 - Contracts do not have to be written

Criminal vs. civil law

	Criminal Law	Civil Law
Defined by	Statutes	Contracts Common law
Cases brought by	Government	Government Individuals and companies
Wronged party	Society	Individuals and companies
Remedy	Jail or fine	Damages, usually money

Employee and Employer Rights

Who owns what?

- If you are paid to develop software, the company owns the software
- If you write code in your free time, it's possible that your job can still claim a piece of it (especially if you used any of their hardware or software)
- If you are a consultant who writes a program for a client and then further develop it yourself, it's complicated

Patents and copyrights

- The inventor is the entity that owns the patent
 - Who is the inventor?
 - It matters whether your employer files the patent or if you do
- In general, when you create something, you hold the copyright
- The exception is a **work for hire** situation which exists when some or all of the following apply:
 - The employer has a supervisory relationship
 - The employer has the right to fire you
 - The employer arranges for the work to be done before it is created
 - A written contract states that the employer has hired you to do certain work

Licenses and contracts

- Your agreement with your employer can spell out a **licensed software** arrangement
- In these situations, you own the software you develop, but your employer pays for a license to use it
- Employment contracts often cover who owns what and whether the situation is work for hire or licensed software
- Some contracts have non-compete clauses, which prevent you for working in the same field for some period of time after you quit

Software Failures

Software failures

- What are the legal issues for selling correct and usable software?
- What are the moral and ethical issues in producing correct and usable software?
- What are the moral and ethical issues in reporting and fixing software flaws?
- Software complaints can come in three kinds:
 - The media was bad (easy fix)
 - The software worked the way it was supposed to, but I don't like it
 - The software didn't work on my system

Refunds

- Unlike many consumer goods, you can't check out the software at the store
- Legally, you have the right to a refund if you feel that the company did not meet the contract of purchase
 - In theory, you can claim the company did not meet the contract if their software just isn't very good
- Companies do not like to give refunds because you could keep the software installed on your computer

Demands for better quality

- It is hard to legally force a company to make better software (or even demand a patch to fix specific problems) for a number of reasons:
 - Popular software usually works reasonably well for most people
 - Otherwise, it wouldn't be popular
 - Large software developers have more money to spend on lawyers than you do
 - In cases when the courts rule against software developers, the awards are money, not better software
 - Developers have small incentives to fix small problems

Reporting flaws

- Researchers and users should report flaws to companies so that they can be fixed, but there is disagreement about how public the reporting is
- Developers want the vulnerabilities secret as long as possible so that a small number of patches can fix many vulnerabilities
- Users want more pressure on developers to fix problems quickly
- Researchers have suggested guidelines to reach a compromise between these two groups

Upcoming

Next time...

- Computer crime
- Ethics in computer security
- Nfaly Toure presents

Reminders

- Work on Project 3
 - Try to attack the other projects
- Work on Assignment 5
 - Due next Monday
- Read sections 11.6