Legal Issues and Responsibilities …

Topics we’ll look at:

1. Liability/protections (part 1)
2. Intellectual property (part 2)
   a. Copyright law (last time)
   b. Patent law (today)
What is a patent?

Ability to legally claim rights to an “invention” or “discovery”

- Give patent owner a legal monopoly

  ... the right to exclude others from making, using, offering for sale, or selling the invention or discovery in the United States or “importing” the invention or discovery into the United States

For example ...

If you invent something that has been patented, you cannot make, use, or sell the invention without consent of patent owner (typically by paying royalties/licensing fees)
US Patents

... the right to exclude others from making, using, offering for sale, or selling the invention or discovery in the United States or “importing” the invention or discovery into the United States

The purpose of allowing patents …

To encourage innovation (by protecting them)

US Patents

What is a patent?

Ability to legally claim rights to an “invention” or “discovery”

- Granted through US Patent & Trademark Office (USPTO)
- Typically last 20 years from filing date
- Patent disputes handled in courts, not by USPTO
- Effective within the US (other countries have similar)

⇒ Important: USPTO grants patents, but courts determine whether patents are valid (via lawsuits)!
US Patents

What can be patented?

There are 3 types of patents:

1. **Utility patents**: process, machine, article of manufacture, or composition of matter, or an improvement thereof

2. **Design patents**: design for a functional (utilitarian) item. The ornamental appearance, not structure or features. Copyrights are for non-utilitarian items. Only last 14 years.

- Examples: Coke Bottle, iPhone, Statue of Liberty, fonts

⇒ Utilitarian implies useful or practical
US Patents

What can be patented?

There are 3 types of patents:

3. **Plant patents**: plants as in crops, bushes, trees, etc

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US Patents

What can be patented?

Patent eligibility constraints

- Invention/discovery must be **new** (novel, original)
- Invention/discovery must be **useful** (defined purpose)
What can be patented?

Patent eligibility constraints: new & useful

1. the patent is not on the abstract idea, but on the new machine, manufacture, process, etc.

⇒ An abstract idea is not patentable …

⇒ Neither are laws of nature or mathematical formulas

2. a complete description of the machine or subject matter is required (typically through a set of “claims”)
US Patents

**What can be patented?**

Patent eligibility constraints: *new & useful*

3. Not considered new if already claimed or made available to the public before filing (publication, presentation, sale, etc.)

US Patents

**What can be patented?**

Patent eligibility constraints: *new & useful*

4. New also means *non-obvious*

⇒ Often contentious for software patents (and others)
Software Patents

How do patents apply to software?

Can file for both utility and design patents

- Utility patents much more common (and easier to uphold)
- Google, e.g., patented the design of their webpage

Software Patents

Exercise:

With a partner consider utility patents for software / CS ...

Utility patents: process, machine, article of manufacture, or composition of matter, or an improvement thereof

- How would this apply to software / CS?
- What types of claims might be made?
- How would new/novel & useful be judged?
Software Patents

The state of software patents today ...

Hard to distinguish patentable vs non-patentable

- Non-obvious criteria has been loosely interpreted
- Abstract idea vs process/machine loosely interpreted (*)
- Issues in encouraging innovation (e.g., “patent trolls”)
- USPTO overwhelmed with number of software patents

(*) This has changed recently in courts

Software Patents

The state of software patents today ...

- Non-obvious criteria has been loosely interpreted

Has led many notoriously bad patents!

See, e.g., https://www.eff.org/issues/stupid-patent-month
Software Patents

The state of software patents today ...

Patents are often used as “offensive & defensive weapons” ...

- Google, Apple, Microsoft paid billions of dollars for patents related to smartphones (100,000’s of patents)
- Purchased to defensively counter-sue companies that sue them for patent infringement
- As well as to offensively suppress or limit competition

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Software Patents

The state of software patents today ...

*Alice Corp vs. CLS Bank International (2014)*

Alice Corp owned four patents on methods and programs for managing risk in financial trading systems between 2 parties

- Alice Corp filed suit against CLS Bank for infringement
- CLS Bank filed suit against Alice Corp seeking judgement on whether the patent claims were valid/invalid
Software Patents

The state of software patents today ...

Alice Corp vs. CLS Bank International (2014)

● The case was resolved in the Supreme Court
● The main issue:
  ○ Was the patent really just for an abstract idea … that can be (happens to be) implemented in a program
  ○ Or a practical & innovative implementation of an idea

Software Patents

The state of software patents today ...

Alice Corp vs. CLS Bank International (2014)

Based on previous cases, the court rule both are needed:

1. An abstract idea (e.g., algorithm, method of computation, general principle, …)
2. And a practical & innovative implementation of an idea (an “innovative concept”)

So, implementation can’t be generic, conventional, or obvious
Software Patents

The state of software patents today …

*Alice Corp vs. CLS Bank International (2014)*

The court invalidated the patents

“merely requiring generic computer implementation fails to transform an abstract idea into a patent-eligible invention.”

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Software Patents

The state of software patents today …

Decline in “business process” software patents since *Alice* …

- > 50% fewer issued (per month) after *Alice*
- ~ 30% jump in rejections due to *Alice*
- More patents invalidated … e.g., ~ 78% of patent challenge cases resulted in invalidated patents