Computer Law in Context

❦ Computer science

❖ By subdiscipline: architecture, theory, AI, programming languages, networks, ...

❖ By application area: web development, games, biomedical computing, scientific visualization, ...

❦ Law

❖ By subdiscipline: contracts, torts, family law, constitutional law, real property, criminal law, intellectual property, ...

❖ By application area: health care law, aviation law, computer law, ...
The Breadth of Computer Law

- Intellectual property
- Contracting for computer systems
- Liability for malfunction
- Privacy of computer-based records
- Computer crime
- Computer-based records as evidence
- Antitrust in the computer industry
- Transborder data flow

- Related issues beyond “substantive computer law”
  - Legal expert systems
  - Applications of computing to law practice
  - Ethics in computing
  - University ownership of faculty (or student) work
# Law and Computing: Different Goals, Different Cultures

<table>
<thead>
<tr>
<th></th>
<th>Computer Industry</th>
<th>Legal System</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Domain</strong></td>
<td>formal, mechanical systems</td>
<td>social systems</td>
</tr>
<tr>
<td><strong>Individual autonomy</strong></td>
<td>absolute (sometimes)</td>
<td>nonexistent</td>
</tr>
<tr>
<td><strong>Time scale</strong></td>
<td>months (or nanoseonds)</td>
<td>decades</td>
</tr>
<tr>
<td><strong>Notions of “elegance”</strong></td>
<td>efficiency, clarity</td>
<td>precedent, “code reuse”</td>
</tr>
<tr>
<td><strong>Ambiguity</strong></td>
<td>eliminate</td>
<td>accommodate</td>
</tr>
<tr>
<td><strong>Characteristic question</strong></td>
<td>Is it legal?</td>
<td>What are the arguments?</td>
</tr>
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Multiple, Coexisting Legal Systems

* Federalism: Distributed control
  * U.S. Constitution defaults to the states

* Legislation vs. Common Law
  * U.S. Congress, 50 state legislatures
  * Federal courts (trial/appeals/Supreme), state courts (trial/appeal/Supreme)

* Appellate court opinions have the force of law (in their jurisdiction)

* Adversary system; “case or controversy”

* Legal “causes of action”

* Technical issues in the mainstream media
Categories of Intellectual Property Law

☞ Patent (Federal law)

☞ Copyright (Federal law)

U.S. Constitution: The Congress shall have power “to promote the progress of science and the useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.” [Art.1, sec.8, cl.8]

☞ Trade Secret (mostly state law)

☞ Trademark (mostly Federal)

Promote “fair play” in business
# Patents vs. Copyrights

<table>
<thead>
<tr>
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<th>Patent</th>
<th>Copyright</th>
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<tbody>
<tr>
<td>Term</td>
<td>20 years (17)</td>
<td>Life + 70 years</td>
</tr>
<tr>
<td>Cost</td>
<td>$10,000 or more</td>
<td>$35</td>
</tr>
<tr>
<td>Time</td>
<td>Months or more</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Protects</td>
<td>Claimed invention</td>
<td>Expressive form</td>
</tr>
<tr>
<td>... against</td>
<td>Later inventors</td>
<td>Copycats</td>
</tr>
<tr>
<td>Applies to</td>
<td>New and useful process, machine,</td>
<td>Any expression</td>
</tr>
<tr>
<td></td>
<td>...</td>
<td></td>
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</table>
Patent Requirements

❖ Statutory subject matter

❖ Any new and useful process, machine, [article of] manufacture, or composition of matter

❖ Not phenomena of nature, scientific principles, abstract ideas, (pure) mathematical formulas

❖ Software?

❖ Novelty

❖ Does not exist in the “prior art”

❖ Non-obviousness

❖ At the time the invention was made

❖ To a person “having ordinary skill in the art”
Patent Problems

- No repository of prior art
- Education of patent examiners
- Time to issue
- “Patent portfolios” and unequal bargaining power
- The effect of patents on later innovation
Copyright Requirements

❖ Automatic once work is tangible

❖ Copyright notice helpful, but not required
  Copyright © 2012 by Peter Programmer. All rights reserved.

❖ Registration optional (but easy, cheap, useful)

❖ Author exclusively may:
  ❖ Reproduce
  ❖ Distribute
  ❖ Create derivative works
  ❖ Perform or display publicly

❖ Infringement is unauthorized use with
  ❖ Substantial similarity
  ❖ Access to copyrighted work
Copyright Does Not Apply To ...

- Independent creation
- Underlying ideas
- Portions in the public domain
- Aspects dictated by external constraints (e.g., standards, compatibility, efficiency, common practice)
- Copying by “implied license”
- “Fair use,” considering
  - Purpose and character of the use (profit? convenience?)
  - Nature of copyrighted work (fiction? fact?)
  - Amount and substantiality of copied portion
  - Effect of copying on potential market or value of the work
Copyright Problems

♫ How to distinguish functionality (idea) from expression
♫ How far copyright can protect a user interface
♫ Enforcement against infringers, especially on the web
   ♫ Big-time vs. small-time infringers
♫ Ownership issues and “works for hire”
   ♫ Employee vs. contractor
♫ Content providers vs. content consumers
♫ Copyright vs. plagiarism
Trade Secret Requirements

- Gives a competitive advantage in business
- Not generally known (but not necessarily rocket science)
- Maintained as confidential
Trade Secret Protections, Problems

- Duration potentially infinite
- Public disclosure ends protection
  - Independent discovery, reverse engineering is OK
  - Misappropriation (by employees or spies) isn’t
- To help preserve protection:
  - Explicit nondisclosure agreements
  - Security precautions
  - Employees informed of obligations
  - But: Are employee non-competition agreements enforceable?
- Employee’s expertise vs. trade secrets
Trademarks

識 Trademarks

_identify source or quality of goods or services in a particular market

_identify source or quality of goods or services in a particular market

Words, logos, sounds, colors

Obtain by use in commerce

Duration potentially infinite if not “abandoned”

Federal registration permits lawsuits, statutory damages, use of ®

Federal registration permits lawsuits, statutory damages, use of ®
Contract Basics

❖ Formation

❖ Offer

❖ Acceptance

❖ “Meeting of the minds”

❖ Consideration: something of value

❖ When writing is required

❖ Real property transactions

❖ Transferring copyright ownership

❖ Always advisable in a business context

❖ Shrink-wrap and “click-wrap” licenses: acceptance by conduct

❖ Performance and breach
Software Development Contracts 1

☞ Functionality

☞ Correct results

☞ User tasks: usability, interface

☞ Compliance with standards

☞ Operational environment

☞ Performance, response time

☞ Reliability, percent uptime

☞ Security from attacks, against lost data
Software Development Contracts 2

Dev. Development process
  ¶ Particular methodologies
  ¶ Incremental development milestones
  ¶ Subcontractors
  ¶ Security of confidential business information

Price
  ¶ Payment terms
  ¶ Milestones, bonuses, penalties
Software Development Contracts 3

 Ownership and exclusivity

 Who owns the resulting product?
 Who keeps the source code? (Escrow)

 Installation and acceptance testing

 Training and documentation

 Maintenance and support

 Publicity: Use of either party’s name

 Liability and allocation of risk

 For IP infringement
 Compliance with other law

 Conflict resolution, e.g., arbitration

 Choice of law and forum

 Severability and so on
First Amendment

U.S. Constitution: Congress shall make no law ... abridging the freedom of speech, ... [Amendment I]

憞 Applies to the government

憞 Doesn’t apply to

憞 Certain “speech acts”

憞 Protecting children from harmful material

憞 Defamation (slander, libel)

憞 Does speech on the internet deserve special treatment?
Privacy

Electronic records vs. conventional records

- Different in degree or in kind?
- US vs. Miller
- Right to Financial Privacy At of 1978

Potential privacy abuses

- By government (Fourth Amendment, expectation)
- By private parties/industry
- Inferences

Patchwork of protection in US law

- European Union Data Privacy Directive

Privacy advocates’ principles
Liability for Malfunction

- Negligence
  - Duty of reasonable care
  - Breach of that duty
  - Causation of damage

- Strict liability
  - Defect in design or manufacture
  - Product unreasonably dangerous regardless of fault

- Assignment of the risk; insurance
Computer Crime

- Financial
- Vandalism
- Joyriding
- Espionage (industrial or national)