Protecting and Commercializing Software Inventions

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IP’s Ongoing Challenge

IP constantly strives to strike the right balance for:

• Protections for individual inventors/authors

• To induce and incentive innovation and creative works

• To progress the Commons of a society
Code
```php
function countKilled($database, $mysql, $write = TRUE) {
    $sql = "SELECT killed FROM newn;"
    $result = $mysql->query($sql) or die($mysql_error());
    $skilled = $mysql->fetch_assoc($result);
    if ($write == FALSE) {
        return $skilled;  
    } else {
        echo "This will affect the total number of people reported killed that this program finds.".
        $mysql->query("UPDATE newn SET killed = 0;") or die($mysql_error());
        echo "This will affect the total number of people reported killed that this program finds.".
    }
}  
```
What is a copyright?
Copyrights

Definition:
• “Copyright subsists for any original work of authorship fixed in a tangible medium of expression.”

Exclusive Rights of copyright holders:
• to reproduce (aka “to copy”);
• to prepare derivative works;
• to distribute by sale, transfer of ownership, or by rental, lease, or lending;
• to perform and/or display publicly;

Duration:
• Life of the Author plus 70 years; or
Copyrights (cont’d)

• Life of the Author plus 70 years
  • If you expired 2016, © would expire 2086

• For corporate works, works made for hire, anonymous works, the 1st to occur of:
  • 95 years from publication; or
  • 120 years from creation

• Sonny Bono Copyright Term Extension Act, 1998
  • Added 20 years – “Mickey Mouse Act”
Copyrights (cont’d)

• Copyright subsists for any original work of authorship fixed in a tangible medium of expression.

• Rights present upon fixation
  • No printed “©” necessary
  • Formal registration not mandated (unless bringing suit)
    • $35 registration fee online US Copyright Office

• Sample Notice
  • “Copyright 2014 – 2016. Dan & Rory. All Rights Reserved.”
Works of Authorship

• (1) literary works;
• (2) musical works, including any accompanying words;
• (3) dramatic works, including any accompanying music;
• (4) pantomimes and choreographic works;
• (5) pictorial, graphic, and sculptural works;
• (6) motion pictures and other audiovisual works;
• (7) sound recordings; and
• (8) architectural works.

• Not protected:
  • facts, ideas, titles, procedures, processes, methods of operation, concepts, principles, or discoveries.
  • any work of the United States Government
What about Data?

Supreme Court Case: Feist Publications v. Rural Telephone Service (1991)

Last Name, First Name, Middle, Town, Telephone Number

- Subscriber data deemed not original enough
- Modicum of originality required
- Facts are never protectable
- Compilations of facts are protectable
  - Yellow pages, Almanacs

What about Databases?
<table>
<thead>
<tr>
<th>Column Name</th>
<th>Data Type</th>
<th>Length</th>
<th>Allow Nulls</th>
</tr>
</thead>
<tbody>
<tr>
<td>SourceIP</td>
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<td>4</td>
<td>✓</td>
</tr>
<tr>
<td>ClientTimeStamp</td>
<td>int</td>
<td>4</td>
<td>✓</td>
</tr>
<tr>
<td>ClientMS</td>
<td>int</td>
<td>4</td>
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</tr>
<tr>
<td>ServerTimestamp</td>
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<td>4</td>
<td>✓</td>
</tr>
<tr>
<td>SessionID</td>
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</tr>
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<td>Severity</td>
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</tr>
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<td>255</td>
<td>✓</td>
</tr>
<tr>
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<td>✓</td>
</tr>
<tr>
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<td>varchar</td>
<td>255</td>
<td>✓</td>
</tr>
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<td>✓</td>
</tr>
<tr>
<td>Value2</td>
<td>int</td>
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</tr>
<tr>
<td>Value3</td>
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<td>4</td>
<td>✓</td>
</tr>
<tr>
<td>MIMEType</td>
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<td>4</td>
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</tr>
<tr>
<td>Signature</td>
<td>varchar</td>
<td>255</td>
<td>✓</td>
</tr>
</tbody>
</table>
Are these the Same?

Literature

As Robert Frost once wrote: "Two roads diverged in a yellow wood, and I took the one less traveled by, and that has made all the difference." I believe that in order to ensure the environmental safety and beauty of Methuen, we must do something that has never been done before: the road that I am taking to ensure the environmental safety and beauty of Methuen for future generations is to be a beekeeper, and educate others to become keepers. Honeybees make many contributions to the environment. If more residents of Methuen kept honeybees, there would be less pollution, more exquisite flowers and trees, and healthier people. Although this method may seem arduous, I plan to obtain our towns and make it a place that future generations want to live.

Having been an avid beekeeper for 8 years, I plan to continue my quest to make the city I live in a place that other people would want to live in. My honeybees help to pollinate my gardens and orchards, as well as numerous gardens of all my neighbors. Pollination helps in the growth and reproduction of numerous vegetables, flowers, and trees. The more trees and flowers that populate our town, the more natural beauty that exists. With growth in number and numbers of honey bees, our air will become cleaner and healthier. The bees take in carbon dioxide and produce clean oxygen for us to breathe. When our people find out I am a beekeeper, they tend to ask me many questions. I always invite them over to look at my hives. Once they see my bees, they are fascinated and wish to start their own colonies. There are not many beekeepers in Methuen at the present time, but I believe that each person I teach out will decide that it is a good idea to either attend Bee School (at the Topfield Fairgrounds) or read more on the topic.

Many residents in Methuen understand the advantages of keeping bees. That is why my family has helped others by putting boxes in their yards and farms to pollinate their flowers, fruit orchards, and various crops. I have figured out that if we place 23 hives in various parts of Methuen, then each hive will be able to reach some part of Methuen, leaving no place without pollination by honeybees. Along with pollination, which gives Methuen a more beautiful landscape, pollination and secret collecting give to the reward of honey and wax. Honey is healthy for people because of the antioxidants and natural herbs it contains. There are also several maladies which have been done which state that having a teaspoon of honey a day can reduce chronic allergies. This is possible because the honeybees collect nectar from various flowers and plants in your neighborhood, and when you swallow a teaspoon of honey, you are building up a tolerance to the pollen of that flower or plant from which the bee collects. I plan to educate as many people as I can about beekeeping in hopes that many people will see the advantages and possibilities that come along with becoming beekeepers.

Although the idea of putting more honeybees around the town may seem impractical, I can assure you that it is not. If people weren’t afraid of honeybees, they’d come to realize that they are gentle creatures that are only there to work for our benefit. Being part of the Essex County Beekeepers Association in their 2006 Honey Ambassador, I came to appreciate these little creatures. While working in the Bee Building at the Topfield Fair, I have educated many children and adults from different towns about the environmental

Source Code

```c
// This checks to see if there is a number right after Batch_string.  // If there is, then we will use it first.
if (strchr(Batch_string, '0') != NULL) {
  return true;
}
```

```c
int find_Hive(string Hive, vector<int> * hive_list) {
    int i;
    int hive_found = false;
    for (i = 0; i < hive_list->size(); i++) {
        if (strcmp(hive_list->at(i), Hive) == 0) {
            hive_found = true;
            break;
        }
    }
    return hive_found;
}
```
Copyrighting Code

– In 1980, Congress amended the 1976 Copyright Act to include a definition of “computer program.”

– In a Third Circuit Court of Appeals case, the court in Apple Computer, Inc v. Franklin Computer Corp. (1983), confirmed that computer programs are in fact literary works protected under the Copyright Act.

– The court held that a computer program, “whether in object code or source code, is a ‘literary work’ and is protected from unauthorized copying, whether from its object or source code version.”
Limitations – Fair Use

• the fair use of a copyrighted work for purposes such as criticism, comment, news reporting, teaching, scholarship, or research, is not an infringement of copyright. In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include —

• (1) the purpose and character of the use - commercial v. non commercial purposes
• (2) the nature of the copyrighted work - fiction v. non fiction
• (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
• (4) the effect of the use upon the potential market for or value of the copyrighted work
Open Source

Open Source Initiative

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Protection of Software Inventions

Copyright law aims to protect expression over functionality, but computer software is unique in that it is a creation that incorporates both **functionality** and **expression**.
Patent Primer

Definition: 35 USC 101
• “Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor...”

Rights in a patent: 35 USC 154
• “the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States or importing the invention into the United States”

Duration:
• 20 years from the date of filing
Patent Requirements

- Requirements (Traditional):
  - Novelty § 102
  - Usefulness § 101
  - Non obviousness § 103

Additional Requirements:
- Patentable subject matter § 101
- Enablement/written description § 112
Patent Requirements

• Subject Matter:
  • Elements of patentability include any product, process, machines, manufacture, compositions of matter, or their improvements
  • “anything under the sun...made by man”

Supreme Court Case: Diamond v. Chakrabarty (1980)
Patent Requirements

• Non Patentable Subject Matter:
  • Discoveries
  • Natural Laws
  • Abstract Ideas or Ideas in general
  • Scientific Principles
  • Physical Phenomena
  • Mathematics
  • Atomic Weapons
  • Anything encompassing a human being
  • Naturally occurring things (except plants)
Patents on Software?

• The issue with software, algorithms, and methods of doing business centers around what constitutes an unpatentable idea

• Computer Processes
  • Claimed process is patentable if it is tied to a particular machine or apparatus (aka a computer or device), or
  • It is Transformative
Prominent Supreme Court Software Cases

• *Gottschalk v. Benson* (1972)
  – Patent on method for converting binary-coded-decimal numerals into pure binary numerals for use with general purpose digital computer of any type was denied because computerization of mathematical equations could not shift them from the realm of ideas to that of industry.

• *Diamond v. Diehr* (1981)
  – Patent on a process for curing synthetic rubber which included in several of its steps the use of a mathematical formula and a programmed digital computer was granted because it was transformative and involved a number of discrete steps.
Prominent Supreme Court Software Cases

• *Bilski v. Kappos* (2010)
  – The patent in dispute concerned a method of hedging risk in the field of commodities trading in the energy market.
  – The Supreme Court found that the patent was not directed to patent-eligible subject matter, and affirmed the use of the “Machine-or-Transformation Test.”

• *Alice v. CLS Bank* (2014)
  – The patents in dispute concerned mitigating settlement risk in financial transactions by using a computer system as a third-party intermediary.
  – The Supreme Court found that patents directed to a patent ineligible invention must contain an inventive concept that transforms the patent into an eligible invention.
(Step 1) Is the claim to a process, machine, manufacture or composition of matter?

YES

(Step 2A) [PART 1 Mayo test] Is the claim directed to a law of nature, a natural phenomenon, or an abstract idea (judicially recognized exceptions)?

NO

YES

(Step 2D) [PART 2 Mayo test] Does the claim recite additional elements that amount to significantly more than the judicial exception?

YES

CLAIM QUALIFIES AS ELIGIBLE SUBJECT MATTER UNDER 35 USC 101

NO

CLAIM IS NOT ELIGIBLE SUBJECT MATTER UNDER 35 USC 101

Alice / Mayo Two-Part Test
Application of 2-Part Test by Federal Circuit

Claims Ineligible

• *Digitech v. Elecs for Imaging* (2014)
  – Subject Matter – Process of organizing information through mathematical correlations with generic gathering and processing activities
  – Step 1 – Gathering and combining data that does not require input from a physical device = Abstract idea
  – Step 2 – Process that employs mathematical algorithms to manipulate existing information to generate additional information is not “something more”

• *Content Extraction v. Wells Fargo Bank* (2014)
  – Subject Matter – Method of processing information by recognizing fields of information of hard copy documents and storing the information into memory locations based on the recognized fields
  – Step 1 – Collecting, recognizing, and storing data = Abstract idea
  – Step 2 – Computer is not enough to transform since it does routine, conventional activities
Application of 2-Part Test by Federal Circuit

Claims Ineligible

• *In re TLI Comunications LLC* (2016)
  – Subject Matter – Classifying and storing digital images in an organized manner
  – Step 1 – Classifying and storing digital images in an organized manner = Abstract idea
  – Step 2 – Components and functions were well-understood, routine, and conventional activities previously known in the industry
Application of 2-Part Test by Federal Circuit

**Claims Eligible**

  - Subject Matter – Providing third party content within original content provider’s own website
  - Step 1 – Claim limitations, taken together, recites invention that was not merely routine or conventional use of Internet = Not likely an abstract idea
  - Step 2 – Not likely needed

- *Enfish LLC v. Microsoft Corp.* (2016)
  - Subject Matter – Database software designed as a “self-referential” table to improve flexibility and search time, and decrease memory requirements
  - Step 1 – Claimed rules enable automation of animation tasks that could not previously be automated = Not an abstract idea
  - Step 2 – Not needed
Application of 2-Part Test by Federal Circuit

Claims Eligible

- **McRO, Inc. v. Bandai Namco Games America Inc.** (2016)
  - Subject Matter – Automated accurate and realistic lip synchronization and facial expression generation
  - Step 1 – Claimed rules enable automation of animation tasks that could not previously be automated = Not an abstract idea
  - Step 2 – Not needed

- **BASCOM v. AT&T Mobility** (2016)
  - Subject Matter – Content filtering system
  - Step 1 – Filtering content from an Internet computer network = Abstract idea
  - Step 2 – Ordered combination of known components with abstract idea = “something more” because claimed filtering is not conventional, so a technical improvement
Application of 2-Part Test by Federal Circuit

Claims Eligible

• *Amdocs (Israel) Ltd. v. Openet Telecom, Inc.* (2016)
  – Subject Matter – Distributed architecture for collecting and processing computer network data
  – Step 1 – Claims drawn to technical solution to a technical problem = Not an abstract idea
  – Step 2 – Not needed (but passes anyway because of the advancements it provides for reduced network congestion and bottlenecks)

– Full list of Subject Matter Eligibility Decisions:
PTO Guidelines

• Actual Guidelines
  • 2014 Interim Guidance on Patent Subject Matter Eligibility
    • Includes abstract ideas examples
  • July 2015 Update
  • Most recent update = May 4, 2016
  • New update forthcoming

• Periodic memos discuss most recent cases
  • November 2 – McRO and BASCOM; notes Amdocs
  • July 14 – not for software cases
  • May 19 – Enfish and TLI Communications
Recommendations for Software Patent Prosecution

• Describe improvements in specification
  • For “computer-related technology,” not limited to improvement of in operation of computer or computer network

• Claim specific way to solve problem (avoid preemption)

• Fully describe “generic additional elements” in context of invention
  • But don’t use general-purpose computer components as after-the-fact add-ins

• Look to case law for guidance on what not to claim
Design Patents

- Design Patents
  - Unlike utility patents, design patent subject matter may relate to surface, ornamentation, and/or configuration.
  - The purpose of protecting a design is because it has a distinctive feel.
  - Design patents are closer to trademarks and copyrights.
Trademarks

Definition: Lanham Act, 15 USC 1127 (Federal Law)

• includes any word, name, symbol, or device, or any combination...to use in commerce...to identify and distinguish...goods...from those manufactured or sold by others and to indicate the source of the goods.

Rights in a trademark:

• Exclusive rights to use in commerce.

• Indefinite – it will last as long as it’s not abandoned
Trademarks (cont’d)

Subject Matter:
• Names, words, phrases, logos, symbols, colors, sounds, etc., etc.

Requirements:
• Must register at USPTO “®” (common law “TM”)

Marks likely to get rejected:
• Immoral, Deceptive, Scandalous, Disparaging marks
• No flags of US, or other countries
• No names, portraits or signatures of the Living without consent
• No names, portraits or signatures of deceased US Presidents
• Surnames, Descriptive marks, Geographic marks, Generic marks that have not acquired secondary meaning
• Confusing Marks
Trade dress

• Distinctive packaging is entitled to protection as “trade dress”
  • Only ornamental aspects, not functional parts
Trade Secrets

Definition: Uniform Trade Secrets Act (States Law)
• any information not generally known or available (i.e. a secret) that conveys a particular advantage or economic value – actual or potential – to its holder

Rights in a trade secret:
• To use and derive benefit and to safeguard against misappropriation – acquisition by improper means or unauthorized disclosure.

Duration:
• Indefinite – it will last as long as it’s a value and kept secret
  • Public disclosure kills it
  • Confidential disclosure okay
  • Independent discovery and reverse engineering okay
Trade Secrets (cont’d)

Subject Matter:
• any information such as a formula, pattern, compilation, program, device, method, technique, process, database, supplier, etc.

Requirements:
• Must treat it as a secret
• Reasonable efforts to maintain its secrecy under the circumstances

Duration:
• Indefinite – it will last as long as it’s a value and kept secret
Final Thoughts

• Copyrights provide a head start
  • Will not protect against clean room coding

• Patents as a tool - offensive and defensive
  • Is it enforceable?
  • Algorithm or Business Method

• Robust development and TM Branding are equally important

• Don’t rule out open source or trade secrets
Thanks!

Questions?

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