Program and Data Protection: Copyright, Patent, Trade Secret and Trademark

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Abstract

The study of this paper will describe the perspective view of legal issues and propose the alternative approaches to protecting software. Some legal issues like copyright, patent and trademark are used for providing the security to the data and computer software. The main motive of this paper is to aware all the authors about the protection of data and their programs.

Keywords: infringement, legal, protection, products, invention.

1. Introduction

The technology eases the ability to copy other's idea and expression. Computer software is a recent and very unique intellectual property that serves both as an expression of an idea and idea itself. Protection from software copying is presently available in varying degree under patent, trade secret, copyright and trademark.

Copyright is the most well- known legal mechanism for protecting the software program and data. Publically it is less known but very important. In fact, under present laws program and data may be protected via copyright, patent, trade secret. Trademark protection is also used to protect the brands identity and its products and services. These four protection form are not necessarily mutually exclusive. For e.g. software can be patented and registered with U.S copyright office as copyright work and the same time a registration can be done , which shows a software product offered. These issues are described in detail in this paper.

2. Legal issues of protection

2.1 *Copyright*

Protection by copyright is presented by U.S government in the U.S constitution. U.S includes this copyright as a law in 1978 and it is updated in 1998 as a Digital Millennium Copyright Act (DMCA). DMCA is able to deal with computer and other electronics media like video games, audio etc.

It protects the expression of idea. Copyright always provide to the actual work like sketches, art, story writing, novel etc. Copyright protects the right to copy an expression of an idea. Idea themselves are free. Anybody can think anything with their bright mind, at least in theory. The main motive of copyright is to free exchange of data or ideas.

For e.g. in data, there may be two or more copyrights to the particular data or related to a single data. The author can copyright a data; arranger can copyright a particular arrangement of data. If someone purchased this expression then he/she have to pay for that and compensation will give to both author & arranger.

Copyright is a particular way of expressing an idea belongs to an author. By copyright author have an exclusive right to make copy of expression and sell them in public. Author's agent can sell also the copies of author's expression.

2.1.1 Intellectual Property

U.S copyright law says that copyright can be given to only original work that is fixed in a tangible medium of expression. Only the originator of the expression can take the copyright. If there is no originator for any expression then copyright can't be granted. And these expressions are considered *public domain*. Copyrights are for only a limited time of period. So many old works are in public domain because their copyrights have expired. We know that expression must be in the tangible form so if we are talking about story or art so work must be written, printed, recorded and painted etc. and stored in any magnetic medium like disks and tape.

Basically purpose of copyright is distribution of work so that everyone can read or use that work in any way that they want. The work must be distributed if any fee is charged for a copy.

2.1.2 Originality of Work

For taking any copyright work must be original to the author. Public domain can't be copyrighted. So a work can be copyrighted if it has some public domain but there must be original work too. For e.g. dictionaries can be copyrighted too. Any author can't claim to own the words because words are universal of dictionary. But the expression of words and arrangements of words are different like we have English-English-Hindi or English-Hindi dictionary etc.

2.1.3 Fair Use of Material

The copyright law says that any copyrighted object is subjected to fairly use. Means purchaser has rights to use of data but in a manner that original author's rights doesn't interfere. This law allows purchaser to fairly use of material such as criticism, comment and teaching means distributing the copies of material for reading or studying in the classroom and scholarship & research project. Unfair use of any copyrighted data or item is called piracy.

Copyright law also has the concept of *first sale:* copyrighted owner entitled to control of the first sale of an object. The concept of first sale is better for books. An author is entitled to compensate when a bookstore sell the books but the author doesn't earn if the book is later sold or resold or secondhand sell.

2.1.4 Registering a Copyright

It is very easy to obtain a copyright and if any mistake occurred while copyright it can be very easy to correct. First step of obtaining a copyright is notice. In addition to the source code deposit, one copy of the user's manual or other printed documentation for the computer program should also be submitted to the copyright office. And how can anybody be aware that their work is copyrighted?? So each copy of the work is marked with the copyright symbol (©), copyright word, year, author's name. In South America countries these items were followed by "All Right Reserved" to preserve the copyright. The order of these elements can be changed or we can also use either © or copyright word or both but both must not be omitted.

According to the U.S copyright law, copyright lasts for 70 years beyond the death of the last survived author or if any org. is taking copyright then it lasts for 95 years of publication. The international standard is for 50 years after the death of the last author or 50 years from publication.

2.1.5 Copyright Infringement

If someone has infringed on the copyright, the copyright holder must go to the court to prove the claim. Infringement must be copying not any independent work. For e.g. two people works independently so these two both would be entitled with the copyright for their work because they both done their work without knowing the other. So this is not infringement. They both would have right to distribute their work for fee. It is easily understood that two people wouldn't express an idea with the same way or in similar wording.

2.1.6 Copyright for Computer Software

Copyright protects things such as books, photos, songs, sketches etc. so that people can easily recognize if those items are copied. In 1976 copyright law has given for physical things but in 1980 it includes a definition of computer software. It is not the desirable form of protection for computer works; to understand this, we consider an algorithm that is used in a program. So in this, algorithm is idea and programming language is the expression of the idea. We can provide protection to the program but not the algorithm itself. Copying the code is prohibited but we can re-implement the algorithm with another programming language.

Copyright simply protects from copying but copyright alone is not sufficient to protect or secure. So we have to apply more security to our data.

2.2 *Patent*

They protect the inventions, tangible objects, computer readable media or ways to make them not the works of the mind. The basic difference between patent and copyright is that patent protects the result of science, technology and engineering, machines etc. whereas copyrights are meant to cover the art, literature and written work. Business methods are patented as processes of procedures such as a method of distributing information, a method of tracking consumer buying habits etc. Patent protection provides the patent owner with an exclusive right for the life of the patent to prevent others from exploiting the patent invention. A patent owner has right to prevent others from making, selling or using the patent invention. Obtaining the patent and getting exclusive rights attendant to the patent is not the same as obtaining the right to use the invention.
Patent is designed to protect the device or a process that carried out the idea not the idea itself.

2.2.1 Requirement of Novelty

If two authors make same thing independently at the different times so copyright would be given to both of them. If two inventers create same invention independently so patent goes to the person who first filled the patent or who invented first. Patent is valid only for those things that are novel or unique or original. One patent for one invention is considered.

2.2.2 Registering a Patent

For obtaining patent of a computer software takes more time then the copyright. To obtain a patent, a patent application must be prepared and send to the U.S Patent and Trademark office. An inventor must convince the U.S Patent and Trademark office that the inventor deserves the patent for that software. Patent officer will research the already patent software similar to the incoming invention. This type of research cause to happen two things;
- First, it gives direction to that the invention to be patented has not already been patented.
- Second, this research will help to find out the similar inventions that have been patented.

Patent officers the compare the software with already patented similar things so that they can find and decides whether the application covers something novel and truly original. If the officer fined something novel, a patent is granted.

A patent application must describe what is novel about invention within described manner and with sufficient detail to allow the patent office and the courts to judge novelty. But this type of revealing the detail may also tell the world that how the invention develops and how it works; so it is the opening of infringement.

Patent rights are not self- enforcing. A patent owner can recognize their rights provide by patent filling a lawsuit. If patent owner is successful to win the case so the patent owner may force the infringer to stop using the patented invention and say to pay the damages money. One advantage of patent protection is that independent development is generally not a defense to a patent infringement. This advantage is relevant to software products and services. For deciding that whether patent is given to an invention or not, there are several factors:-
- The placement of the invention in such a manner that public can do the reverse engineering.
- Significant time or money must be invested for creation of the invention.
- A belief that invention represents an important discovery of technology.
- A concerned advantage in using "pending patent" or other patent marking as a shield or marketing tools.

In 1981, patent provided for a process that used computer software, a well-known algorithm, temperature, sensors etc. Since 1981 the patent law has expended to include software, recognizing algorithms and formulas are invented.

2.3 *Trade Secret*

In this, secret information has to be maintained and provide a competitive advantage to its owner may qualify for trade secret protection. A trade secret protection is unlike patent and copyright protection because it must be kept secret. In this trade secret owner must not apply in the government for the protection. In this owner simply establish and maintain trade secrets as an internal matter.

2.3.1 Characteristics of Trade Secret

The basic characteristic of trade secret is secrecy. A trade secret is secret information that competitive companies hide from others. For e.g. a formula of any soft drink is a trade secret.

If some employees and outsiders know about the trade secret then it must be required not to leak the secret. The trade secret owner must take some precautions to protect the trade secret by storing it in a safe place, by encrypting it in a computer or by making sign of employees who knows the secret that they will not disclose the secret. If owner maintain a technology as a trade secret then it is possible to take or obtain other legal protection for it. Owner can obtain legal issues for part of technology to be patented, copyrighted and make distribution under a trademark while parts remain secret. This combination of protection must be carefully planned and carried out.

If someone improperly obtain a trade secret and takes profit from it. So an owner can recover all the profit from the infringer.

2.3.2 Reverse Engineering

Trade secret can be break or leak with the help of reverse engineering. For e.g. if we want to know that how the mobile built so one can take reverse engineering on it and trade secret is easily discovered. In this, one studies the finished or manufactured objects to determine how it is created or how it works.

The recipe of soft drink is a closely guarded or kept secret by trade secret. Trade secret works best when the secret is not revealed in the product.

2.3.3 Applicability to Computer Objects

Trade secret also applied on the computer objects. When creating a computer program the algorithm is novel and novelty is depending upon nobody knows it. Basically trade secret keeps the design of program and hidden and allows the distribution of the result of secret. It doesn't protect copying a product and it also cannot protest against the piracy of any product and pirate who sells the copies of someone else's program without permission.

It protects the illegal stealing of a secret algorithm and uses it in another product. Difficulty with computer program is that reverse engineering works. De-compilation can produce a source code of an executable program. This source code doesn't contain the comments to explain the code but it is original version of source code that someone can study and reuse.

Advantage of trade secret is that there is no application or registration is required. Another advantage is that trade secret protection lasts as long as the trade secret is maintained.
Disadvantage of trade secret is that once the trade secret is lost or made public, all trade secret rights are lost. Another disadvantage of this is that it is possible for a person to later patent a technology that another person has maintained as a trade secret.

2.4 *Trademark*

Basically trademark is a symbol or other word or sound that distinguishes the goods and products of a business from its competition. Familiar mark such as "INTEL", "MICROSOFT", "DELL", "NOKIA". Trademark rights provide authority by using a mark a connection with widely distribution of the goods and services. Trademark right lasts for as long as the mark is used in commerce. If use of trademark is lasts of a limited time of period then trademark rights are lost. According to the trademark act there are following categories of trademarks:-
- Classic Trademark
- Service Trademark
- Proposed Trademark (either classic or service marks)
- Distinguishing guises
- Certification marks

Registration of mark with the U.S Patent & Trademark office or registration with the individual state office or both is required for taking a mark. In the U.S, registration of mark is not required. Trademark registration can be greatest important with respect to Domain Name and conducting business internationally. Registration should be pursued when such circumstances exist.
Advantage of trademark protection is that it may be obtained for any product, based on its objectives merits such as originality and novelty. If other legal protection is lost then a business can protect its market position through the use of goods that will develop in a mark.

3. Conclusion

Copyright and trademark laws are modest legal issues to be protecting the software with expense. There are some steps to protect the software through these legal issues. *Patent* is powerful protection for software but it is available only for those which are novel and non-obvious invention and it has limited time of period. *Trade secret* is powerful protection too. It is applicable only when the matter can be kept secret or have to be maintaining secrecy.

If we know all about the legal issues so we can protect our invention and understand about legal issues.

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