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Copyright Protection for Computer Software: A Critical Analysis

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Property that comes into existence because of the intellect of a human is known as Intellectual property. Intellectual properties like literary and artistic work are given protection under the regime of Copyright law. But with the advent of the internet, the scope of copyright law is increasing, and software generally forms a subject matter of copyright law. Similarly, patent protection can also be provided to the software-related invention if it fulfills requisites provided for patent protection by a specific country, and with that software can also come under the scope of a trade secret if it contains any confidential or valuable information of the company which forms its trade secret. Though the age of the computer is not very old the progression of that field is on height with progress comes to some side effects one of them is Software piracy. This paper will discuss the protection given to computer software under international treaties and conventions and with that; it will also analyze the copyright and patent protection of software with respect to India and the USA.

Keywords: *copyright protection, computer software, artistic work.*

INTRODUCTION

Intellectual property is the property that is created by a human through his intellect. Intellectual property rights are those rights that protect intellectual property by providing certain exclusive rights to the creator over the use of his/her creation for a certain period of time. IPRs are gaining

importance day by day as its role has substantially changed, in earlier days it has been seen as-to balancing the rights of the creator as well as providing knowledge to society but now it is also helping society economically by means of foreign investment. Hence, nations are evolving ways to nurture the knowledge and inventions created by the human intellect. IPR provides protections like copyright, patent, trademark, etc.

Software is one of the creations of human intellect and comes under the protection of IP laws. The software can be protected under various heads of IP like Copyright law, Patent, and Trade secrets. Each one of them has its own pros and cons. This paper will argue that there should be a sui generis system for computer software because though the present heads of IP are efficiently protecting computer software but as the technology is growing and changing at a jet speed, it is important to give computer software a sui generis protection plus extremely long period of time as well the standard provided by these protections made it necessary to evolve a new system for computer software. To understand IP protection for software first, we need to deal with what is Software and why it needs protection?

COMPUTER SOFTWARE

The term 'Computer Software', lacks a precise definition. However, generally speaking, the term includes a set of computer programs, procedures, databases, and associated documentation related to the operation of a computer, computer system, or computer network. It also includes programming language and software tools to be used to develop computer software. Computer software, in its most general sense, is a set of instructions or programs instructing a computer to do specific tasks.

The Copyright Act, 1976 of the United States of America (USA) defines a computer program under section (101) as_ A "computer program" is a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result. Though the EU does not define computer programs, it does give protection to them under Copyright Law. The Berne Convention, 1971[1] mentions Inter alia, "writings" of a person, though, it does not clearly

[1] Berne Convention for Protection of Literary and Artistic Works 1971, art. 2(1)

mention about computer programs, computer programs are basically writings made by the author which are covered even by the Berne Convention.

Computer programs are playing an increasingly important role in a broad range of industries and thus computer programming technology can accordingly be considered as being of fundamental importance for a community's industrial development.[2] The term computer program generally refers to data representing instructions or statements that, when executed in a computer, cause the computer to perform a function, and thus it is very wide and can include even a smartcard[1] decoder and a microcode embedded within a microprocessor. Types of Computer Software: Largely, Computer Software can be divided into three groups. These are System Software, Application Software, and Programming Languages.

- System Software controls a computer's internal functioning, chiefly through an operating system, and also controls such peripherals as monitor, and printer.
- Application Software or app is software that performs a specific task for an end user. Examples: WhatsApp, Microsoft Word, Candy crush, etc.[1]
- Programming Language is a computer language that is used by programmers (developers) to communicate with computers. It is a set of instructions written in a specific language (C, C++, JAVA, and Python) to perform a specific task.

Source Code and Object Code: There are basically two levels of computer languages. One is the language that is used by all computer programmers and it is higher level languages (C, C++) and other programming languages in which lines of code are formulated and this language could be understood by humans, statements in this code are referred to as Source Code. The other language is the more basic level language that is essentially binary in nature (0, 1), and a statement in this language is known as Object code.[1] It could be understood by computer only. Sega Enterprises Ltd v Richards,[3] the trial court held that the copyright subsisted in the assembly code version of the program (the source code) and the object code was either a reproduction of or an adaptation of the assembly code version hence, object code was also protected by

[2] *Ibid*
[3] *Sega Enterprises Ltd v Richards* [1983] FSR 73

copyright. In ***Apple Computer Inc. v Franklin Computer Corp***[1] the third circuit court of the US, held object code was subject to copyright protection.

Software products are quite vulnerable to piracy. Stealing software is a task of seconds, and that's why the protection of software becomes a vital issue. With the advent of the internet, software piracy is becoming an easy task to do. According to the 2018 Global Software Survey, 37% of software installed on personal computers is unlicensed. CIOs report[1] unlicensed software is increasingly risky and expensive: Malware from unlicensed software costs companies worldwide nearly $359 billion a year.

Software piracy could be done by any individual. Infringement of copyrighted software is called software piracy. Software piracy is the reproduction, distribution, or use of a software product without the expressed permission of its author. Software piracy is theft-stealing someone else's original idea and product and it can be done at a minimal cost. Not only literal copying but also 'cloning' threatens the industry, Clone is a thorough study of original software, which give chance to the competitors to save time, and resources on research and development, and expenses incurred by the original software creator, it gives a great competitive advantage and if gaining a benefit over others creation is so easy then companies will exempt itself from spending much on software. Thus, software needs a legal regime that protects it against software pirates and also makes a conducive environment for its development.

SOFTWARE PROTECTION UNDER TRIPS

Agreement on Trade Related Aspects of Intellectual Property Rights, 1994 (TRIPS) is the first international treaty to include computer programs under the regime of copyright law. It provides protection to software under copyright, patent, and trade secret. Article 10 (1) of the TRIPS agreement provides Computer programs, whether in source or object code, shall be protected as literary works under the Berne Convention (1971). TRIPS agreement came into force on 1st January 1995 as part of the agreement which established the world trade organization at Marakkesh on April 15th, 1994.

Article 27 of the TRIPS Agreement provide patent protection to any inventions, whether products or processes, in all field of technology, provided that they are new, involve an inventive step, and are capable of industrial application. The issue of patentability and its exclusion is controversial in the case of determining the patentability of advanced technological patents. Article 27.1 of TRIPS specifies that patent protection is available for all inventions and patent rights can be enjoyed without discrimination on the basis of the field of technology. The clause does not provide the exact meaning of the term 'invention'.

However, it provides patentable criteria such as novelty, inventive step, and industrial application. Article 27 also speaks about exclusion from patentability where computer programs or software have not been mentioned. Thus, the TRIPS agreement does not expressly exclude software nor does include it, which creates confusion and allows a member nation to decide on the issue. TRIPS does not handle the controversy of 'pure software'. Many countries are now providing patent protection to the software while there are many rejecting the patent protection for software. On the other hand, Copyright protection for computer software is available to all member nations by virtue of Article 10 of the TRIPS agreement. However, the issue of defining the scope of application of the term and the extent to which protection should be given largely remains unsolved.

PATENT PROTECTION FOR COMPUTER SOFTWARE

The 2002 amendment to the Indian Patents Act, 1970, allowed the computer program-related inventions to be patentable, save for certain specific exclusions. The Indian patent act provides for the triple test to protect an invention under patent law. As per the statute, 'novelty', 'Inventive step', and 'industrial applicability'. In addition to these criteria, the invention must be a patentable subject matter and its disclosure must meet the formal and substantive standards of a patent application. The patent act, 1970 under section 3(k) states that a mathematical or business method or a computer program per se, or algorithms, is not patentable.

The Delhi High Court, in ***Ferid Allani v Union of India***, the court observed that the bar of 3(k) is not on all inventions based on computer programs. To examine the application it has to be

seen whether the invention results in 'technical contribution'. The court observed that the term 'per se' has been inserted because sometime the computer program may include certain other things, ancillary thereto or developed thereon. The intention here is not to reject them for grant of the patent if they are inventions. However, the computer programs 'as such' are not intended to be granted patents. The amendment has been proposed to clarify the purpose."

In India, also patent protection is provided to software related inventions and not to 'pure software'. USA: In ***Gottaschalk v Bonson***[1], the US Supreme Court held computer software is not patentable as "it would be a patent on the algorithm." The United States has gradually moved away from rejecting to accepting a patent application for software. The US Supreme Court once stated that patentable subject matter includes "anything under the sun that is made by man".[4]

In ***Diamond v Diehr***,[1] The U.S. Supreme Court reiterated it's earlier holding that mathematical formulas are not protectable under patent law but if a physical machine or process makes use of a mathematical algorithm "transforming or reducing an article to a different state or thing" it is protected under patent even if it includes software. Following the 1998 decision of the Court of Appeals for the Federal Circuit in ***State Street Bank v Signature Financial***, held that anything resulting in a "useful, concrete, and tangible" result, is patentable. Thus, in the US computer software needs to result in useful, concrete, and tangible along with the usual criteria of novelty, non-obviousness, and industrial application. However, pure software is still under the scope of Copyright law.

COPYRIGHT LAW

THE WIPO COPYRIGHT TREATY, 1996

WIPO Copyright Treaty (WCT), is the result of various technological development in the world such as reprography, cable television, satellite broadcasting, home taping, an increase in the importance of computer-generated works and programs, etc.

[4] *Diamond v Chakrabarty* [1980] U.S. 447

In 1970s, WIPO started considering the question of legal importance to the computer program, Sui generis system, which covered all three elements of software: object code, source code, and documentation, was the first idea that emerged. However, it was dropped because many nations already prefer copyright protection for computer software.[1] WIPO does not define computer programs, however, Article 4 provides that computer programs are protected as literary work under Article 2 of the Berne convention. WIPO Copyright Treaty came into force on 6th April 1996 along with WIPO Performers and Phonograms treaty.

COMPUTER SOFTWARE UNDER COPYRIGHT LAW OF US & INDIA

In the USA, the copyright and patent laws were created by Congress under its constitutionally mandated power. The National Commission on New Technological Uses of Copyrighted Works (CONTU) conducted an early expert advisory study, which recommended the use of copyright patterns. In 1980, US Copyright Act, 1976 was amended and the definition was included along with CONTU recommendations.

Initially, computer programs are not protected under Indian Copyright Act, 1957. It was after the Copyright Amendment Act, 1999 that computer programs were included under the scope of copyright protection under the act. Section 2(o) defines literary work as literary work that includes computer programs, tables, and compilations including computer databases. A literary work that is original is protected under copyright laws in India this means that the work must not be the work of another and the creator of the computer program must have spent sufficient effort and skills to create the same. A computer is defined under Section 2(ffb): computer includes any electronic or similar device having information processing capabilities. In Section 2 (ffc) computer program means a set of instructions expressed in words, codes, schemes, or in any other form, including a machine-readable medium, capable of causing a computer to perform a particular result.

In India, the major development in the area of copyright law is done by the Copyright Amendment Act, 1999 which was passed to make Copyright laws in India compatible with the provisions of TRIPS and other international instruments. By this amendment 'rental right' was

introduced in the case of computer programs to strengthen the right of reproduction of authors of computer programs in accordance with WIPO Copyright Treaty, 1996.

To obtain copyright protection in India there is no requirement for registration, meaning as soon as the developer record the program on a tangible medium like ROM, or diskette. Magnetic tape, etc, it becomes eligible for copyright protection. Section 14 of the copyright act provides various rights to the owner of computer software:

a. in the case of a literary, dramatic, or musical work, not being a computer program,-

- To reproduce the work
- to issue copies to the public;
- To perform the work in public or communicate it to the public;
- To make a cinematograph film or sound recording;
- Translation rights;
- Adaptation right;
- Right to do in relation to a translation or an adaption of the work of any of the acts specified above; and

b. In the case of a computer program

- To do any of the acts specified in clause (a);
- To sell or give on commercial rental, or offer for sale or for commercial rental any copy of the computer program.

Provided that such commercial rental does not apply in respect of computer programs where the program itself is not the essential object of the rental.

DISTINCTION BETWEEN FORM AND IDEA

Under the Indian and American systems, the protection available to copyright work is protected with respect to the expression of an idea and not to the idea behind the work. Applying the concept to computer software it can be said that software creator can protect the expression of

his software through prevent other person from physically copying the code, as it is written, but does not prevent utilization of the idea behind the code, provided the person utilizing this idea does so in a manner different from his arrangement of the code. Thus, unlike a patent, copyright law does not entitle the author to prevent another software developer from producing the same type of software in a different form and structure. Thus, the literal element of the software is protected under copyright law whether in source code or object.

Non-literal element: in this context the issue that needs to be considered is exactly what type of software reproduction comes under the threat of copyright infringement, especially in cases where the other person did not copy the code line by line but had taken something less specific. In this regard, various tests have been developed by US courts to determine the protection of the non-literal elements of computer software. The Whelan Test: ***Whelan Associates Inc. v Jaslow Dental Laboratory, Inc.***[1] in this case, the third circuit court first answered the question of whether non-literal elements of the computer program are copyrightable. The court gave the answer in the affirmative. After that, the court developed a test to distinguish an idea from an expression. The court held where there are various means to achieve the desired purpose,…the particular means chosen is not necessary to the purpose; hence, there is an expression, not an idea.

The test was criticized for being too simple.

Altai test: ***Associates International, Inc v Altai, Inc.***, the second circuit court accepted those non-literal elements of computer software are protectable under copyright law. However, the court rejected the Whelan approach as simplistic and conceptually overboard, and then it creates its own Abstraction-Filtration-Comparison AFC Test'. It begins with abstraction, the court first breakdown the allegedly infringed program into its constituent structural part. Then, filters out those elements that are not copyrightable, and last, would be to compare this material with the structure of an allegedly infringing program. This test is the most advance and widely follow test as far as the protection of non-literal elements of software is concerned.

Google LLC v Oracle America, Inc

In this case, Oracle America, Inc., owns a copyright in Java SE, a computer program that uses the popular Java computer programming language. In 2005, Google acquired Android and sought to build a new platform for mobile devices. Google copied roughly 11,500 lines of code from the Java SE program to allow programmers familiar with the Java programming language to work with its new Android platform. The copied lines are part of a tool called Application Programming Interface (API). An API allows programmers to call upon prewritten computing tasks for use in their own programs.

The Supreme Court of the USA held Google's copying of Java SE API, which included only those lines of code that were needed to allow programmers to put their accrued talents to work in a new and transformative program, was a fair use of that materials as a matter of law. The court also goes on to describe four factors of fair use in copyright: the purpose and character of the use, nature of copyrighted work, amount & substantiality, and effect of the use upon the potential market. The court observed that Google copied only what was needed to allow programmers to work on a different computer.

Justice Breyer, acknowledge that it is "difficult to apply traditional copyright concepts in that technological world". Justice Clarence Thomas in his dissenting opinion wrote that allowing fair use simply because it allows new products to be created effectively redefines the idea. Hence, in the USA there are many tests to define the extent and scope of copyright protection for computer software. However, which one is the best fit can't be said because technology is growing and so is the scope of protection of technology.

COPYRIGHT OR PATENT OR DUAL PROTECTION

Patent protection is a legal monopoly over an invention for 20 years for the exploitation of the same. On the other hand, Copyright protects literary or artistic expression generally for the lifetime of the author plus 60 years after the author's death. There is a controversy regarding the protection of software which IP regime suits best software copyright or patent or both? Supporter of Copyright protection for computer software argues that first, protection of

copyright is cheaper than patent as no registration is required; Second, Copyright gives protection to all original creators which may contain knowledge created by the previous designer. Third, licensing deals to commercialize the softwares are both simple and cheap.

Supporters of patent protection argue that a patent is an effective method of protection for computer software because it provides protection over the whole invention and not just over the expression of an idea. It authorizes owners with a period of monopoly which encourages the creator for further research and development and stimulates competition by developing new software, and since disclosure of the invention is a requirement of patentability, the creator does not face the issue of secrecy. However, no international convention is there that granted a patent to computer software. The WIPO, 1978 provided for patent protection for computer software on the condition that it must fulfill the criteria of new and inventive technical solutions. However, it depends on each country whether to provide patent protection to software or not. Similarly, TRIPS does not expressly include or exclude software from the subject matter of patent and thus provides the upper hand to the nation to decide on the same.

CONCLUSION

Software is part of almost every field of technology and thus, plays a pivotal role in technological invention. IP law provides protection to computer software under different sets of laws like copyright, patent, etc. Copyright protects the expression of an idea and not the idea itself and it is sometimes become really difficult to find out what is an idea and what is an expression, which makes it a big issue for courts to solve. Now also the courts are dealing with the issue of the extent and scope of protection of copyright law for computer software. With that copyright law provides extremely long-term protection to software that is ill-suited to software where the normal period of obsolescence maybe just a few years.

On the other hand, the criteria for patent protection are novelty, non-obviousness, and industrial application. Though patent protection is the most effective protection but it has not been approved by all the countries and as software is a big part of technology that turns the whole world into a village it becomes more important that protection provided by one country should

also be provided by others. Secondly, patent protection is for 20 years which is again an issue for an industry that is changing every five years.

In my opinion, software should be provided protection under a sui-generis system which should be protected by the legislation of all nations. Conventions and treaties should be adopted for the same because without international cooperation any system for the protection of computer software will not work. The Sui generis system should also specify the extent and scope of protection for computer software which is a debatable issue that can be seen in recent judgments of US courts. The term for the protection of computer software should be 5-7 years maximum.