PROTECTION OF COMPUTER SOFTWARE UNDER COPYRIGHT LAW

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ABSTRACT

Information Technology is witnessing an unprecedented growth, this has resulted in the increased usage of computers and its brain the software. In the digital age many businesses are seeking tailored software to address their unique needs. As the demand for computer software/programme increase so does the unlicensed usage of these software also increases. Software piracy is a rampant problem in the IT industry. The copyright law provides protection against illegal copying, distribution or modification of software. This article will focus into the threat posed by software piracy and kind of protection offered by the copyright law in India, and the advantage and disadvantages of copyright protection.

Keywords: *Computer, Software, Programme, Piracy, Copyright*

Introduction

Computer technology plays an increasingly important role in our society today. It penetrates more and more areas of our life, not only in business environments but also in daily surrounding. A computer cannot operate without instructions, these instructions, are called computer programs or software.[1] No matter how impressive the hardware is, the software is a must if the computer must be of any use.

Software is invisible, encoded, electrical instruction, it may be incorporated in the computer or any other apparatus, but are often stored, reproduced and distributed on portable media such as CD-ROMs or transmitted on-line. Software instructs a computer what to do. Therefore, turning a versatile but idle machine into a useful tool. The word "software" was first used in the late 1960s to show the difference from computer hardware.

Software is a set of computer instructions. Anything that can be stored electronically is software. A computer software or program is stored as a file on the computer hard drive. When the user runs the program, the file is read by the computer, and the processor reads the data in the file as a list of commands or instructions. Then the computer does what the software tells it to do.

Computer software is the general term for a variety of procedures and routines that harness the computational power of a computer to produce, for example, a general operating system that coordinates the basic workings of the computer or specific applications that produce a database, a financial spreadsheet, a written document, or a game. Computer programmers use different types of programming languages to create the intricate sets of instructions that make computing possible.[2]

Computer software is the product that software engineers design and build. It encompasses programs that execute within a computer of any size and architecture, documents that encompass hard-copy and virtual forms, and data that combine numbers and text but also

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[1] WIPO Intellectual Property Handbook: Policy, Law and Use, Chapter 7: Technological and Legal Developments in Intellectual Property , Pg-435
[2] The free dictionary, http://www.thefreedictionary.com/computer+software

includes representations of pictorial, video and audio information.[3] According to computer science, computer software is defined as "written programs or procedures or rules and associated documentation pertaining to the operation of a computer system and that are stored in read/write memory". [4]

Computer software often called just software is made of one or more computer programs. Sometimes it means one specific program, or it can mean all the software on a computer, including the applications and the operating system.

Usually, computer programs are created in a programming language which can be understood by people trained in that language. It is very difficult to write in 1s and 0s which is what the computer can read, so computer programs are written in a programming language. Once it is written, the programmer uses a compiler to turn it into a language that the computers can understand. That form of appearance of the program, which can be on the computer screen or printed out on paper and understood by humans, is normally referred to as the source code. Another form of appearance is the object code, which is only machine-readable. The programmer writes code in a textual form "source code", and this code is translated (by a program called a compiler) into another form "object code" which can be executed directly by a computer. Thus source code is human-readable but cannot be executed directly, whereas, object code is not human readable but can be executed by a computer.[5]

These instructions i.e., the programs may be embedded into the hardware i.e., the computer itself, for example in ROMs (Read Only Memory), circuits from which digital information can be retrieved, but most often they are created, reproduced and distributed in media which are separate from the computer hardware. Typically, computer programs for personal computers are distributed on diskettes, or CD-ROMs.

Usually the computer hardware and the programs need to be supplemented by manuals and other support material, prepared by the producer of the program, which provide the

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[3] Pressman S. Roger, Software Engineering, A Practioner's Approach, 3-6 , McGraw-Hill International, 5th edn, 2001.
[4] The free dictionary, http://www.thefreedictionary.com/computer+software.
[5] June M. Stover, Copyright Protection for Computer Programs in the United Kingdom, West Germany and Italy: A Comparative Overview, 7 Loy. L.A. Int'l & Comp. L. Rev. 279 (1984).

necessary instructions and reference material for more advanced uses of the program. The program and such reference material and manuals together with the more technical background material which rests with the producer are referred to as computer software.

Intellectual property rights are at the foundation of the software industry. The term refers to a range of intangible rights of ownership in an asset such as a software program. Each intellectual property "right" is itself an asset, a slice of the overall ownership pie. The law provides different methods for protecting these rights of ownership based on their type.

There are essentially four types of intellectual property rights relevant to software: patents, copyrights, trade secrets and trademarks. Each affords a different type of legal protection. Patents, copyrights and trade secrets can be used to protect the technology itself. Trademarks do not protect technology, but the names or symbols used to distinguish a product in the marketplace.

Unlike other forms of intellectual property, computer program serve a wide variety of functions, from the rote operation of a machine to quasi-intellectual activities, making them difficult to classify under traditional categories of intellectual property. Computer programs also evade the traditional categories because they contain both tangible and intangible elements. Ensuring intellectual property to computer software has had its share of teething problems that all breakthrough technologies experience in their growth vis-à-vis corresponding developments in law.

Software is not a monolithic work; it possesses several elements that can fall within different categories of intellectual property protection.[6] TRIPS set forth three different forms of protection for software: copyright, patent and trade secret regime, a member can offer patent, copyright and trade secret protection for computer programs.[7] The most popular form of IP protection has been found in the copyright and patent laws.[8]

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[6] Gonza´lez Guadamuz Andre´s, The software patent debate, Journal of Intellectual Property Law & Practice Advance Access, 1, January 10, 2006, p. 2/11

[7] Wipo, http://www.wipo.int/treaties/en/text.jsp?file_id=305907

[8] Mattew Arya, Patent Protection of Computer Program- Analysis of the Forms of IP Protection Available for Computer Program and Justification for Patent Protection of Computer Program in the Indian Context, MONDAQ,
http://www.mondaq.com/india/x/70518/Patent/Patent+Protection+For+Computer+Program+Analysis+Of+The+

Software Piracy

The information technology revolution is proving to be as powerful a catalyst for change as the industrial revolution was around two centuries ago. Working practices, leisure activities and even society itself are steadily being transformed by the introduction and spread of computers and information technology.

The "information age" has been pushed forward by the development of software technology, and programs have become the primary medium for the creation and manipulation of information. A great deal of energy and capital has been invested in the development and marketing of new computer software to keep pace with the expanding demand. While software is costly to develop, the finished product can be copied in seconds for only a few cents. Consequently, piracy of computer software is becoming more prevalent, and the need for protection more pressing.[9] Thus, without appropriate protection against unauthorized copying and use, producers of software may not be able to recoup their investments.

One major problem for the software industry was the perceived lack of legal measures to combat unauthorised copying and piracy together with the apparent indifference of legislators to the plight of software producers. There was a period, from the late 1970s to the mid 1980s, when computer software was left to fend for itself and software companies could only try to protect their investment through the contracts they had made with persons and organisations acquiring their products. The main problem at that time was how to deal with piracy of computer software given the uncertain state of legal protection afforded to it. Indeed, the problem of piracy was itself a new phenomenon which had been fuelled by the development and spread of the personal computer.[10]

Software piracy is a term used to describe the act of illegally using, copying or distributing software without purchasing the software or having the legal rights. The majority of software purchased today is purchased as a one-site license, meaning that only one computer can have that software installed on it at one time. Copying that software to multiple computers

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Forms+Of+IP+Protections+Available+For+Computer+Programs+And+Justification+For+Patent+Protection+In +The+Indian+Context, December 18, 2008.
[9] Szabo K. Howard, International Protection of Computer Software: The Need for *Sui generis* Legislation, 8 Loy. L.A. Int'l & Comp. L. Rev. 511 (1986), p. 512
[10] Bainbridge David, Software Copyright Law, Butterworths London, 3rd edn., 1997

or sharing it with others without multiple licenses is considered illegal and is called as software piracy.

Software piracy had become impossible to stop, although software companies were launching more and more lawsuits against major infractors. Originally, software companies tried to stop software piracy by copy-protecting their software, which refers to techniques used to prevent the unauthorized copying of software. The idea of copy-protected software was created by software manufacturers who wanted to prevent *software piracy.* As enticing an idea as it may be, copy protection did not prove to be a viable strategy. For one, it is practically impossible to create software that cannot be copied by a skilful programmer. Second, many consumers shy away from copy-protected software because backup copies are difficult to make. Thus, if their original copy of the software is damaged, the user must contact the manufacturer for a new copy. Finally, some copy-protection techniques can actually damage other software on the system. For these reasons, copy-protected software failed, as it was inconvenient for users and was not 100 percent foolproof.[11]

Software piracy is a global issue because software development requires a large financial investment, software companies rely on profits to continue improving and building software. When a software program is illegally copied, downloaded and/or installed, a pirate commits an act of theft. From the point of view of software companies, unauthorized copying and distribution, whether copyright infringement or outright piracy, is harmful because it deprives them of profits. It can also damage their reputations, as pirated software may be faulty or loaded with malware, in which case users may express anger with the product and the company. Piracy is also a serious issue because it can threaten the safety of computer users, since pirated software products may be used to harvest personal information, load a computer with viruses, or engage in other activities which will hurt the user.[12]

The only effective way of protecting computer software from piracy seemed to be under the Intellectual Property Law as it deters others from copying or taking unfair advantage of the work or reputation of another and provides remedies should this happen.

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[11]Webopedia, Software Piracy, http://www.webopedia.com/TERM/S/software_piracy.html
[12]McMahon Mary, Wisegeek, http://www.wisegeek.com/what-is-pirated-software.htm

Why Protect Computer Software?

The pervasiveness of computers has brought many problems relating to the legal protection of computer software. Of course, whether a particular unauthorised use is deemed to be unfair may be a matter of opinion. Many persons and organizations creating computer software consider any use made of their software without permission to be unfair and that all unauthorised use ought to be made illegal.

That computer software should be protected from being copied or otherwise used without permission is not an unchallengeable axiom, and it is important to consider the reasons why software should be protected by the law. If software is developed for use by only one person or by a very restricted class of persons, the need for legal protection may be largely irrelevant. Perhaps the software is useful only to the person who wrote or commissioned it and it would not be of interest to others. For example, if an angling club has a computer program which helps in the organisation of fishing matches based on the club's rules which are unlike any other angling club; there would be little point in other clubs copying the program. There is no market for the program. In other cases, it may be possible to keep details of software secret. However, most software does have a market value and others will find it useful and be anxious to acquire a copy of it. The owner of the software will face two problems; first, some potential users will want to copy the software without payment. The second problem is that competitors will wish to examine the software closely so that they can make competing products. In both of these cases, the owner's economic interests are at risk and this gives a clue to some important justifications for its legal protection.[13]

Legal Protection of Software

Since software was becoming commercially attractive and widely used in the late 1970s to the mid 1980s, software has been difficult to classify in order to assign it to a certain category of Intellectual Property protection by virtue of its binary nature; it is debated if it represents a variation of mathematical algorithm or invention. Commentators have sought to classify it under copyright, patent, both, trade secrets or even as *sui generis* software right. Finally

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[13] S Bainbridge David, Software Copyright Law, Butterworths London, 3rd edn., 1997, p 5-8

emphasizing on the written form of "algorithm" of source code, software programs have been classified as literary work, hereby making it eligible for copyright protection under Berne Convention and TRIPS agreement.

Initially WIPO[14] started to consider the question of the legal protection of computer programs in the 1970s, and, first, the idea of working out a *sui generis* system emerged. The *sui generis* protection covered all three elements of computer programs: object code, source code and documentation. However, the WIPO Model Provisions on the Protection of Computer Programs which provided for a *sui generis* system were not followed by national legislators, and the idea began to prevail that copyright should be applied for the protection of computer programs. In February 1985, WIPO and UNESCO convened in Geneva a joint Group of Experts on the Copyright Aspects of the Protection of Computer Programs which marked a decisive breakthrough in the choice of copyright as the appropriate form of protection of computer programs, which can be assimilated to literary works.[15] Patent protection was not favored as a narrowly constructed definition of patentable subject matter, according to which only inventions that brought about some physical change of matter were patentable, excluded most computer programs from patent protection. Furthermore, the incremental nature of software development was difficult to reconcile with patent laws requirements of novelty and inventive step.[16] Copyright law, was then thought to be appropriate, as it would provide for immediate and effortless protection because its legal framework was already established and because it did not require authors to comply with any formalities. Moreover, copyright law was considered to provide a solution to the industry's need for strong international protection, as copyright law was extensively harmonized in international treaties, most notably the Berne Convention. After much pressure from the computer industry, the law eventually caught up and the protection of computer software was put beyond doubt. A few months later, several countries passed legislation clarifying that computer programs were considered works, subject to copyright protection, and since then it has been generally accepted worldwide that copyright

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[14] The World Intellectual Property Organization (WIPO) is the United Nations agency dedicated to the use of intellectual property (patents, copyright, trademarks, designs, etc.) as a means of stimulating innovation and creativity.

[15] WIPO Intellectual Property Handbook: Policy, Law and Use, Chapter 7: Technological and Legal Developments in Intellectual Property, P-436

[16] Rooijen Van Ashwin, The Software Interface between Copyright and Comptetion Law- A Legal Analysis of Interoperability in Computer Programs, Vol 20, Kluwer Law International, 2010. P 53-54

protection should be applied rather than patent protection or a *sui generis* approach.[17]

Justifications for the Legal Protection of Computer Software

The justifications for the legal protection of computer software are as follows:

- **Economic reasons**: a person who has expended time and effort in creating computer software should be given the opportunity to reap an economic reward; this will encourage people to be creative. Investment will also be stimulated by the promise of legal protection bearing in mind that investment in the development of computer software can be substantial and, even with strong legal protection, resulting profit is not assured. The increase in creative work and investment will have the effect of benefiting society by increasing and stimulating employment, technical development, commercial growth and wealth.

- **Moral reasons**: a person who has created computer software has a parental bond with the software, it is his or hers and morally, belongs to that person. It is an item of property that the person has brought into existence. He or she should, therefore, be able to prevent other persons exploiting the software without his permission, and be able to control its subsequent use.

By acknowledging the economic and moral rights in software and thus encouraging creativity, innovation and investment, the total store of human knowledge is enriched. By limiting the legal protection in time and in scope, knowledge is disseminated. Some might argue that the person creating the work in question, whether it be computer software or music or poetry etc, should own legal rights in the work in perpetuity (the work owes its very existence to that person). However, the law has an ingrained dislike of perpetual ownership which caused problems in previous times by allowing landowners to tie up parcels of land for long time. Because land is finite, this led to a shortage, especially at the time of the industrial revolution. However, unlike land, the totality of innovative ideas is not finite. According to TRIPS, copyrighted

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[17] WIPO Intellectual Property Handbook: Policy, Law and Use, Chapter 7: Technological and Legal Developments in Intellectual Property , Pg-435

work shall be protected for a term not less than 50 years, whereas patented invention shall be protected for a term not less than 20 years.

There are some arguments against giving legal protection to creative works and inventions, for example, because it stifles competition and allows the owner of the work or invention to charge exorbitant prices and to make a profit out of proportion to the investment and risks undertaken. Those who make such claims suggest that the owner still has certain advantages in the absence of legal protection. The owner is able to get his or her product into the market place before any competitors. The owner has the advantage of a 'lead-time', the time taken to set up necessary manufacturing capability and to produce and distribute products. This lead-time could, in terms of computer hardware, be several months and, during this period, the originator will be able to charge a premium. However, for computer software, the lead-time can be very small and significant numbers of copies of computer programs and accompanying documentation could be mass-produced in a matter of days.

If the software is placed on the internet the lead-time is, in effect, zero. In any case, the lead-time argument fails to address the costs associated with research and development including market research and testing. These costs can account for a considerable proportion of the final price of the product concerned and this is so in the computer industry. The costs are also high in the pharmaceuticals industry where a new drug can cost millions of pounds to develop and test yet be produced for a few pence per pill. The final price must reflect these indirect costs and, without legal protection, a competitor would easily be able to undercut the original developer of the drug. All incentive to develop new drugs would disappear overnight, and the same is largely true in terms of computer software. The large scale of computer software piracy which occurred in the early to mid 1980s was a good example of this and may have contributed to the failure of a number of software companies and the high prices then asked for legitimate software.

On the whole, it is clear that effective legal protection is in everyone's best interests, provided that it is not too strong. Protection should be such as to provide for a fair return on investment, and in terms of the effort associated with the development

of new software products and the enhancement of existence software. Protection should not be so strong as to stifle competition. A software company which markets poor quality software should not be able to succeed because it has monopoly control of its market. Having said this, it lies to determine the most appropriate form of legal protection for computer software.[18]

In the words of The National Commission of Technological Uses of Copyrighted works the following was said:

Copyright offers a balanced solution between inadequate and excessive protection. Its flexibility is sufficient to permit a compromise between the divergent interests of producers and distributors on the one hand and computer program users on the other. This form of intellectual property protection has the principal advantage of covering only the individual expression of the work, and thus leaving the latitude desired by other authors to create similar programs [...], so long as they refrain from copying.

One of the reasons for copyright to be preferred for protection of computer software by most of the countries was that it required no examination of novelty and technical merit to obtain a copyright. The protection was available even if there was a little less inventiveness than required by patents.[19] A major advantage of copyright protection is that it provides a fine balance between monopoly and free circulation of an idea.[20]

Copyright Protection of Computer Software

Copyright derives from the expression "copies of words". Copyright is a legal term used to describe the rights that creators have over their literary and artistic works.[21]

The Oxford English Dictionary defines "Copyright" as "the exclusive right given by law for a certain term of years to an author, composer etc or to his assignee to print, publish and sell copies of his original work.

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[18]S Bainbridge David, Software Copyright Law, Butterworths London, 3rd edn, p 9-10
[19] Gupta V.K, Protection of Software/Algorithm, Vol 1, Journal of Intellectual Property Rights, 76, March 1996.
[20] Suman Yogesh and Gupta V.K, Ptenting Issues of Software Industry, Vol 7, Journal of Intellectual Property Rights, 516, Nov 2002.
[21] WIPO, http://www.wipo.int/copyright/en/

According to Encyclopaedia Britannica, "Copyright is the exclusive, legally secured right to reproduce, distribute, and perform a literary, musical, dramatic, or artistic work".

Now it is commonly subsumed under the broader category of legal regulations known as Intellectual Property Rights. Copyright is designed primarily to protect an artist, a publisher, or another owner against specific unauthorized uses of his work (e.g., reproducing the work in any material form, publishing it, performing it in public, filming it, broadcasting it, or making an adaptation of it). The nature of the acts varies according to the subject matter.

The object copyright law is to encourage authors, composers and artists to create original works by rewarding them with the exclusive right for a limited period over the created material that assures him of both control over its use and a portion of the pecuniary benefits derived from it. On the expiry of the term of copyright the works belongs to the public domain and anyone may reproduce them without permission.

There are two types of rights that are conferred by copyright:

i. Economic rights which allow the author to derive financial reward from the use of his works by others;

ii. Moral rights are the rights to claim authorship of a work, and the right to oppose changes to the work that could harm the author's reputation.

Most copyright laws state that the author or rights owner has the right to authorize or prevent certain acts in relation to a work. The author of a work can prohibit or authorize:

- Its reproduction in various forms, such as printed publication or sound recording;
- Its public performance, such as in a play or musical work;
- Its recording, for example, in the form of compact discs or DVDs;
- Its broadcasting by radio, cable or satellite;
- Its translation into other languages; and
- Its adaptation, such as a novel into a film screenplay.

In order to secure copyright protection what is required is that the work must be an

original work, the author must have bestowed upon the work sufficient judgment, skill and labour or capital. It is immaterial whether the work is wise or foolish, accurate or inaccurate or whether it has or has not any literary merit.

According to Berne Convention, copyright protection is obtained automatically without the need for registration or other formalities. Some national copyright offices and laws do however provide for registration of works. This can facilitate, for example, questions involving disputes over ownership or creation, financial transaction, sales, assignments and transfer of rights.[22]

Copyright protection extends only to expressions and to ideas, procedures, and method of operation or mathematical concepts as such. Since there is no copyright on ideas or information, it is no infringement of copyright to adopt the ideas of another or to publish information derived from another, provided there is no copying of the language in which those ideas have, or that information has been previously embodied. [23]

India allocates copyright protection to computer program, which has been classified as a literary work. The copyright act of 1957 was amended in 1983 and then again in 1994 to give effective protection to computer program.

After the 1983 Amendment, sec 2(0) in its definition of "literary work" included: "tables and compilations and computer programs, that is to say, programs recorded on any disc, tape, reperforated media or other information storage device, which, if fed into or located in a computer or computer based equipment is capable of reproducing any information".

After the 1994 Amendment, which was an important amendment with respect to computer program, the above sec now reads as follows: "literary work" includes computer programs, tables and compilations including computer data basis". The 1994 Amendment now specifically gives definition of computer program by inserting new clause in sec 2(ffc) "Computer program" means a set of instruction expressed in words, codes, schemes or in other

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[22] ibid

[23] Satarkar S.P, Intellectual Property Rights and Copyrights, 33-35, Ess Ess Publications, 1st edn, 2003.

form, including a machine readable medium, capable of causing a computer to perform a particular task or achieve a particular result".[24]

Object of copyright law is to encourage authors, composers and artists to create original works by giving them exclusive right for limited period to reproduce the work for the benefit of the public. It is a negative right to prevent others from copying their work.

Subsistence of Copyright

For a copyright protection, computer software needs to be original. Originality for the purpose of copyright law relates to the expression of thought, but the expression need not be original or novel. What is important is that the work must not be copied from another work but must originate from the author. The degree of originality required for copyright protection is minimal; the emphasis is more on the labour, skill, judgment and capital expended in producing the work. Most computer programs, however, small are result of skill and judgment and therefore entitled to copyright. However, there is a `De minimis' rule in copyright i.e. trivial, insignificant or very small works are not protected. Also a program which only generates multiplication tables or algorithms may not suffice the degree of effort required for protection. It is also important that the literary work is expressed in some fixed tangible form.

Apart from these, the work should be first published in India or if the work is published outside India, the author on the date of publication or if the author is dead at the time of his death should be a citizen of India.[25]

In case of unpublished work[26], the author on the date of making of a work should be a citizen of India or domiciled in India.

Copyright is not a perpetual right. It exists for a specific term. After the expiry of the term, the work falls in the public domain and is open to the public to use it without permission of the owner. Copyright shall subsist in any literary work published within the lifetime of the

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[24] Dr. Faizan Mustafa, Copyright Law - A Comparative Study, Institute of Objective Studies, 1st edn 1997.
[25] Section 13(2)(i) of the copyright Act, 1957.
[26] Section 13(2)(ii) of the copyright Act, 1957.

author until 60 years from the beginning of the calendar year[27] next following the year in which the author dies.[28]

Scope of Protection

Copyright is not a positive right but a negative right; it is the right to stop others from exploiting the work without the copyright owners consent or license. Copyright is not a single right but a bundle of rights which can be exploited independently by the owner himself or licence others to exploit any one or more rights for a consideration in the form of royalty or a lump sum payment.[29]

Copyright, in relation to a computer program means the exclusive right to do or authorize to do any of the following acts:

1. To reproduce the work in any material form including the storing of it in any medium by electronic means;
2. To issue copies of the work to the public not being copies already in circulation
3. To perform the work in public, or communicate it to the public;
4. To make any cinematographic film or sound recording in respect of the work;
5. To make any translation of work
6. To make any adaptation of the work
7. To do, in relation to a translation or an adaptation of the work any of the acts specified in relation to the work in the above;
8. To sell or give on commercial rental or offer for sale or for commercial rental any copy of the computer program. However, commercial renting does not apply to computer programs where the program itself is not the essential object of the rental.[30]

Right to reproduce work:

The most fundamental and valuable right of the author is the right to reproduce his work. Section 14 of the Copyright Act confers the right to the author of the work to reproduce

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[27] Calendar year means the year commencing on the first of January sec 2(e)
[28] Sec 22
[29] Sreenivasulu N.S, Law Relating to Intellectual Property.
[30] Sec 14(b)

his work or to authorize others to do so. In case of literary, dramatic or musical works, as well as computer programmes, the right is not restricted to reproduce the work in the same form; rather the reproduction of the work can be done in any material form, including the storing of it in any medium by electronic mean.[31]

The right of reproduction commonly means that no person shall make one or more copies of a work or of a substantial part of it in any material form. Any if any person reproduces the copyrighted work without permission of the copyright owner it would amount to infringement.

Right to issue copies:

The author has a right to issue the copies of the copyrighted work. However, the right to control the issue of copies to the public only applies to the first issue of individual copies. Thus, once a particular copy of a computer program has been issued to the public by or with the consent of the copyright owner, he can no longer use that right to control subsequent dealings with that particular copy, apart from rental.

Public performance or communication of the work:

Although unlikely, it is possible for this to be invoked in terms of computer software. For example- a computer game might be projected onto a large screen in a restaurant or similar establishment to keep the customers entertained.

Right to adaptation and translation of work:

Section 2 (a) of the Act defines the term 'adaptation', which, depending upon the nature of the work, confers the author with a right to convert the work into other form, or the right to perform the work in public, or to abridge the work, or to make any arrangement or transcription of the work, or rearrangement or alteration of the work. Adaptation is usually understood to involve adapting an already existing work, in which the copyright subsists, from one form to

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[31] Dr. Navdeep Kour Sasan, Rights of the Author: Possible Extensions under Copyright Law in India, International Journal of Innovation and Applied Studies, Vol. 2 No. Feb 2, 2013, Innovative Space of Scientific Research Journals

another, for example, from novel to a drama or film, or from two dimensional to three dimensional form, etc

Translation is not defined in the act. In its ordinary meaning translation implies translating the work from one language to another. For example: translating a source code into an object code or vice versa.[32]

Infringement

If any of the acts specified in Section 14 (b) is carried out by a person other than the owner or without licence from the owner or a competent authority under the Act it constitutes infringement of copyright.

To establish infringement it must be shown that the alleged infringing work closely resembles the original work and that use has been made directly or indirectly of the original work. The question of infringement would be resolved by comparing the two works as a whole and determining whether there is any identity or a similarity or resemblance in some of the important features of the work that it seems like a copy or reproduction of the original work.

It is not essential ingredient of infringement that the infringer had an intention to infringe. But some form of copying is required either direct or indirect. There is no infringement if a person has taken only the essential idea of the work, even if it is highly original provided he has given expression to that idea in his own way.

In order to succeed in an action for infringement the plaintiff has to establish:

➢ That there is a close similarity between the two works;
➢ That the defendant has directly or indirectly made an unlawful use of the copyrighted work;
➢ That there is a chain of causation linking the copyrighted work with the defendants alleged infringing copy; and

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[32] Narayanan.P, Law Relating to Intellectual Property Rights, Eastern Law House.

➢ The defendant had access to the plaintiff's copyrighted work or an infringing copy of that work.[33]

Acts not Constituting Infringement

The exclusive rights enjoyed by the copyright owner are subject to certain limitations. The performance of such acts by any person does not amount to infringement of the copyrighted work. One limitation which is common in many countries' copyright law as well as in India is the "Doctrine of fair use". This doctrine has been developed by the courts through a substantial number of cases. A list of various purposes for which reproduction of a particular copyrighted work may be constituted 'fair', such as criticism, comment, news reporting, teaching and research or private study.

However the following four factors need to be considered in determing whether or not a particular use is fair:

1. Purpose and character of use (i.e., commercial use or non-profit educational purpose);
2. Nature of the copyrighted work;
3. Amount of work used in relation to the copyrighted work as a whole;
4. Effect of the use upon the potential market for, or value of the copyrighted work.

Sometimes the distinction between fair use and infringement may not be easily defined. There is no specific number of words, lines or notes that may safely be taken without permission.[34]

In respect of computer program the following acts also do not constitute infringement:

1. Making or adaptation of a computer program by the lawful possessor of a copy of such program:
   a) In order to utilise the computer program for the purpose for which it was actually supplied;

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[33] ibid
[34] Vinod V. Sople, Managing Intellectual Property: The Strategic Imperative, PHI Learning Pvt. Ltd, 2012

b) To make backup copies purely as a temporary protection against loss, destruction or damage in order to utilise the program for the purpose for which it was supplied;

c) From a personally legally obtained copy for non-commercial personal use.

2. The doing of any act necessary to obtain information essential for operating inter-operability of an independently created computer program provided that such information is not otherwise readily available;

3. The observation, study on test of functioning of the computer program in order to determine the ideas and principles which underline any elements of the program while performing such acts necessary for the functions for which the computer program was supplied.[35]

Advantages of Copyright Protection

Proponents of copyright protection argue that it would facilitate the development of software for the following reasons:

1. Applications for copyright protection do not need to go through a granting process; copyright automatically authorizes ownership to creators. Copyright protection is relatively easy to obtain. The requirements of "originality" and "expression" are relatively easy to meet, and they will preclude protection of only the smaller, simpler programs.

2. The term of protection under copyright law is far longer than that afforded by other forms of protection.

3. New innovations are often both creative and expensive endeavours. The creation of copyright laws has protected innovators from investing huge amounts of time and money into a project, only to have it stolen. Instead, individuals have all elements of control over their property and have a legal channel to look to if another person infringes upon their rights. Copyright laws also provide courts with a legal guide when

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[35] Sec 52(1)(aa)

dealing with issues regarding intellectual property theft, making it easier to sort out disputes between individuals.

4. There is less fear of infringement. Each new software program represents a new copyright and the creators need not worry about whether there is an intrusion of prior art, thus each new program may contain knowledge originally created by previous designers.

5. Licensing deals to commercialise the software are both simpler and cheaper under copyright. A potential licensee of a software program need not approach many owners (of previously copyrighted elements) to arrange for commercialisation. This would attract wider interests for disseminating new software knowledge at much lower costs, thus stimulating both competition and industry development. Proponents of copyrighting indicated that "the main use of software patents is to block out competition".[36]

6. The establishment of the copyright laws has led to more creators documenting their innovations. Prior to copyright laws, individuals were extra secretive, sometimes choosing not to document the innovation for fear of the idea being stolen. Now, most individuals choose to register their item as soon as possible, which documents the creation of all new innovations. Copyright laws and registration provide creators the freedom to converse about their innovation without worrying that their idea be replicated without their permission.

7. Protection is automatically applied, in most jurisdictions, when the author first fixes his work in a tangible medium.

Disadvantages of Copyright Protection

The protection provided by copyright also has several shortcomings-

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[36] Yang Deli, Software protection: Copyrightability Vs. Patentability, Vol 17, Journal of Intellectual Property Rights, 160, March 2012.

1. Copyright merely protects the expression of an idea and not the idea itself. The biggest disadvantage is that it does not protect the functionality of the software, which is of key importance. The software is a dynamic product whose functional aspects are different from other art and literary works. Underlying idea of the program may be legally copied by one who writes a program that will perform the same functions but uses a different computer language and/or sequence of instructions. Experienced programmers can easily circumvent the copyright protection of the software by copying its functionality but not directing copying the code. Many times it is very difficult to draw a clear line of distinction idea and expression.[37]

2. From the point of view of the author or owner of copyright, it is a weak right as it is not available against a person who independently develops his computer program even though the program might be identical to that of the owner the second author's work would not infringe on the first. The use of infringing software was not a copyright infringement unless the use involved the making of the copy.

3. The period of protection of computer program under copyright is too long. Computer programs do not need to be protected for such a long period. Since the active life of an ordinary program is relatively short, the long-term protection provided by copyright will serve only to inhibit development of programs.

4. The creator is provided legal support in holding a monopoly over his creation. He has the right to distribute the work, reproduce it, perform the work, or display the work. The right to monopolize the sale of the product or its reproduction puts a lot of power in the hands of one person or company. Monopolies over items, like prescription drugs, means that companies can charge any amount they desire, making the medicine too expensive for lower socioeconomic families or individuals to afford.

5. By adding computer programs to the list of subjects protected under existing copyright laws, the protection provided to other subjects of protection may be subject to great confusion.

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[37] Yang Deli, Software protection: Copyrightability Vs. Patentability, Vol 17, Journal of Intellectual Property Rights, 160, March 2012.

6. It is not clear to what extent the copyright law applies to software as there are no claims defining the scope like the one in patent laws.

7. The kind of protection available to non-literal and non-verbatim imitation of copyrighted works for example, imitation of user interfaces and command language for application program is not generally clearly defined.

8. It may prove difficult for the courts to determine an infringement of a copyrighted program.[38]

The ambiguous nature of copyright can be seen by comparing the cases *Wheelan Associates Inc. v. Jaslow Dental Labs (1986) and International, Inc. v. Altais, Inc. (1992)*. In the former case, the program in question was not completely original; it was deemed entirely copyright-protectable on the basis of its original structure and organization. In the latter case, non-original components were removed from the software before it could be protected by copyright.

In Delrina v. Triolet Systems Inc. a programmer wrote software code for one employer, Delrina Corp. that assessed the efficiency of operation of Hewlett-Packard HP 3000 computers. A year later, that same programmer began designing a competing product with a different employer with similar functionality, keystroke commands, and display screens. The trial judge accepted that the programmer's objective was to take away customers from his first employer and that his purpose was to design a product with identical functionality, but the judge ruled that these facts were insufficient to show copyright infringement. The trial judge noted that copyright does not provide the monopoly conferred by patents, and therefore, the claim did not amount to copyright infringement. All of the alleged similarities were dictated by functional considerations or otherwise not protectable by copyright.[39]

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[38] Yang Deli, Software protection: Copyrightability Vs. Patentability, Vol 17, Journal of Intellectual Property Rights, 160, March 2012.
[39] Eugene Derényi, Software Copyright and Software Patent, Stikeman Elliott LLP.

Conclusion

Protection of software in a country like India, where information technology sector grows leaps and bounds is of utmost importance. Software developers and companies have to exercise caution on how they have to protect their software. It is necessary for every company to register copyright not only for their personal protection but also as to not hamper the economic growth of the country in any manner vide software piracy. Registration under the copyright act is not mandatory as protection is automatic but it is recommended that the software developers and companies register their software to avoid any future conflicts. Copyright Right Act being inexpensive and less cumbersome in its registration procedure is an added benefit for programmers.