

ERROR 406

Software Patents Not Acceptable

| An Indian Perspective |



“From error to error, one discovers the truth”

-Sigmund Freud

“1xx: Informational - Request received, continuing process”



Competitiveness in business or an industry often symbolizes a constant course of development. Competitiveness fosters struggle for existence and boosts development by innovation which ultimately results in survival of the fittest. Software industry is truly exemplary, symbolizing development in technology and nurturing struggle.

We all have witnessed the development of software and hardware in mobile industry since 90's, which revolutionized the industry and ended up with one of the most used electronic goods, which made mobile phones an integral part of our lives.

Such change was brought about by the intense competition among several major mobile phone players, such as Nokia, Apple, Sony Ericsson and Samsung; hence we can say competitiveness is synonym of development and innovation.

Intellectual Property Rights play a major role in maintaining fair play in this thriving competition. IPRs provide guidelines and define boundaries for structured progression of business and technology. However, “not everything that can be counted counts” is the case with Intellectual Property Rights, as there is no uniformity, parity and clarity across jurisdictions on the way software should be protected.

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SOFTWARE: THE STATUS

There is no legal or conclusive definition for a software patent. A suggested definition of software patent has been proposed by the Foundation for a Free Information Infrastructure (FFII) as being a *"patent on any performance of a computer realized by means of a computer program"*.

Software is a virtual or intangible program, which is installed as system software or application software. System software is a basic requirement for any computer, as it controls all the major functions and integrates all components into a unitary system, such as an operating system. Application software serves more application based purposes, such as creating databases and spreadsheets or processing images such as Microsoft Office.

Software enjoys dual protection under copyright and patent law, but which law prevails other depends on the strategic advantage sought by the applicant. "Copyright law protects the specific code a programmer writes, but it does not protect the idea behind that code and it does not prevent it from being recreated with similar functionality with different code by someone else. Patents give their owners the right to prevent others from using a claimed invention, even if it was independently developed and there was no copying involved".

Patent law prevalently dominates the applicant's choice over copyright because of its obvious advantages, but the irony is that the patent law does not allow software protection *in toto*.

AS PER INDIAN COPYRIGHT LAW:

The original expression and computer software is granted protection under copyright law unless it leads to a technical effect and is not a computer program per se. Section 2(o) defines 'literary work' and includes computer programs, tables and compilations including computer databases. The language of any computer program is considered to be an expression of the author and hence comes under the Copyright Law.

AS PER THE INDIAN PATENT LAW:

A program containing a method for carrying out a new procedure, or representing a better way of carrying out an existing procedure, would be patentable, unless the effect of the procedure was solely within the computer itself or solely due to the expression of language. On this basis, a program for an improved system of manufacturing a product, or performing a new or improved function on any machine would be patentable, unless the function was only performed in the computer itself.

Generally, Patent Law excludes those programs which do not provide a technical solution to a technical problem. A program which simply embodies a theory, a mathematical method, a method of doing business and an algorithm are excluded, as the matter falls within non-patentability Section 3(k) of Indian Patents Act, 1970.



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SOFTWARE PATENTS: WORLDWIDE

Patent laws of several countries allow patent protection for software. Such countries include USA, Japan and Singapore, to name a few. Many countries, including India and Europe, have stringent laws concerning patent protection for software innovation.

It is noteworthy that computer program in itself is not patentable but computer related inventions are patentable.

Article 27 of PCT says the patentability of invention can be determined by national law of the applicant.

SOFTWARE PATENTS: INDIA

In order to obtain a patent in India, an invention must fulfill four criteria:

1. **Industrial Applicability:** Sec 2(1)(ac) "capable of industrial application", in relation to an invention, means that the invention is capable of being made or used in an industry;
2. **Inventive Step:** Sec 2(1)(ja) "inventive step" means a feature of an invention that involves technical advancement as compared to the existing knowledge or having economic significance or both and that makes the invention not obvious to a person skilled in the art;
3. **Novelty:** Sec 2(ℓ) "new invention" means any invention or technology which has not been anticipated by publication in any document or used in the country or elsewhere in the world before the date of filing of patent application with complete specification, i.e., the subject matter has not fallen in public domain or that it does not form part of the state of the art; and
4. **Patentability exclusion for software or computer program:** Sec 3(k) a mathematical or business method or a computer programmes per se or algorithms.

Patentability exclusion for software or computer program specifically elucidates subject matter which is novel/new product or process, having an inventive step and capable of industrial application *does not* qualify for patent if it falls under Section 3(k) of the Indian Patents Act, 1970. Nevertheless, not all computers related invention fall under Section 3(k) or that computer related inventions which are outside the scope of Section 3(k) are patentable in India.

For instance, if the main essence/contribution/function of the proposed invention lies solely in the computer program, the invention is not patentable as per Section 3(k) of the Patents Act, 1970. Conversely, if the main essence/contribution/function of the proposed invention lies *in both* the computer program as well as hardware, the invention will not fall under Section 3(k) and shall be judged on other criteria's of patentability.



SOFTWARE PATENTS: EUROPEAN UNION

In order to obtain a patent in European Union, an invention must fulfill four criteria:

1. it must be an invention, which;
2. must be new, which must;
3. involve an inventive step; and
4. should be capable of industrial application.

EPC Article 52(2)(c) specifically excludes “mathematical methods”, “presentation of information” and particularly “programs for computers” as well as “methods for . . . doing business”.

The format of the patent claims are regulated by EPC Article 84 and Rule 29 and further described in EPO Guidelines C III, stating, that the patent claims should define the subject-matter for which protection is sought in terms of the technical features of the invention. If such technical features are not found, the application should be rejected.

For instance, if an invention claims a method wherein the data processed are numbers or money and the steps comprise of mathematical formulae or business methods, in such case it cannot be patented, while if the objects represented are physical objects or conditions, e.g. building bricks or information about conditions integrated in an apparatus, the methods may be patentable.

SOFTWARE PATENTS: JAPAN

In order to obtain a patent in Japan, invention must be from the field of applied science. The application of a scientific principle is a prerequisite to patentability. Article 2 of the Japan Patent Law, statutory subject matter includes inventions such as *“any highly advanced creation of technical ideas by which a physical law of nature is utilized”*. If this “cause and effect” relationship is linked by a law of nature, then the subject matter is statutory. If the relationship is a mathematical formula, only then the subject matter is not statutory. Thus, inventions based on human mental activities are not statutory.

For the claimed invention to be an “invention” in terms of the Patents Act, in case of a software related invention, it shall be same as in the case of non-software related invention, that is required to be “advanced one of creation of a technical idea utilizing a law of nature”. The requisite use of the laws of nature is met when “information processed by software is concretely realised using hardware resources”. Therefore, software can be patentable if the information processing by the software is concretely realised using hardware.

A software related invention can be expressed as a series of processes or operations, which are connected in terms of the time series, more specifically, as “steps”, or can be expressed by a plurality of functions the invention serves. Computer software for a computer to execute a method is a “creation of a technical idea utilizing a law of nature” and thus constitutes a statutory “invention” or a computer or system for executing such method is normally a creation of a technical idea utilizing a law of nature as a whole, and thus, it constitutes a statutory “invention”.

SOFTWARE PATENTS: USA

In order for an invention to be entitled to patent protection in United States, it must overcome four statutory hurdles:

1. the invention must have patentable subject matter;
2. the invention must be useful;
3. the invention must be novel; and
4. the invention must be non-obvious.

It also requires an invention to fit into one of four categories: (1) processes, (2) machines, (3) manufactures or (4) compositions of matter. The business method and software come under process patents. Although at present, the computer software is clearly patentable in the United States, this has not been the case always and has a debatable future.

1960s-70s: No Protection if invention is exclusively calculations made via computer;

1980s: The Supreme Court verdict clarifies that some computerized inventions are patentable;

1990s: The Federal Circuit provides that almost all software is patentable;

2000s: The Federal Circuit starts rolled back that almost all Software are patentable;

2010s: Supreme Court intervened and upheld the initial decision that almost all software are patentable; and

2014s: The Federal Circuit provided a 2 step test for determining patent eligibility for all software related inventions.

Nevertheless, a process (including software related inventions or computer code) is patentable only if “(1) it is synchronized to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.” This “machine-or-transformation test” is intended to identify and exclude abstract ideas that are not eligible for patent. For instance, a device that makes a video game controller to vibrate is likely to survive the “machine-or-transformation test”, because their software component is intertwined or integrated with a physical component.



SOFTWARE PATENTS: INDIAN GUIDELINES

Indian Patents Act 1970, very specifically clarifies what is not patentable, such as section 3k specifically elucidates that “a mathematical or business method or a computer program per se or algorithms”.

The Indian Patent Office has also published revised guidelines dated 19th February, 2016 on computer related inventions which supersedes the previous draft guidelines for examination or related inventions which was published on July 2013. The revised guidelines provide clear instructions on patentability of computer related inventions but have a prevalent negative tone owing primarily to restrictions enumerated under the current regulation. Although such restrictions permit the software in combination with hardware with a special proviso of novel hardware, is completely not in line with Section 3(k) of the Indian Patents Act, 1970. The present guidelines does not allow software patent for a practical world or existing computer and machines. Development of software industry for entirely new devices is very hard, which creates a roadblock for the proliferation of Indian IT industry. The main features of these guidelines are as follows:

1) Software per se cannot be patented [Negative]

In line with Section 3(k), software per se cannot be patented under any circumstance. For example,

“a computer readable medium carrying program for controlling a computer, comprising at least a program causing the computer to perform a procedure A, a procedure B and a procedure C, cannot be patented.”

2) Software in combination with new hardware can only be patented [Affirmative with strict criteria]

The term ‘new hardware’ is specifically emphasized in the new guidelines. Further, the term ‘old hardware’ is now kept in the non patentability Section of the Act that means software can only be patented in combination with new hardware. As per Regulation 5(3) of the revised guidelines, the Examiner while examining must check whether the software is claimed in conjunction with a novel hardware and only then proceed to determine patentability.

Hence, the regulation strictly states that *software per se* can never be patented unless embedded in a novel hardware or is combined with a unique device in a manner that both the software as well as hardware is rendered functionless without each other.

3) Software invention must qualify a three stage test [Negative]

As per Regulation 5 of the revised guidelines, examiners may rely on the following three stage test in examining CRI applications:

1. Properly construe the claim and identify the actual contribution of the hardware and the computer program;
2. If the contribution lies only by the computer program, mathematical method, business method or algorithm, deny the claim; and
3. If the contribution lies by computer program, check whether it is claimed in conjunction with a novel hardware and proceed to other steps to determine patentability with respect to the invention.

4) Detailed disclosure requirements [Affirmative]

The revised guidelines reiterate requirements that applicant must specify i.e. ‘what’ the invention is and ‘how’ to perform it. These disclosure requirements will help ensure a sufficiency of the patent application. For example, if the invention in combination with certain hardware is described with suitable illustrative drawings, where each and every feature of the invention brings out the relevance of the integration of the hardware with the software. This prevents mala fide attempt to obtain a patent for software per se by falsely combining it with hardware in the language of claims.

Internationally, there are prevailing ambiguities as to the approach taken towards software patenting. However, the guideline which defines parameters like 'further technical effect' lack basic clarity. The previous Indian guidelines attempted to follow the international approach to software patenting, patenting which exhibited a “further technical effect”. A subjective interpretation of “further technical effect” led to a confused approach apparent in frequent smart phone patent wars in continuing litigations and patent trolls, prevalent internationally. Until a better unified solution is found, India's current approach appears to be preferable and sufficient to provide a much needed clarity on the issue.

For instance, if in an invention the major contributor is a computer program, check whether it is claimed in conjunction with a novel hardware and proceed to other steps to determine patentability with respect to the invention. If, the invention relates to 'method', the necessary sequence of steps should clearly be described so as to distinguish the invention from the prior art and establish inventiveness. The steps may be represented in the form of the flowcharts together with other information required for performing the invention with modes/means of implementation. The working relationship of different components together with connectivity should be clearly described.

The desired result/output or the outcome of the invention as envisaged in the specification and of any intermediate applicable components/steps should also be clearly described.

The specification should not limit the description of the invention only to its functionality rather it should specifically and clearly describe the implementation of the invention.

The claims concerning CRIs are often phrased in means for performing some function such as means for converting digital to analog signal etc. These types of claims are classified under means plus function format. Further, if the specification supports implementation of the invention solely by the computer program then in such cases means plus function claims are nothing but computer program per se, hence are liable to be rejected. If in substance, the claims, taken as whole, do not fall in any of the excluded categories, the patents are not denied.

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SOFTWARE PATENTS: EXISTENCE

Table 1: Top Patent Filers in Computer Related Inventions

Sl. No.	Name of Company	Application Filed
1.	Samsung	233
2.	Tata Consultancy Services	147
3.	Wipro Limited	117
4.	Hindustan Aeronautics Limited	57
5.	Indian Institute of Technology	50

Source: Patent Office Annual Report 2014-2015

Table 2: Computer Related Inventions including Electronics [year wise]

Year	Application Filed	Application Granted
2007-08	4842	1357
2008-09	7063	1913
2009-10	7646	1195
2010-11	9594	892
2011-12	4225	584
2012-13	4424	510
2013-14	4371	690
2014-15	4031	835

No. of Examiners of Patents in Computer and IT Field: 23

Analysis of Practice in Software Patents

(Indian Patent Controller's Decision in Year 2013)

Rejected on 3k=14

Refused on 3k=11

Granted on 3K=35



SOFTWARE PATENTS: CLAIM CONSTRUCTION

In patent practice, claim decides the right of a patentee. Therefore, it is extremely important to construct the language of claim with purview of applicable laws and the meaning of specific words. The common words generally used in computer related inventions are:

“configured to”, “permitting...”, “programmable means for”, “capable of engaging”, “adapted to”, “for...ing”, “operable to...”, “mechanism”, “data processing system”, “mechanism for”, “module for”, “device for”, “unit for”, “component for”, “element for”, “member for”, “apparatus for”, “machine for”, or “system for”.

The computer related inventions are somewhat unique, e.g., compared to mechanical and life sciences, because there is no standard format or language for specific construction of claim. However, most software patent claims today are written in functional terms viz. “programmable selection means for”, “capable of engaging”, “adapted to”, “for ... -ing”, “operable to”, and the like. In other words, the software claim elements generally do not specify particular coding approaches that must be used rather what the code does.

1. Functional Abstraction: Conceptually, what the software program shall perform.
2. Abstract Data Type: A collection of data and set operations.
3. Pseudocode/Native Code: A set of instructions that specify the operations and collectively achieve the function.
4. Data Structure: A programming language construct that stores a collection of data.
5. Source Code: Human-readable computer code before it is compiled into machine readable object code.

Since software programs are not “tangible” objects, they are not patentable. However, if we are able to convert an intangible software program into a tangible product by combining the software program onto an electronic hardware, it can be patented. Apple's “Slide to Unlock” is one of the best-known issued software patents in the world. Basically, “Slide to Unlock” is a software program to implement an unlocking user interface. To make a patent application for this software program, Apple combines this software program with iPhone (hardware) and writes a patent application for this iPhone which contains the software program.

A METHOD CLAIM:

Method claims include active steps in a process to define the invention. A process has to be unique or better than the prior arts. Each element in a claim uses verb + “-ing” form. This element represents an active step in a process. So, a method claim is a set of steps in verb + “-ing” forms.

A method for manufacturing [the invented product] comprising:

[Step A of the program] (further details of the step A);

[Step B of the program] (further details of the step B);

*[Step C of the program] (further details of the step C);
and so on.*

Claim 1 of

*A **method** of unlocking a hand-held electronic device, the device including a touch-sensitive display, the method comprising:*

***detecting** a contact with the touch-sensitive display at a first predefined location corresponding to an unlock image;*

*continuously **moving** the unlock image on the touch-sensitive display in accordance with movement of the contact while continuous contact with the touch screen is maintained, wherein the unlock image is a graphical, interactive user-interface object with which a user interacts in order to unlock the device; and*

***unlocking** the hand-held electronic device if the moving the unlock image on the touch-sensitive display results in movement of the unlock image from the first predefined location to a predefined unlock region on the touch-sensitive display.*

The claim has three steps. They are all essential steps to achieve the technical effect of the invention. It is very important to identify important and essential steps in the process of the invented software program, that elucidates non-obviousness and novelty and draft a claim based on only such essential steps. Other non essential steps will be included in other independent claims.

A SYSTEM CLAIM:

A system claim is to protect novel components that perform mandatory steps of the invented software program. Therefore, this system claim will protect essential and novel components of the invention.

A system for [the invented product] comprising:
[Element A] (further details of this element);
[Element B] (further details of this element);
[Element C] (further details of this element);
and so on.

Claim 1 of

A portable electronic device, comprising:

a touch-sensitive display;

memory;

one or more processors; and

one or more modules stored in the memory and configured for execution by the one or more processors, the one or more modules including instructions:

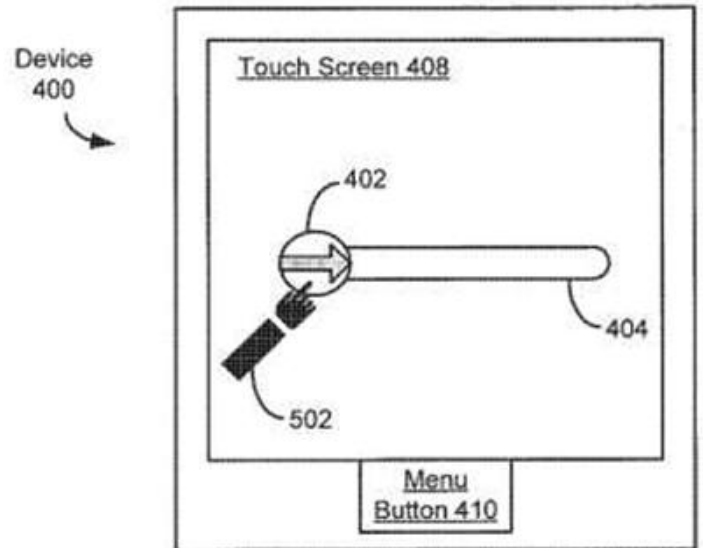
to detect a contact with the touch-sensitive display at a first predefined location corresponding to an unlock image;

to continuously move the unlock image on the touch-sensitive display in accordance with movement of the detected contact while continuous contact with the touch-sensitive display is maintained, wherein the unlock image is a graphical, interactive user-interface object with which a user interacts in order to unlock the device; and

to unlock the hand-held electronic device if the unlock image is moved from the first predefined location on the touch screen to a predefined unlock region on the touch-sensitive display.

This invented system is comprised of four components. The first component **touch-sensitive display** where the slide to unlock will perform. The second component **memory** is required to display the function. The third component **one or more processors** is needed to run the system. The fourth component **one or more modules is** configured for execution of instructions and performing the novel method of the invention.

However, apart from precise claim construction, the grant of computer related inventions also depends on the explanatory parts of different embodiments, diagram drafting, composition drawings, flow chart, and user interface diagrams. The primary purpose of these explanatory parts is to explain the feasibility of the invention and to demonstrate significant unexpected improvement from prior arts.



Apple's iPhone: Learn to innovate

The Smartphone giant Apple has introduced the iPhone in 2007. Since then Apple has sold over 896 billion iPhone units and share 15.9% worldwide market share to become one of the leading Smartphone manufacturers in the world. In ten years, Apple's revenue increased from 8 billion U.S. dollars in 2004 to more than 180 billion in 2014. Till 2012, the company has filed nearly 1,300 patent applications and has entered into 479 lawsuits to protect the intellectual property behind the iPhone technology. According to the US Patent 100, Apple now owns 10,942 patents.



SOFTWARE: WHAT IS PATENTABLE

In general, computer software in combination with a physical device or physical element that is used in processing, operation, or implementation of a function, which is a new, useful, and non-obvious process or product is a patentable subject matter. Few examples are given below which can be patentable within the meaning of patent laws:

1. Method of data/video/image/audio compression/processing;
2. A system that controlled an equipment (X-ray, microwave, robotic, inventory, washing machine, engine, hard disk, electronic meter, chemical reaction, etc);
3. An improved method for operation of a machine or memory;
4. Method of improving technical properties such as physical, chemical, biological or electric properties of an object;
5. A system that controlled a Graphical User Interface; and
6. A system and method for positioning of mobile unit.

SOFTWARE: WHAT IS NON PATENTABLE

When a claimed invention is an obvious process or product and considered as any of (i) to (vi) shown below, the claimed invention is not considered as patentable:

- (i) Abstract idea or computer programs or code;
- (ii) Arbitrary arrangements (e.g., a rule for playing a game as such);
- (iii) Mathematical formula;
- (iv) Mental activities of humans;
- (v) Algorithm; and
- (vi) Those utilizing only (i) to (v) (e.g., methods for doing business as such).

Examples:

Example 1: Computer programming languages or a new mobile app

Example 2: A method of collecting money or billing

Example 3: A written manual for instructing an operation of a machine or directing a use of a chemical substance

Example 4: An audio CD the feature of which resides solely in music recorded thereon

Example 5: Image data taken with a digital camera

Example 6: Method of managing parking

Example 8: Method of online buying and selling

Example 9: Method of doing business in a different way

Example 10: Presentation of information in a different way

Example 11: Computing method and computing device

Example 12: Method for predicting daily sales of commodities

SOFTWARE: BREAKTHROUGH INVENTIONS

Owner	Patent No.	Patent On
IBM	US4,965,765	Fat lines: To turn a thin line on a computer screen into a broad line
Microsoft	US7,415,666	Page Up Page Down
	US6,727,830	Double Clicking
	US5,579,517 US5,758,352 US5,745,902 US6,286,013	FAT File System
Apple	US 5764992	Automatic Software Update
	US8046721	Slide to Unlock
Intel	EP1254562	Digital Video Recording
	US 5,546,528	Tabs
	EP 394160	Progress Bars
	US6,389,458	Pop-up windows
Stac Inc	US5016009	Data compression
Alcatel-Lucent	US 5627938 US 5341457	MP3 Technology
Sperry Corp	US4558302	GIF
Compression Labs Inc	EP0266049	JPEG
Menashe Julian	EP0625760	Gaming System
Univ California	US5838906	Browser plugin
Goto Com	US6269361	Pay per click
Immersion Corporation	US 6275213 and US 6424333	PlayStation 2 Dual Shock controllers
Gossett And Gunter Inc.	US6829289 US 6982945	Android OS
Somasundram Ramkumar	IN 214388	Dual Sim Phone

DEVELOPMENT YEAR

1G Mobile Network	1979
Lithium-ion Battery	1985
Archie-First Search Engine	1990
2G Mobile Network	1992
Text Messaging	1992
Yahoo Search Engine	1994
Webmail	1996
Google Search Engine	1996
Wi-Fi	1996
Yahoo Chat	1997
GPS	1999
Bluetooth	2000
Camera in Mobile	2000
3G Mobile Network	2001
iPod	2001
Skype	2003
Facebook	2004
Google Map	2005
YouTube	2005
Apple iPhone	2007
Kindle	2007
Android	2008
4G Mobile Network	2008
Voice control in mobile	2009
WhatsApp	2009
iPad	2010

LARGEST MERGERS AND ACQUISITIONS IN IT FIELD

Year	Purchaser	Purchased	Transaction Value (in billion USD)
2000	AOL Inc.	Time Warner	165
2002	VeriSign	Network Solutions	21
2002	HP	Compaq	18.6
2005	Symantec	Veritas	13.5
2008	HP	EDS	13.9
2009	Oracle	Sun Microsystems	7.4
2011	Microsoft	Skype	8.5
2014	Google	Motorola Mobility	12.5
2014	Rakuten	Viber	9
2014	Facebook	WhatsApp	19.0
2015	Intel	Altera	16.7
2015	Avago Technologies	Broadcom	37
2015	Dell	EMC Corporation	67
2016	Microsoft	LinkedIn	26.2



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