

## EXTENT OF COPYRIGHT PROTECTION TO COMPUTER SOFTWARE

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### Abstract

*Computer software is the most prominent creations which are widely utilised and are evolving at a very high rate. A software developer seizes a large amount of time in structuring, sequencing, organising and writing codes of computer software but it only takes a few minutes to copy the elements of computer software and misuse them this justifies the demand of a software developer for enhanced protection of both literal and non-literal elements of a computer program. Although patents, copyrights and trade secrets all can be used to protect various aspects of computer software, this article deals only with copyright protection of the computer software. The article analyses the extent of copyright protections on literal as well as non-literal elements of software and it furthermore suggests some measures to enhance the copyright protections under Indian laws.*

**Keywords-** literal elements, non-literal elements, computer software

### Introduction

**“In the end, It all comes down to 0’s and 1’s”<sup>1</sup>**

With innovative headway, we have witnessed rapid advancement in the technology sector with respect to computer programming. And with the constant growth and development, it is anticipated that our technology sector will be a knight in shining armour for our economic growth, as numerous IT firms have structured up their businesses exclusively on software development. To support these businesses it is the obligation of our legislators to strike a balance between the protection of “creation” and the rights of other developers in such a manner that the “creation” is not excessively protected, restricting any kind of innovation by other developers nor the “creation” is inadequately protected that the developer himself is left with no benefits to attain from his own “creation”. John Lock's labour theory proliferated “

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<sup>1</sup> Software Development Quotes, available at: <https://www.google.com/url?sa=t&source=web&rct=j&url=https://www.goodreads.com/quotes/tag/software-development&ved=2ahUKEwimkaXc0bjsAhURyGjGHQwgD3EQFjACegQIBBAB&usq=AOvVaw3vjpus9OXFCmOewWF2EwTy> (last visited on October 14, 2020).

human labour deserves certain exclusive rights”<sup>2</sup> and utilization of skills and time for developing every aspect of computer software constitutes as mental labour. Therefore, safeguarding non-literal elements is equally important as literal elements, as it is rightly expressed that whatever is worth copying is prima facie worth protecting.<sup>3</sup> The laws in respect of computer software are well settled in countries like The United Kingdom, United States of America, Canada and Japan where the computer software is empowered with patent and copyright protection. Indian laws also provide patent and copyright protection but to a limited extent, it lags behind in protection of non-literal elements of computer software and there is an absence of “test for copyright infringement” with respect to computer software. It could be surmised that Indian copyright laws are not fully equipped to, assimilate the computer software within its protective framework. This article deals with copyright protection to literal and non-literal elements of computer software and suggests the best feasible test for copyright infringement of computer software.

## **Computer Software and Copyright Act, 1957**

Computer software is a set of instructions asserted in words, codes or in any form, capable of prompting a computer to perform a task or to accomplish the desired result.<sup>4</sup> These computer software’s are created by using programming languages like JAVA, C++, Python etc<sup>5</sup>. The software can range from a simple command like “Print Hello” to a complicated structure like Windows10.<sup>6</sup> It is necessary to ascertain the distinction between computer software and applications generally are known as (App), A computer software directly interacts with computer's hardware and perform various functions likewise, an application operates on the software and usually performs a specific task. For the purposes of this article “computer software” refers to both applications as well as computer software as their fundamental nature is the same and both are protected by copyright laws.

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<sup>2</sup>Sreenivasulu N.S , *Law Relating To Intellectual Property* 12( Lexis Nexus, Harayana, 2<sup>nd</sup> edn.,2018).

<sup>3</sup> University of London Press v. University Tutorial Press, (1916) 2CH 601.

<sup>4</sup> The Copyright Act,1957 (Act 14 of 1957),s.2

<sup>5</sup> World Intellectual Property Organisation, “WIPO Intellectual Property Handbook: Policy, Law and Use” ( WIPO,2004).

<sup>6</sup> Wendy Seltzer,“ Software Patent and Software Development”, 78 *Brooklyn Law Review* 945 (2013).

The TRIPS agreement is the most extensive International agreement which deals with copyright protection.<sup>7</sup> It recognises the Copyrightability of computer software and establishes minimum standards of protection which should be furnished to “work” created. The agreement operates on the same principle of “idea-expression dichotomy” ie. copyrightability extends to the “expression” and excludes idea, methodology, method of operating or mathematical concepts from the ambit of protection.<sup>8</sup> The agreement lays down that the author/owner of the work should be provided with the right to use, approve the usage or forbid any kind of utilization of their “work”.<sup>9</sup> The agreement bestows the power to its members, to formulate any exception or exemption in such manner that it does not hinder the rights of the owner and does not intervene with moral exploitation of work.<sup>10</sup> Indian copyright laws are framed in consonance with the TRIPS agreement. Section 2(o) of the act recognises computer software as literary work which is subject to copyright protection.<sup>11</sup> Being contemplated as literary work the owner of the copyright is entitled to all privileges mentioned under section 14 of the act which are 1.the right to reduce work in any form. 2. To issue copies of the work to the public. 3. To perform the work in public. 4.to make any translation for adaptation of the work. 5.to sell or give on commercial rental or offer for sale or rental any copy of a computer program.<sup>12</sup> Therefore any unlicensed propagation in respect of a copyrighted software would result in copyright infringement. The act successfully provides a definition of a computer program but it fails to deliver any description of the literal and non-literal elements of the same. The literal elements can be subdivided into two parts the source code and the object code. The source code can be described as a “birth of a software”. A software initiates its life as an aggregation of a special symbol and terms arranged in a particular manner which is near to English grammar which can be viably created, read and revised by those having explicit expertise and knowledge of the subject matter.<sup>13</sup> Source code provides instruction to the computer for performing various tasks but

<sup>7</sup> Overview: the TRIPS agreement, available at: [https://www.google.com/url?sa=t&source=web&rct=j&url=https://www.wto.org/english/tratop\\_e/trips\\_e/intel2\\_e.htm&ved=2ahUKewiYvrS-h7zsAhV4ILcAHdLwBGwQFjAiegQIExAC&usq=AOvVaw15hNhxifFakgfXIs1vw3c1&cshid=1602952558955](https://www.google.com/url?sa=t&source=web&rct=j&url=https://www.wto.org/english/tratop_e/trips_e/intel2_e.htm&ved=2ahUKewiYvrS-h7zsAhV4ILcAHdLwBGwQFjAiegQIExAC&usq=AOvVaw15hNhxifFakgfXIs1vw3c1&cshid=1602952558955) (last visited on October 14,2020).

<sup>8</sup> Agreement On Trade Related Aspects of Intellectual Property Rights, 1995,art.9.

<sup>9</sup> *Ibid.*, art.11.

<sup>10</sup> *Ibid.*, art.13.

<sup>11</sup> The Copyright Act,1957( Act 14 of 1957), s.2(o)

<sup>12</sup> *Ibid.*, s. 14.

<sup>13</sup> James Canfield,“ Copyrightability of Object Code” 59 *Notre Dame Law Review* 415(1984).

indirectly, as the computer is unable to comprehend with the source code because it is in a high-level language, therefore, this high-level language is converted to a low-level language which is in the combination of 0's and 1's and these combinations are called object code which is comprehensible to a computer.<sup>14</sup> It is incredibly problematic, tedious and expensive to filter out and convert the useful information from the object code because of which source code is considered to be a separate product itself as through source code one can create the whole software himself likewise object code is considered as the machine-readable translation of source code.<sup>15</sup>

The non-literal components of computer software are the structure, sequence, organization and graphic user interface.<sup>16</sup> Elaborating on these components it can be said that a software developer initially decides the objective which is to be achieved by the software, further he determines the functions which ought to be performed to achieve that desired result.<sup>17</sup> e.g.. the function could be computing the total amount of interest on mutual fund in 3 years. So as to play out this function a software developer may create numerous sub-functions and organise them in such a sequence that would help to reach the desired result, this whole process would create a structure of software.<sup>18</sup> Likewise, the graphic user interface can be defined as “*environment that allows a user to interact with the computer through visual elements such as icons or pull-down menu etc. GUI is the visual aspects and not the underlying code it only interacts with the underlying code and those codes perform the functions*”<sup>19</sup> however, a developer spends a tremendous amount of time and creativity in order to develop these non-literal elements even though the extent of copyright protection on this non-literal elements is still a debatable issue.

### **Copyright Protection of literal and non-literal element**

The most significant standard to receive copyright protection is the originality of the work. As it is already a well-established fact that the copyright protection works on the idea and

<sup>14</sup> *Ibid.*

<sup>15</sup> Daniel S. Lin , Mathew Sag, “ Source Code versus Object Code: Patent Implication for Open Source Security” 18 *Santa Clara High Tech. Law Journal* 235 (2002).

<sup>16</sup> Richard Raysman, Peter Brown, “ Copyright Infringement of Computer software and Altai Test ” 235 *New York Law Journal* 1(2006).

<sup>17</sup> Julian Velasco, “ The Copyrightability of Non-literal elements of Computer Program” 94 *Columbia Law Review* 245-246 (1994).

<sup>18</sup> *Ibid.*

<sup>19</sup> Rachel Stigler, “ Ooey GUI: The Messy Protection of Graphical User Interface ” 12 *Northwestern Journal of Technology and Intellectual Property* 216-217 ( 2014).

expression dichotomy and the word “original” established under section 13 insinuates the originality or the uniqueness of the work” should be in articulation and not of the idea on which the work is based upon.<sup>20</sup> Same analysis was communicated in the case of *McMillan Company v. J.K Cooper*,<sup>21</sup> the court stated the word originality does not suggest that the work created ought to be founded on a unique Idea instead it infers that articulation of the work must be unique or original and not the idea of which the work is based upon.<sup>22</sup> The case also laid down the “doctrine of sweat and brow” which said that copyright protection would succeed if the work arises by skill and labour even if there is an absence of inventive thought.<sup>23</sup> This analysis gave rise to many disputes. Further, in the case of *First Publication Inc. v. Rural Telephone*,<sup>24</sup> the court introduced the “doctrine of modicum creativity” which denotes that merely investing time and labour will not be a sole benchmark for copyright protection rather there must be some proportion of creativity present in the work.<sup>25</sup> It is not necessary that the level of creativity should be very high or should be very significant yet there must be a presence of least degree of creativity. In a Canadian case, it was stated by the court that in order to receive a copyright, work should be more than the copy of another work and it must reflect and exercise of skill and judgement.<sup>26</sup> All the above-mentioned cases are foreign judgements for Indian perspective, we may refer to the case of *Eastern Book Company v. D.B Modak*,<sup>27</sup> in which the Supreme court adopted a midway between the methodologies mentioned above they provided a blend of both the standards which are - the doctrine of modicum creativity and the doctrine of skill and the judgement, which meant that for any literary work to attain copyright protection it needed to reflect some level of skill and judgement and it should exhibit some level of creativity.<sup>28</sup>

### Copyrightibility of literal elements

Computer software is very complex in nature therefore the application of traditional copyright laws become difficult but certainly, copyright law seems to protect the literal

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<sup>20</sup> *Supra* note 2, at 374.

<sup>21</sup> AIR 1942 PC 75.

<sup>22</sup> *Ibid.*

<sup>23</sup> *Supra* note 2, at 381.

<sup>24</sup> 199 US 340 (1991).

<sup>25</sup> *Supra* note 2, at 379.

<sup>26</sup> *C.C.C Canadian Ltd. V. Law Society of Upper Canada*, 2004 (1) SCR 339 .

<sup>27</sup> AIR 2008 SC 809.

<sup>28</sup> *Supra* note 2, at 382.

elements which are “the source code and object code” successfully. The source code of computer software will be considered as a literary work because according to copyright act they are the combinations of words and symbols written in an electronic form, therefore, they are qualified for same protection under the act likewise and object code are the translations of source code and as it is already established by the case of *Blackwood v. Parasuraman*,<sup>29</sup> that any translations of literary work will be considered literary work in itself and will be qualified for the same protection under the law as other literary work<sup>30</sup>. Therefore any encroachment of protected work of the owner will result in copyright infringement.

### Copyrightability of non-literal elements

As there is no landmark precedent available for copyright infringement of non-literal elements in the Indian context, Therefore, the ambit is open for one's own interpretation through. foreign judgements. There is one issue which has been troublesome for the courts to decide upon which is whether or not the non-literal elements of the computer software should be provided with copyright protection and if yes then to what degree. This turmoil arises because of two reasons firstly, entirely different lines of codes could develop an identical structure or analogous user interface.<sup>31</sup> Secondly, exclusively by undertaking the task of reverse engineering of software concurrently, writing and testing codes one can furnish the desired outcomes.<sup>32</sup> To simplify the above-mentioned arguments furnishing copyright protection to non-literal elements would cease any innovation on the original work by other developers and would result in copyright infringement claims. But abandoning non-literal elements from copyright protection would result in ease of duplicating the work. Opting the former view the court in the case of *Whelan Association Inc. v. Jaslow Dental Laboratory*<sup>33</sup> affirmed that the copyright protection may extend beyond the literal codes, to the structure, sequences and organisation of computer software.<sup>34</sup> There are various cases which examined the degree of protection to non-literal elements. In *Whelan case*,<sup>35</sup> the court widened the scope and incorporated the non-literal elements within the protective the framework of

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<sup>29</sup> AIR 1959 MAD 410

<sup>30</sup> *Ibid.*

<sup>31</sup> *Supra* note 17, at 242.

<sup>32</sup> *Supra* note 17.

<sup>33</sup> 797 F. 2d 1222.

<sup>34</sup> Pamela Samuelson, “A Fresh Look At Tests for Non-literal Copyright Infringement” 107 *Northwestern University Law Review* 1839 (2013).

<sup>35</sup> *Supra* note 33.

copyrights but created a parameter for those elements to procure that protection. The parameter stated that the non-literal components must be segregated based on the idea and expression dichotomy which would indicate that “ *the purposes or functions i.e work's idea and everything that is not necessary to that purpose or function would be the part of an expression and if there are various means to express the same idea, the particular means chosen is not a necessary to purpose, is considered as the expression* ”<sup>36</sup> and would be protected by copyright. But this decision has been criticised for being very simplistic and for providing excessive protection.<sup>37</sup> In the case of *Lotus Development Corp. v. Paperback Software International*,<sup>38</sup> the court dismissed the earlier views and established its new three-step criteria which formulated protection of non-literal elements “( a). *The court must define the idea of a software (b) The decision-maker must decide whether the alleged work is one of the limited ways of expressing an idea or whether there are other ways and whether the way is essential to that expression or not (c) if the decision-maker finds there are other ways to express the same idea then he must determine whether alleged work is substantial part or not* ”<sup>39</sup> If these parameters are fulfilled accordingly, the non- literal elements will acquire copyright protection. In the case of *Johnson Control Inc. v. Phoenix Control System*<sup>40</sup> and *Nicholas v. Universal System*,<sup>41</sup> the courts adopted a synonymous view that non-literal elements can be provided copyright protection if they are the part of the expression and not the idea.<sup>42</sup> In *Google LLC v. Oracle*, the court held that all the non-literal elements which are not dispensed by “merger analysis” can be subjected to copyright protection.<sup>43</sup> It must be noted that the case is already being continued to Supreme Court which can potentially create a shift in the current view.

## Copyrightability of Graphics User Interface

<sup>36</sup> Wm. David Taylor III, “ Copyright Protection for Computer software after *Whelan Association v. Jaslaw Dental Laboratory* ” 54 *Missouri Law Review* 126-127 ( 1989).

<sup>37</sup> *Supra* note 17.

<sup>38</sup> 740 F.Supp. 37 (1990).

<sup>39</sup> Walter G. Duflock, “ Look and Feel: A Proposal Solution to the diverging views between software industry and the courts ” 8 *Santa Clara High Tech. Law Review* 453(1992).

<sup>40</sup> 886 F.2d 1173 (1989).

<sup>41</sup> 45 F.2d 119 ( 2d Cir. 1930).

<sup>42</sup> *Ibid.*

<sup>43</sup> *Oracle Am., Inc. v. Google Inc.* 750 F.3d 1339( Fed, Cir.2014), available at: <https://www.google.com/url?sa=t&source=web&rct=j&url=https://www.lexisnexis.com/community/amp-casebrief/casebrief-oracle-am-inc-v-google-inc&ved=2ahUKEwivqNTfksHsAhXyyzgGHQDxBzU4ChAWMAJ6BAGDEAE&usg=AOvVaw2yoq-keS5Y2ReQZoGkFxst> ( last visited on October 18, 2020). Also see *Supra* note 17.

Under section 2 ( c) of copyright act artistic work means “a *painting, sculpture, drawing including (diagram map chart or plan) an engraving or a photograph whether or not any such work possesses artistic quality.*”<sup>44</sup> therefore a graphic user interface would be an ideal fit in the definition of artistic work but the rule 70(7) of copyright rules 2013 and Section 15 of copyright act together creates a huge drawback in respect to Graphic user interface rules 70 states that if work which is eligible to receive the protection under designs act is submitted for copyright registration then an affidavit should be submitted along with it stating that-

1. the work has not been registered under the designs act
2. the work has not been applied to an article through an industrial process and reproduced for more than 50 times.<sup>45</sup>

As per section 15 if such work is found to be reproduced for more than 50 times the copyright on such work ceases to exist<sup>46</sup> thereby leaving the owner vulnerable situation. Some even suggest that the design act serves as a more effective tool in protection to such work than the copyright law.<sup>47</sup> In such a situation when a graphic user interface would generally be created for a purpose of mass reproduction then such work would be well protected under the designs act and therefore the changes should be made under the designs act to cover graphic user interface protection.

## Copyright infringement of computer software

“*Copyright infringement occurs anytime a party violates one or more of the copyright owner's exclusive rights provided by copyright law*”<sup>48</sup> In respect to computer software, there are two categories of infringement

1. The primary act of infringement
2. Secondary act of infringement

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<sup>44</sup> The Copyright Act, 1957 (Act 14 of 1957), s.2(c)

<sup>45</sup> Protection of Graphic User Interface in India: Copyright or Design?, available at: <https://www.google.com/url?sa=t&source=web&rct=j&url=https://techlawforum.nalsar.ac.in/protection-of-graphical-user-interfaces-in-india-copyright-or-design/&ved=2ahUKewiVj9XAr7ntAhUtlbcAHSHoB8QQFjABegQIDRAB&usg=AOvVaw3Lm0P7xMuwRV6vKBfqsE1m> (last visited on December 6, 2020).

<sup>46</sup> The Copyright Act, 1957 (Act 14 of 1957), s.15

<sup>47</sup> *Supra* note 45.

<sup>48</sup> *Supra* note 2 at 412.

The primary act of infringement refers to performing the acts of reproduction of computer software in material form, developing a translation or adaptation of the computer software,<sup>49</sup> creating an altered version of the original software,<sup>50</sup> without licence or authorization from the owner. To establish primary act of infringement in a court of law two imperatives needs to be proved firstly ownership of the work and secondly substantial copying of the original work. A legal copyright registration certificate acts as direct evidence of ownership.<sup>51</sup> Nevertheless, the author of any literary work is recognized as the owner yet in the circumstances where such literary work is created under any contract of service or for publication then such copyright lies with the employer or the publisher.<sup>52</sup> In respect to computer-generated work, the individual who causes the work to be created is deemed to be the owner.<sup>53</sup> After successfully ascertaining ownership of work, substantial copying needs to be established. It is practically impossible to present direct evidence of copying, therefore, the courts base their judgments on circumstantial pieces of evidence like “access of the original work” and “substantial similarity between the original work and allegedly copied work”. To prove “access” the party needs to illustrate a “reasonable opportunity to view” which can be substantiated by showcasing that the original work was directly sent to the infringing party or it was sent to any other person close to the infringing party.<sup>54</sup> It is ought to be noted that infringing party may try to establish that the work in question is in the public domain. However, after specifying ownership, substantial similarity needs to persist between the original work and alleged copied work. In *S.K Dutta v. Law Books Co.*,<sup>55</sup> the court opined that the degree of similarity ought to be more than half of the original work. However, this analysis is not well suited as the similarity of the content may vary from case to case, there may be instances where “compositor has copied a bit from here a bit from there of compilers books”<sup>56</sup> or when an individual copies the fraction of original work but the fraction being the

<sup>49</sup> *Microsoft Corporation v. Prem Tiwari*, 2011 (48) PTC 31.

<sup>50</sup> *Promod Nair*, “Copyright Protection for Computer Software” (2004) 7 SCC (J) 31.

<sup>51</sup> *Henry J. Lanzalottie*, “Is proof of access still required- Proving Copyright infringement using striking similar doctrine: An Analysis Of Forth Circuit Decision in *Bouchat v. Baltimore Ravens Inc.*” 9 *Jeffery S. Moorad Sports law Review* 103-104 (2002).

<sup>52</sup> *Supra* note 11, s. 17.

<sup>53</sup> Law of Copyright In India, available at : [https://www.google.com/url?sa=t&source=web&rct=j&url=http://saprlaw.com/taxblog/copyright\\_final.pdf&ved=2ahUKewjf-NCEpsHsAhUYb30KHxOjDcEQFjAAegQIARAB&usg=AOvVaw0OothQxdQR-e3bEH7aMdxQ](https://www.google.com/url?sa=t&source=web&rct=j&url=http://saprlaw.com/taxblog/copyright_final.pdf&ved=2ahUKewjf-NCEpsHsAhUYb30KHxOjDcEQFjAAegQIARAB&usg=AOvVaw0OothQxdQR-e3bEH7aMdxQ) (last visited on October 18, 2020).

<sup>54</sup> *Supra* note 47, at 98.

<sup>55</sup> AIR 1954 ALL 570.

<sup>56</sup> *Lesli v. J. Young Songs*, 1893 SLR 30-910-1.

crux of the original work. Or when the alleged copied work is not a verbatim copy of original but is substantially similar in other aspects such as plot of story.<sup>57</sup> However, if two works are strikingly similar thereby creating an inference of access in such condition substantial similarity is adequate to establish copyright infringement.<sup>58</sup> In a case, “ *The infringement was obvious from the substantial similarities between the source code item names, objects etc. Occurring in plaintiffs source code which amounted to several instances of copying*”<sup>59</sup>

Secondary act of infringement refers to performing acts of sale or hire, offer for sale or hire, distribution for purposes of sale or hire,<sup>60</sup> loading of computer software into the computer for commercial purposes, saving or running computer software,<sup>61</sup> without the authorization of the owner. The prerequisites for establishing a secondary act of infringement is ownership and evidence of the infringing activity which took place. Establishing a secondary act of infringement is relatively simpler in respect of computer software as in the case of Microsoft Corporation v. Purohit,<sup>62</sup> where the defendant was found guilty of loading the plaintiff's software in branded computers without any authorization and thereby was liable to pay one lakh as compensation and additional one lakh as punitive damages.<sup>63</sup> Likewise, the primary act of infringement is equally complicated to establish in respect of computer software as Copyrightability of non- literal elements is still ambiguous.

### Test of copyright infringement

While discussing substantial similarity the courts use the “test of copyright infringement” the most profound test of infringement pursued in India is the audience test established in the case of R.G Anand v. M/s Delux Films<sup>64</sup> in this test firstly the ideas are segregated from their expressions and then the expression is put to the audience test ascertains whether the observer or reader of both the works believes that the alleged copied work is identical to original work or not.<sup>65</sup> This test might be appropriate concerning some literary work like plays, poems,

<sup>57</sup> *Supra* note 41.

<sup>58</sup> *Supra* note 47.

<sup>59</sup> Kensoft Infotech Ltd , Garden Estate Mumbai v. Sundaram BNP Paribas Home Finance Ltd., MIPR 2010 (1) 301.

<sup>60</sup> *Supra* note 45.

<sup>61</sup> *Supra* note 46.

<sup>62</sup> 186 (2012) DLT 451.

<sup>63</sup> *Ibid.*

<sup>64</sup> AIR 1978 SC 1613.

<sup>65</sup> Yashojit Mitra, “ Copyright Protection of Indirect Copying of Computer Programs: Suggestions for Indian Courts ” 8 *Journal of Intellectual Property Rights* 105(2003).

movies, stories etc. However, establishing judgements on the bases of a viewers belief would not be reasonable concerning technical subjects like computer software. The Indian courts do not have any “test for infringement” explicitly for computer software, however, there is ample amount of test's created in foreign judgements those are-

1. The Whelan Test
2. The three-part test
3. Extrinsic- Intrinsic test
4. Altai test

### **The Whelan Test**

Formulated in case of Whelan Association Inc. v. Jaslow Dental Laboratory,<sup>66</sup> the case stated two rules for affirming substantial similarity first rule asserted separation of the idea and the expression of those ideas as copyright law extends to protect only expressions i.e “ end - result to be achieved, purpose and function of the software will be separated from other aspects which are not essential to those purposes or functions ” and the second rule expressed that the substantial similarity may be established by expert opinion.<sup>67</sup>

### **The three-part test**

The test was created in case of Lotus Development Corp. v. Paperback Software International.<sup>68</sup> The court created a three-parameter test for uncovering substantial similarity. The parameters are-

- 1.The courts must determine the idea of the software.
- 2.Then the court must deduce whether the expression is one of the limited ways to express that idea or that idea is capable of being expressed in various other manners. If the expression is one of the limited way or the only way to express that the particular idea then that expression would not protected by copyright but if there are other ways possible in such instance that expression is protected by copyrights.
- 3.The court must decide whether the alleged copyrightable work is a substantial part of the work or not. If the result is positive then such would be protected by copyright.<sup>69</sup>

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<sup>66</sup> *Supra* note 33.

<sup>67</sup> *Supra* note 36.

<sup>68</sup> *Supra* note 38.

“the command set ” in this case itself has elements which were not essential to the idea, could be expressed in various ways and was held to be a substantial part of the work therefore, it was deemed to be protected by copyright law.<sup>70</sup>

### **Extrinsic-Intrinsic test**

It is simply a two-part test for uncovering substantial similarity. The first phase is the Extrinsic phase which involves dissecting all non-protectable elements from protective elements and thereafter if any similarities are found between the protectable elements of both the works then the second step is the intrinsic phase is triggered where substantial similarity is verified by audience test.<sup>71</sup>

### **Altai test**

The Altai test was formulated in case of *Computer Associates International Inc. v. Altai Inc.*<sup>72</sup> It is a three-phase test also called as Abstraction-Filtration-Comparison to summarise, In the abstraction phase the ideas are separated from the expression in Filtration stage all protectable elements are separated from non-protectable elements in the last comparison phase the protectable elements are compared to the alleged copied work to verify any substantial similarity.<sup>73</sup>

The problem with the presence of so many tests is to decide which test will be appropriate to apply or which test is well suited with Indian copyright laws. Therefore Indian courts must establish a test for infringement for computer software by themselves with the guidance of various available tests.

### **Recommended test / Conclusion**

Before forming a test we must Look upon certain acts which do not constitute an infringement in respect to the computer software the Acts mentioned below are exempted under the doctrine of fair use-

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<sup>69</sup> *Supra* note 39.

<sup>70</sup> Dag Johnson, “ Lotus Development v. Paperback Software: The Overextension of Copyright Protection to Functional Aspects of Computer software” 14 *Hastings Communication and Entertainment Law Journal* 285-286 (1991).

<sup>71</sup> *Supra* note 17.

<sup>72</sup> 982 F.2d 693 (2d Cir.1992).

<sup>73</sup> Pamela Samuelson, “ A fresh look at tests for Non-literal Copyright Infringement” 107 *Northwestern University Law Review* 1838(2013).

*“1. Making copies or adaptation of a computer program by the lawful owner to (a) utilise computer program for the purpose it was supplied for or (b) to make backup copies purely as temporary protection against loss or destruction or damage to only utilise the computer program for the purpose it was supplied for.*

*2. Performing any of the act which is necessary to obtain information on interoperability of an independently created computer programs with other computer programs by a lawful owner of the computer program provided that such information is not otherwise readily available.*

*3. The observation study for a test of the functioning of a computer program to determine the idea and the principle which underline any element of the program while performing such acts necessary for the function which the computer program was supplied for.*

*4. Making of copies or adaptations of a computer program from a personal illegally obtained a copy for non-commercial personal use.”*

Indian courts could develop their test to evaluate copyright infringement in case of computer software by the guidance of tests already established by foreign courts. For literal elements which are the source code and object code. The whole source code of the original work and alleged copied work must be written down and submitted for review consequently all codes and expression from the original work must be analysed by performing an abstraction technique which would promptly suggest that all those expressions which are – 1. Essential to any code or expression 2. Is the only way to achieve a desired result 3. Is not possible to separate the idea from its expression because of any reasons. Then such non-literal elements should be eliminated from the ambit of protection and all the other lines of codes or expression would be protected by copyright law and any substantial similarity between those protectable elements would lead to copyright infringement.

Formulating a test for scrutinizing copyright infringement of non-literal elements of computer software is a difficult task. The first step would be to segregate the literal-elements from non-literal elements then reviewing each non-literal element in isolation of both the works. It must be noted that if those non-literal element are either-

1. An industry standard
2. Made mandatory by government or law

3. Is only one way to achieve the desired result
4. And if idea and expression of those idea cannot be separated

Then such non-literal element should not be considered protectable and all other elements should be protected as per copyright law consequently all those protectable elements of both the works must be reviewed and any substantial similarities between the works would lead to copyright infringement. It must be noted that all the review process i.e for comparative evaluation of two software an expert can be appointed by the consent of the parties by the court.<sup>74</sup>

While Innovation and technology are deemed as the future of any country, protecting and safeguarding the one's who are creator's of Innovation is equally important as well as inevitable. With context to Indian laws, there is still a high scope for improvement and consideration of factors that affect these laws and better revisions are required to meet the technology laws around the world and in our country.

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<sup>74</sup> Kensoft Infotech Ltd. v. R.S Krishnaswami and ors ,2007 (35) PTC 627 (DEL).