



MAKE LOVE, NOT WAR:

Except on a Slightly More Abstract Level

(Summary: The article explains what is open source software (OSS); what are intellectual property rights; the interaction between the two; why Allahabad High court has adopted OSS.



This is text of the talk delivered by Justice Yatindra Singh, Judge, Allahabad High Court on Software Freedom Day 15.9.2012 at National Law University, Jodhpur, Rajasthan)

Last year, a girls' degree college at Allahabad organised the first All-India bilingual essay competition on topic 'Education and Nation Building'. They had invited essays from students pursuing higher education in the country. The essays were evaluated; the students writing the ten best essays were invited to express their views at the function at Allahabad. They were again judged and ranked not only on the basis of their presentation but also on the question-answer session after the presentation.

Ms. Justice Gyan Sudha Misra, judge supreme court was the chief guest in the function and Ms. Barkha Dutt of NDTV presided. On this occasion, the college also started an annual lecture series and I was requested to deliver the first lecture. This was the reason that I was present there.

I thought that the competition would be won by some senior student. But to my surprise, the first prize was won by a first year student from this college. So I thought this college must be special and I must meet its students. So, here I am.

Today is third Saturday of September, which is observed as Software Freedom Day (SFD). This started in 2004 and since 2006, it has been held on the third Saturday of September. It is an effort to increase awareness about the importance of transparent and sustainable technologies.

- **Transparent technology:** One can know (or get checked) what exactly a piece of software will do if it provides access to the source code. It is transparent technology. It avoids nasty surprises, like spyware, result rigging

etc. This can not be ascertained in a closed software.

- **Sustainable technology:** Information in proprietary data formats cannot be accessed in other programmes unless license fee is paid or they are reverse engineered. Sometimes it is also not available in future versions of the same programme. This can be avoided if the information is kept in the open formats. It can easily be used anywhere and in future too. This is sustainable technology ensuring access to knowledge forever.

Open source software is a transparent technology and I am happy that Brother Mathur, your Vice Chancellor, has invited me to speak about the interaction between open source software and intellectual property rights (IPRs) on the SFD.

Did I say—OSS and IPR? If I am speaking on this topic then what is this title 'MAKE LOVE, NOT WAR: Except on a Slightly More Abstract Level' with two strange pictures doing out here.

Don't be misled by my title; if you are reading judgements then you must have realised that judges love sermonising. But I assure you, they are not always irrelevant :-)

I am going to talk about OSS and IPR. Bear with me for some time this title is relevant and I will connect it with the topic:

- The black-white picture is from 1964 super hit film 'Dosti' that won six Filmfare, including best picture, awards in 1965. It was an emotional success story of a friendship between a blind and a lame boy. And how they combined their strengths. It represents the crux of open source movement;
- The last century experienced two World wars. With diminishing resources, this century is likely to witness many wars but then most of them are likely to be around IPR: the colour picture represents that.

The talk has been divided into the following six parts:

- (i) Why - Open Source;
- (ii) What are Intellectual Property Rights (IPRs);
- (iii) What is software and how is it protected;

- (iii) What is Open Source Software (OSS);
- (v) Advantages of OSS;
- (vi) Popular OSS.

WHY- OPEN SOURCE

The beginning of the last century witnessed the emergence of a semi-clad Indian, referred to as 'half naked Fakir' by Winston Churchill. His philosophy was,

'Means are more important than the end: it is only with the right means that the desired end will follow.'

To the charge that 'means are after all means', he would say, means are, after all, everything.' His name was Mohandas Karamchandra Gandhi –known to the World as Mahatma Gandhi, father of the Indian nation.

Gandhi's philosophy is deep rooted in law too. Lord Denning, one of the greatest judge of 20th century, observed,

But it is fundamental in our law that the means that are adopted ... should be lawful means. A good end does not justify bad means.' { R Vs IRC Exparte Rossminster Ltd 1979 (3) All ELR 385}

So is true of our laws.

Chapter IV of our constitution is titled 'Directive Principles of State Policy'. It contains the end or the goals to be achieved. Chapter III is titled 'Fundamental Rights'. It contains the means: they are the good means. Our constitution also envisages goals to be achieved by the laws that conform with the fundamental rights—the good means.

In the World of information technology,

- The end is dissemination, communication, and retrieval of information; and
- The means are, how to achieve it, implement it; the kinds of software to use, the kinds of standards to adopt, the kind of formats to employ?

Is OSS good means? Before we consider it, some words about IPR and OSS.

INTELLETUAL PROPERTY RIGHTS

'What is worth copying, is prima facie worth protecting' {Paterson J in University of London vs. University of Tutorial Process Ltd. 1916(2) Ch 601} is the genesis of intellectual property rights. These rights are broadly divided into two categories:

- (i) Copyright: It lies in description of something.
- (ii) Industrial property: It includes inventions (patents), trademarks, industrial designs, and geographic indications.

There are various kinds of IPRs but the computer industry is affected by the following areas:

- (i) Copyright
- (ii) Undisclosed Information or Trade Secret
- (iii) Patents
- (iv) Trademarks
- (v) Layout - Designs (Topographies) of Integrated Circuits

The first three have an impact on computer software. The fourth one (trademarks) and the fifth one (layout-designs) are more relevant to the Internet and to computer hardware respectively rather than to computer software.

A software can be protected by patents as well. This topic is not only complicated but debatable as well: we will leave it for discussion at some other time. Let's understand what is computer software.

SOFTWARE—LEGAL PROTECTION

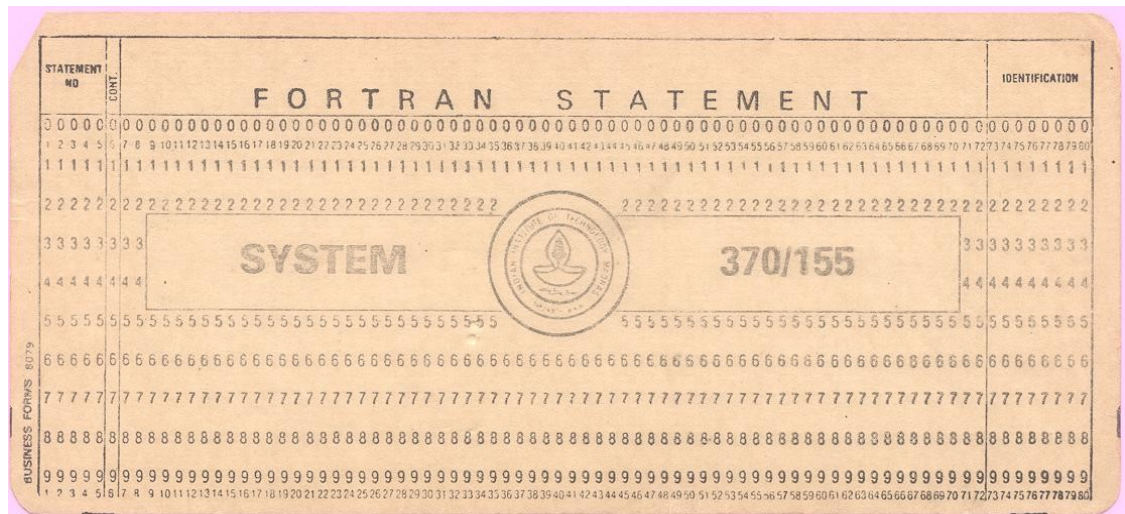
Software consists of two parts

- (i) Source code;
- (ii) Object code.

Source Code

Computers only understand machine language' or machine code' i.e. instructions

that consist of a series of 0s and 1s. In earlier days, a computer programme used to be written directly in machine language by punching a card. The punched slot or un-punched slot indicated requisite information to the computer. However, the process was slow and tedious. Such a programme, although intelligible to the computer, was virtually unintelligible to anyone except an equally skilled programmer.



Punch Card

Nowadays, computer programmes are written in the high level computer languages using compact English words. This can be understood by humans though not by the computers. This is known as the source code. (See **Appendix-1** for an example of source code).

Object Code

The languages also have a programme called compiler and with its help, source code is compiled into object code or machine code—the language that computers understand. This runs the computer or any application therein.

Protection—Object Code

There was some debate as to how the object code is protected. The Australian High Court in 1986 held that the source code is a literary work and is protected as a copyright. But no such protection was given to the object code. One of the judges in the majority held¹,

¹ Gibbs, J. in *Computer Edge Pty Ltd v. Apple Computer Inc.*, (1986) 161 CLR 171. The text of the judgement is also available at <http://www.hcourt.gov.au/>

I have not found anything ...that has persuaded me that [the object code] a sequence of electrical impulses in a silicon chip, not capable itself of communicating anything directly to a human recipient, and designed only to operate a computer, is itself a literary work or is the translation of a literary work within the Copyright Act.'

Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) is a part of WTO charter: it mandates members of the WTO to provide minimum protection to IPRs. Its article 11 provides authors with the right to authorise or to prohibit commercial rental of at least computer programmes and cinematographic works.

Our Copyright Act was amended in 1995 in pursuance of the same. Now, In our country, as well as in almost all other countries in the World, the object code is protected as a copyright. Let's see how source code is protected.

Protection—Source code

Source code is a kind of a description. Copyright lies in the description and source code of a computer programme—being description—is a literary work within the Copyright Act.

Writers have a right to publish their work; they may or may not do so. No one else can publish their work. If it is published without the author's consent or if an unpublished work is stolen and published as someone else's work—it is illegal. Nevertheless an independent work cannot infringe any other work unless the other work is published. A work may, purposely, be not published as it is sought to be protected as a trade secret.

Trade secret or 'undisclosed information' as the name suggests is a secret that offers an opportunity to obtain an advantage over competitors who do not know it. The object code of every software is available; it runs the computer or an application: it is protected as a copyright. However, the source code may or may not be published/ disclosed. In case it is published or disclosed, it is protected as a copyright. In proprietary software, the source code is generally never published/

disclosed; it is secret. In such an event it is protected as undisclosed information or trade secret.

Copylefted, Free, and GPLed software

Everyone is not using Intellectual Property Rights (IPRs) to hoard rights in a software. Some are using them in such a way that no one is able to hoard them. Using copyright, they are doing just the opposite. It is for this reason it is called copylefting. This happens if software license has the following conditions:

- (i) The software is royalty free;
- (ii) The source code is disclosed;
- (iii) There is freedom to modify the software; and
- (iv) Anyone who redistributes the software, with or without changes is required to pass along similar freedom to others i.e. disclose the source code and permit further modification.

Copylefted software is also called free software as there is freedom to modify it. In fact the term free software was used much before the terms Copylefted or open source software were used.

It all started in 1984. when Richard Stallman, a researcher at the MIT AI Lab, started the GNU (a recursive acronym for GNU is Not Unix) project for an operating system under the umbrella organisation of Free Software Foundation (FSF). They say,

'Think of free"as in free speech", not as in free beer".



Richard Stallman

A program is free software if the program's users have the following four freedoms:

- (i) The freedom to run the program, for any purpose;
- (ii) The freedom to study how the program works, and change it so it does your computing as you wish. Access to the source code is a precondition for this;
- (iii) The freedom to redistribute copies;
- (iv) The freedom to distribute copies of your modified versions to others. Access

to the source code is a precondition for this.

Richard Stallman, with the help of lawyers, drafted the GPL. It contains the conditions that copyleft a software. Most of the software under the GNU Project are under GPL.

Software, released under a GPL licence, is also known as GPLed software.

Open Source Software (OSS)

The philosophy of copylefted conveyed an anti-business message. Though, it is not so: it is merely a way of doing business. However it was necessary to change this perception.

In the late 1990's, Eric S. Raymond (known for 'fetchmail', a software for downloading emails), Bruce Perens (former project leader of the Debian GNU-Linux distribution) and other free software enthusiasts got together in California to start a consortium – called Open Source Initiative (OSI). They also drafted ten guidelines and if the license or conditions under which the software has been released satisfies these guidelines then they called it Open Source Software (OSS).

Among the ten conditions, the three important ones are,

- (i) The software is royalty free;
- (ii) The source code is disclosed; and
- (iii) There is freedom to modify the software.

The guidelines do not contain the fourth condition of copylefted Software. Thus OSS is more comprehensive. All Copylefted is OSS but all OSS is not Copylefted software. The sphere of OSS is bigger than Copylefted/ free/ GPLed software.

At present, sixty seven licences have been identified as satisfying these ten conditions. All the licences copyleft the software to a degree: GPL copyleft to the maximum; whereas, Berkeley software distribution (BSD) licence does it to the minimum. The rest of the licences lie in between.

In all OSS, there is freedom to modify the software. It is also loosely known as Free/ Open Source Software or simply FOSS.

ADVANTAGES OF OSS

Here are its advantages; some of them played in our mind for shifting over to open source software at the Allahabad High Court:

- (i) *No Copyright infringement in using or modifying it:* There is copyright in the OSS. In fact, OSS is copylefted by using copyright. Anyone who uses OSS contrary to the conditions governing the license, not only breaches the contract but also infringes the copyright. This has also been so held by the US Court of Appeals for the federal circuit in Robert Jacobsen Vs Matthew Katzer on 13. 8 2008² See **Appendix-2**). However in terms of the license conditions, there is no copyright infringement in merely using or modifying it. Copyright infringement due to unauthorised use is a global issue and adopting OSS will obviate this aspect of it.
- (ii) *Lesser cost:* OSS is royalty free; it does not cost anything. The only cost is for services or support for the same. Utilising OSS will reduce the cost of any project. The cost reduction has an impact on the proprietary software too. In order to be competitive, their cost is being reduced.
- (iii) *New jobs - service sector:* Due to historical reason, our English and Mathematics have always been a plus point. These subjects are necessary for providing services in the IT sector. In OSS money is earned by providing service. Adoptions of OSS opens new job opportunities in this sector.
- (iv) *Stable:* Virus is nothing but a computer programme which effects any other computer programme or computer data. In OSS there can be viruses however there have been only a few. This is because its source code is disclosed. Experts say that it is safe and provides stable environment. This is also strengthened by the fact that Apache (an OSS) web servers are the most popular ones.

² For Judgement see http://wiki.creativecommons.org/images/9/98/Jacobson_v_katzer_fed_cir_ct_of_appeals_decision.pdf

(v) *Customise software:* Software can be modified, if source code is disclosed and there is permission to modify the same. In OSS, source code is disclosed and there is permission to modify the software. This permits everyone to participate in the software movement and also provides opportunity to everyone to customise software. Today, OSS is not only available in our national language but also in almost all regional languages; its adoption offers us opportunity to take IT movement to the grass root level.

(vi) *Avoids IPR:* It is possible to have IPR in the modified software created from OSS but the authors of any OSS do not claim any IPR in the OSS in anyone using and modifying it (though there are some conditions). This is clear from the fact that they permit everyone to use/ modify/ distribute it without any royalty. This not only leads to reduction in the IT cost but avoids future conflicts in the IPR area.

(vii) *Different licenses:* There are many licenses that are certified by OSI. This creates some difficulties but different licenses have their advantages too. They can be adopted for different business models:

(a) GPL is viral: By adopting this licence, a business model centered around programming and support services can be adopted.

(b) BSD type licenses are at the other end: they permit creation of proprietary software. The Macintosh Operating System (a proprietary software) is partly based on BSD licensed code.

The other licenses lie between these two and may be chosen by the companies/software developers according to their need.

Let me summarise my talk with the help of a story from 'Panchtantra': this has common thread in all cultures. It is a story of a hare and a tortoise.

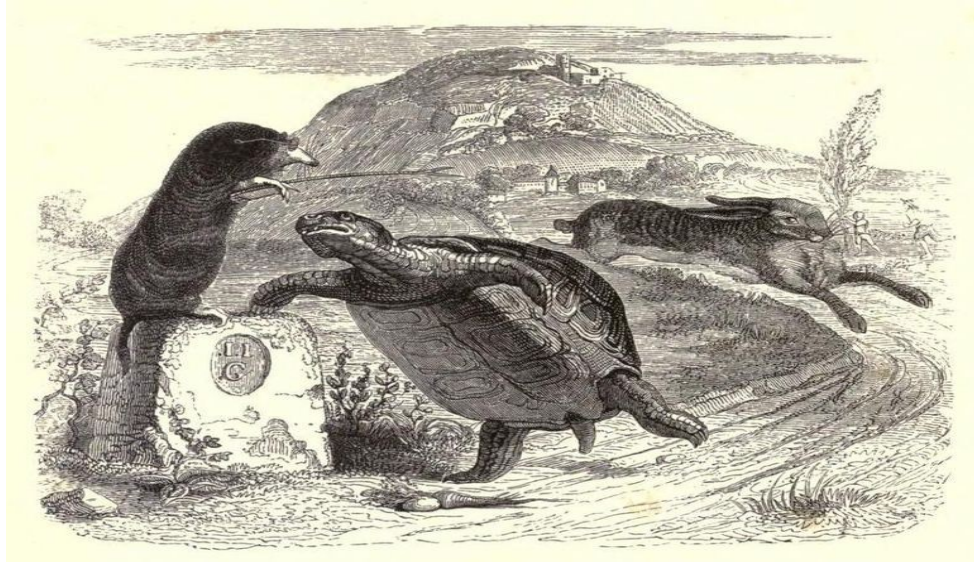
THE TORTOISE AND THE HARE

A tortoise and a hare were friends. One day, the hare and the tortoise decided to race against each other. The hare obviously took the lead; he thought of relaxing

and went off to sleep. The tortoise, walking slowly but steadily, overtook the hare and won the race. The moral is,

'Slow but steady wins the race'.

In recent time, some new chapters have been added.



The hare, perturbed by the defeat, asked the tortoise to race again. This time he did not take rest and won the race easily. The moral is,

'It is better to be fast and reliable'.

But, this is not the end of the story.

After some days, the tortoise asked the hare to race once again but with a condition that the course will be chosen by him. The hare, who was confident of his victory, gave him the free hand. This time the course included a river. The hare ran up to the river and then stopped. The tortoise came and swam across the river to win the race. The moral is,

'Every one has weak and strong points –play on your strong side.'

However, the story still does not end here.

After some days, the tortoise and the hare repeated the race over the same course but the rules were changed. This time they decided run it as a team. On the ground, the hare carried the tortoise on his back and on the river, the tortoise carried the hare on his back. The result was that both of them reached the destination quickly, saved time and enjoyed the race too. The moral is,

'It is best to consolidate everyone's strong points'.

CONCLUSION

Open source,

- Use the IPR to prevent the hoarding of technology;
- Invite others to participate in its development;
- Consolidate strong points.

They are, as Linus Torvalds creator of GNU-Linux, in his autobiography 'JUST FOR FUN: The Story of an Accidental Revolutionary' explains,

'It's still the same old mantra: Make Love, Not War, except on a slightly more abstract level.'

Open source software is good means within Gandhi's philosophy: they are not only steps in the right direction but it is more advantageous to use them.

Let me end my talk with reference to the book 'The new new thing: a Silicon Valley story,' published in 1999, by Michael Lewis. It is a success story of the Silicon Valley told through the biography of Jim Clarke. The most quoted line from this book is,

'The definitive smell inside a Silicon Valley start-up was of curry.'

If we are able to harness the strength of Open Source Software (OSS) and properly understand implications of

the IPRs then I have no reason to doubt that not only inside a Silicon Valley start-up but, there will be the smell of curry in cyberspace too. And we will be able to change the second last word 'होंगे' to 'हैं' in the song.

सुनो गौर से दुनिया वालों,
बुरी नजर न हम पर डालो।
चाहे जितना जोर लगा लो,
सबसे आगे होंगे हिंदुस्तानी।

Yatindra Singh, Judge, Allahabad High Court, Allahabad



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Endnote-1: All pictures apart from the book covers and punch card are from Wikipedia.

APPENDIX-1

Pidgin is a popular programme that loads different instant messengers (MSN or Yahoo) together. The source code of Pidgin is disclosed –everyone knows it. It is written in C⁺⁺. The Logo of Pidgin and a small part of the source code is as follows:



Logo of Pidgin

(Part of the Source Code of Pidgin)

```
#include proxy.h"
#include signals.h"
#include sslconn.h"
#include sound.h"
struct PidginCore
{ char *ui;
    void *reserved;};
static PidginCoreUiOps *_ops = NULL;
static PidginCore *_core = NULL;
```

If you read it then you can understand a few words mentioned therein and what it is trying to say. It is kind of description of something.

Appendix-2

Jacobsen vs Katzer

Robert Jacobsen is a high-energy physicist. He is a model train hobbyist too. At the end of the last century, he started an open source software group called Java Model Railroad Interface (JMRI). Through the collective work of participants, JMRI created a computer programming application called DecoderPro: a set of Java tools for configuring and controlling the trains. It allows model railroad enthusiasts to use their computers to program the decoder chips that control model trains. These (DecoderPro) files can be downloaded from SourceForge website under Open source license called the Artistic License.

Matthew Katzer runs a company called Kamid Associates (KAM). It develops commercial software products for the model train industry and hobbyists. It offers competing software product, Decoder Commander, which is also used to program decoder chips. In this connection, he also obtained a patent for a client/ server software system. KAM industries send a letter to Jacobsen informing him that:

- JMRI software violates patent of KAM industries;
- He should change it; and
- Pay \$19 per download.

When Jacobsen asked him how JMRI violates the patent, \$19 was enhanced to \$29 per download, claiming \$203,000 for 7000 downlads and \$3000 as cost.

Jacobsen took proceeding for declaration that:

- The patent of KAM industries is void;
- There was prior art before it was granted; and
- Jacobsen's software was ready for download before application for patent was granted.

During these proceedings, it was revealed that an employee of the KAM industry not only downloaded a part of Jacobson's programme but it is also part of his patent. However the following conditions of the Artistic License were not complied with:

- The authors' name;
- JMRI copyright notices;

- References to the COPYING file;
- An identification of SourceForge or JMRI as the original source of the definition files;
- A description of how the files or computer code had been changed from the original source code.

Jacobsen filed an application for an injunction but this was refused by saying,

'Defendants' alleged violation of the conditions of the license may have constituted a breach of the non-exclusive license, but does not create liability for copyright infringement where it would not otherwise exist.

...

Jacobsen had a cause of action only for breach of contract, rather than an action for copyright infringement based on a breach of the conditions of the Artistic License.'

Jacobson filed an appeal. It was allowed³ on 13 August 2008 holding,

'Copyright holders who engage in open source licensing have the right to control the modification and distribution of copyrighted material. ... Indeed, because a calculation of damages is inherently speculative, these types of license restrictions might well be rendered meaningless absent the ability to enforce through injunctive relief.

In this case, a user who downloads the JMRI copyrighted materials is authorized to make modifications and to distribute the materials 'provided that' the user follows the restrictive terms of the Artistic License. A copyright holder can grant the right to make certain modifications, yet retain his right to prevent other modifications. Indeed, such a goal is exactly the purpose of adding conditions to a license grant.'

This case was mutually settled on 16 February 2010.⁴ Among the others, the terms of settlements are,

(i) A permanent injunction restraining Katzer from,

³ <http://www.cafc.uscourts.gov/opinions/08-1001.pdf>

⁴ The history of the case can be seen here:

<http://jmri.org/k/History.shtml#2008-08-13>

The terms of the mutual settlement can be seen here:

<http://jmri.org/k/docket/402-1.pdf>

- Further Misusing the software created by JMRI; and
- Registering any domain names used by JMRI

(ii) He explicitly released all JMRI users and developers from any liability for anything related to JMRI upto 18 months;

(iii) Katzer will pay \$100,000, spread over the next 18 months.

Katzer had also registered a domain name with the name of Jacobsen's software, decoderpro.com that was used by Jacobsen, who had already recovered it through a WIPO hearing.

APPENDIX-3

Popular open source programmes

Apart from Linux, Apache and Android, all other programmes run on all operating system except Infra recorder. K3B is good substitute for Infra recorder in Linux.

- **Linux** (GPL): It is an operating system.
- **Apache** (ASL): It is the most popular HTTP (Web) server software.
- **Android** (ASL): It is operating system for mobile phones.
- **Audacity** (GPL): It is programme for recording audio files. It permits editing of the audio files too. One can copy, paste, or mix the audio files.
- **OpenOffice.org** (LGPL & ASL) and **Libre Office** (LGPL) **suites** : It provides bundle of software that are used in an office. It is similar to MS office suite and contains similar programmes. The default format of different programmes of this suite are Open Document Format maintained by Organisation for the Advancement of Structured information Standards (OASIS). It was approved by the International Standardisation Organisation (ISO) on May 3, 2006. They can open and save files in default format of MS Office suite or Power Point Presentation as well as in any other format too. It can export any file into pdf format.
- **Firefox, Thunderbird, and Sunbird** (all from Mozilla Foundation) (Mozilla Public License): Firefox is a web browser: Window equivalent to Internet Explorer. Thunderbird is a program for sending and receiving emails. It can perform functions of Outlook express. Mozilla Sunbird is e-manager and manages C-calender. It is similar to Microsoft outlook and can be integrated with Thunderbird or Firefox.
- **GIMP** (GPL): It is GNU Image Manipulation Programme and is suitable for such tasks as photo retouching, image composition and image authoring. It is similar to photoshop.
- **Infra Recorder** (GPL): It is programme for burning CDs and DVDs. It works in the windows only. However, K3B is a similar programme that works in Linux.
- **VLC Media Player and Mplayer** (GPL): They are media player. They can play audio and video files of any format.
- **Ximian Evolution** (GPL): Microsoft Outlook is an electronic manager. It manages ones email, calender, appointments etc. Ximian Evolution is also

an electronic manager. It is similar to Microsoft outlook.

If you have a Window based computer then do try them. They are easy to install and use: in fact easier than the other closed source programmes.

Some say that they are not as good as proprietary ones. I do not wish to debate about it but they are sufficient for our needs. They are not only open but are free of cost and can be used without any guilt of copyright violation.

Once you are used to them in Windows there would be no difficulty in shifting over to Linux based computer as their functionality in Linux is similar.