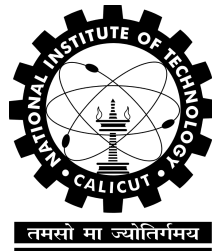


A report on

SOFTWARE ETHICS

Done by

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Monsoon Semester

Centre for Value Education
NATIONAL INSTITUTE OF TECHNOLOGY CALICUT

Certificate

This is to certify that this is a bonafide record of the project presented by the students whose names are given below during Monsoon 2010 in partial fulfilment of the requirement of the course on value education.

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Abstract

Nobody seems to care about ethics of software these days. Everywhere we know people using illegal copies of software, or even distributing them without knowing if they are legally or ethically right to do so. Being moulded into Professionals in the course of engineering education, there is a need to be aware about the ethics related to software. In this report we explore what Software Ethics are about, analyze the Software Ethics Awareness level among the students of the NITC campus, present some ways we used to improve the situation for the better throughout the time we worked on this project and list what else could be done.

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Chapter 1

Objective

The objectives of the project are:

- to build awareness about the software ethics for an individual in engineering profession.
- to spread awareness about copyright issues and various licenses available for licensing an individual's work.
- to promote interaction among students — seniors and juniors — by working together.
- to promote among the masses the use of Free and Open Source Software, which offer various freedoms from copyright issues.

Chapter 2

Literature Survey

2.1 Software and Ethics

Ethics are about right and wrong. But “right” and “wrong” may not mean exactly the same for everyone. But there are some universal moral imperatives^[1]:

- Not causing unjustified loss of human life.
- Not damaging someone else’s reputation through misrepresentation.
- Not acquiring someone else’s legitimate property against his will.
- Justly remunerating someone else’s services (related to preceding one).

For various reasons, some people justify making and using unauthorized copies of software. They may not understand the implications of their actions. Unauthorized copying of software can deprive developers of a fair return for their work.

Respect for intellectual labour and creativity is vital to academic discourse and enterprise. This principle applies to works of all authors and publishers in all media. It encompasses respect for the right to acknowledgement and the right to control over the form, manner, and terms of publication and distribution. Because electronic information is volatile and easily reproduced, respect for the work and personal expression of others is especially critical in computer environments.

2.2 What the Law says?

The following is an excerpt from the website of NASSCOM^[2] which states the situation of software related law in India (important points of concern have been bold-faced):

In India, the Intellectual Property Rights (IPR) of computer software is covered under the Copyright Law. Accordingly, the copyright of computer software is protected under the provisions of Indian Copyright Act 1957. Major changes to Indian Copyright Law were introduced in 1994 and came into effect from 10 May 1995. These changes or amendments made the Indian Copyright law, one of the toughest in the world.

The amendments to the Copyright Act introduced in June 1994 were in themselves, a landmark in the India's copyright arena. For the first time in India, the Copyright Law clearly explained:

- the rights of a copyright holder
- position on rentals of software
- the rights of the user to make backup copies
- and most importantly **the amendments imposed heavy punishment and fines for infringement of copyright of software.**

Because most software is easy to duplicate and the copy is usually as good as original, the Copyright Act was greatly in demand. According to this Act, the infringer can be tried under both civil and criminal law.

According to section 16 of this Act, it is illegal to make or distribute copies of copyrighted software without proper or specific authorisation. The only exception is provided by section 52 of the Act, which allows a backup copy purely as a temporary protection against loss, distribution or damage to the original copy. The 1994 amendment to the Copyright Act also prohibits the sale or hiring, or any offer for sale or hire of any copy of the computer program without specific authorisation of the Copyright holder.

Clearly we need to be aware of the prevailing laws before copying, or distributing copies of software. Although individuals can not be held for using illegal copies of software at home but copying or using illegally copied software at work puts the entire company at risk for copyright infringement.

When you purchase your software, you probably buy only the permission, or "license", to use it, not to share it. If your software comes with a license agreement, read it carefully before you use the software. Most licenses do not permit you to run your software on two or more computers simultaneously,

or to make copies for your friends, your family or your office mates. It is not illegal, however, to loan your original software temporarily to a friend when you are not using it yourself, as long as neither of you makes a duplicate copy, and provided that there is no contrary provision in the license agreement.

2.3 Alternatives to Explore

2.3.1 Genuine/Licensed Proprietary Software

If you can afford to buy your favorite software, do it. But most of the time, software is expensive. There are options such as bulk-purchased software but only applicable to universities and companies. Software available through institutional site licenses or bulk purchases is subject to copyright and license restrictions and you may not make or distribute copies without authorization^[3].

2.3.2 Shareware and Trial Software

Shareware is copyrighted software that the developer encourages you to copy and distribute to others. This permission is explicitly stated in the documentation or displayed on the computer screen. The developer of shareware generally asks for a small donation or registration fee if you like the software and plan to use it. By registering, you may receive further documentation, updates and enhancements. You are also supporting future software development.

Trial Software is usually limited for use within some period of time and after passing of that time, the user is required to either purchase the program or remove it from her system. It is similar to taking a taste of a sweet before buying it.

2.3.3 Free or Open Source Software

Free and open source software (FOSS) or free/libre/open source software (FLOSS) is software that is liberally licensed to grant the right of users to use, study, change, and improve its design through the availability of its source code.

In the context of free and open source software, *free* refers to the freedom to copy and re-use the software, rather than to the price of the software.

2.4 Licensing your work^[4]

If you are the copyright owner of a work (and you likely will be if you created the work), such as a program, an article, a blog post, a photograph, or a video, you can authorize others to use it. You can do this by transferring to the person who wants to use your work any or all of your rights as a copyright owner. The following are descriptions of some popular free licenses which allow you to give others rights to use your work^[5]:

2.4.1 Software Licenses

- GNU General Public License (GPL)

Nobody should be restricted by the software they use. There are four freedoms that every user should have:

- the freedom to use the software for any purpose,
- the freedom to change the software to suit your needs,
- the freedom to share the software with your friends and neighbors, and
- the freedom to share the changes you make.

When a program offers users all of these freedoms, it is called free software.

Developers who write software can release it under the terms of the GNU GPL. When they do, it will be free software and stay free software, no matter who changes or distributes the program. It is called *copyleft*¹: the software is copyrighted, but instead of using those rights to restrict users like proprietary software does, they are used to ensure that every user has freedom.

This latest version of the GNU GPL is version 3 commonly abbreviated as GPLv3: a free software license, and a copyleft license. It is recommended for most software packages.

- GNU Lesser General Public License (LGPL)

¹Copyleft is a play on the word *copyright* to describe the practice of using copyright law to offer the right to distribute copies and modified versions of a work and requiring that the same rights be preserved in modified versions of the work. In other words, copyleft is a general method for making a program (or other work) free, and requiring all modified and extended versions of the program to be free as well.^[6]

LGPL is a free software license, but not a strong copyleft license, because it permits linking with non-free modules. It is compatible with GPLv3. It is recommended for special circumstances only.

- GNU Affero General Public License (AGPL)

This is a free software, copyleft license. It is a modified version of the ordinary GNU GPL version 3. It has one added requirement: if you run the program on a server and let other users communicate with it there, your server must also allow them to download the source code corresponding to the program that it's running. If what's running there is your modified version of the program, the server's users must get the source code as you modified it.

- Apache License

This is a permissive non-copyleft free software license. It has a few requirements that render it incompatible with the GNU GPL, such as strong prohibitions on the use of Apache-related names.

2.4.2 License for Documentation and Creative Works

- GNU Free Documentation License

This is a license intended for use on copylefted free documentation. The GNU FDL is recommended for textbooks and teaching materials for all topics. ("Documentation" simply means textbooks and other teaching materials for using equipment or software.) It is also recommended to use the GNU FDL for dictionaries, encyclopedias, and any other works that provide information for practical use.

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Chapter 3

Work Done

3.1 With FOSSCell

FOSSCell (Free and Open Source Software Cell)^[7] of NIT Calicut is a group of enthusiasts in the NITC campus who believe in the ideology of free and open source software. FOSSCell organizes events for promotion of FOSS, workshops and talks that allow masses to learn alternative software like GNU/Linux, Python, etc.

3.1.1 Orientation Program 2010

An orientation program for the freshers of the institute was done on September 7, 2010^[8]. Information about what is Free and Open Source Software, Google Summer of Code and FOSSCell of NIT Calicut was given along with screening of some informative videos related to FOSS. Many freshers attended the orientation.

3.1.2 Exhibition at the National Conference on Free Software in Education

National Conference on Free Software and Education^[9] was organized during September 10-12, 2010 by Free Software Foundation of India^[10]; SPACE, Thiruvananthapuram^[11]; and National Institute of Technology Calicut. Richard Stallman, the founder of GNU project and the Free Software Foundation, inaugurated the conference. During the first day of the conference, one of us co-ordinated an exhibition done by freshers in which stalls were setup to spread awareness about free software like Blender, Inkscape, Ubuntu, GIMP, etc. In the exhibition, a demo of localization under GNU/Linux environment

in various Indian languages was also done alongwith a presentation on FOSS. Some photos are available online^[12].

3.1.3 Celebration of Software Freedom Day

Software Freedom Day is a worldwide celebration of Free and Open Source Software. The goal in this celebration is to educate the worldwide public about the benefits of using high quality FOSS in education, in government, at home, and in business.

SFD was celebrated at the NITC campus on September 18, 2010^[13]. During the program information about Software Freedom was given to participants and some hand outs containing information about various free software were also distributed. Before and after the celebration, various posters related to free and open source software were pasted in places like Mini Canteen and hostels including the Ladies Hostel.

3.1.4 Setting up of FOSSHut @ Tathva 2010

A FOSSHut was setup in one of the exhibition halls during Tathva 2010^[14] during October 22 to 24, 2010. It featured a Freedom Toaster (which allows anyone to burn disks of any GNU/Linux distro for free) brought by Zyxxware Technologies^[15], some promotional material by SPACE, various GNU/Linux Desktop Demos, Free and Open Source Software Demos, information about Creative Commons and quality free and open source software through posters and interaction, a GNU/Linux Install Fest, Screening of Open Movies, Games on Linux, and an Unconference. It was volunteered by many freshers and other members of FOSSCell. Some photographs are available online^[16].

3.1.5 A Demo session on Drupal

A demo session on Drupal - an open source content management platform, was conducted by one of us to help interested people (including freshers and FOSSCell members) learn about basics of Drupal on November 6, 2010^[17].

3.2 A Survey on Software Ethics Awareness

We created a survey on Software Ethics Awareness to spread awareness about ethics related to software and also to analyze the current situation in NIT Calicut. Survey was conducted both online and offline.

The online survey was done with the help of a website <http://www.surveymonkey.com/>. Online participants included NITC students who are users of social networking websites like Facebook and Twitter, students of our batch and also some of the FOSSCell members. They belonged to various courses, branches and years of study. The survey was done during October 27 to November 4, 2010 (about 8 days) and we received responses of 77 participants.

For offline survey we distributed 200 paper copies among the freshers and some other group of students (the paper version of the survey can be seen at the end of this document). This at least had the effect of spreading awareness among the respondents. We realized on collection of the survey forms that manual analysis of the offline survey data was a next to impossible task. So, here we present the observations from the online survey only:

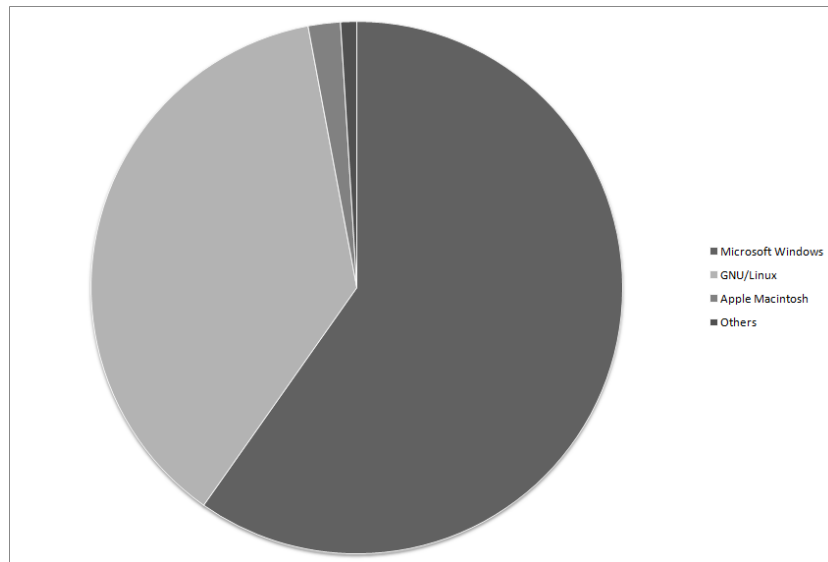


Figure 3.1: Operating System usage

Figure 3.1: What operating one is using usually says much about the tendency to use illegal copies of software. It has been observed, generally, that most of the illegal sharing of software happens on the Windows platform. Here we observed that a good share of students are using other operating systems also.

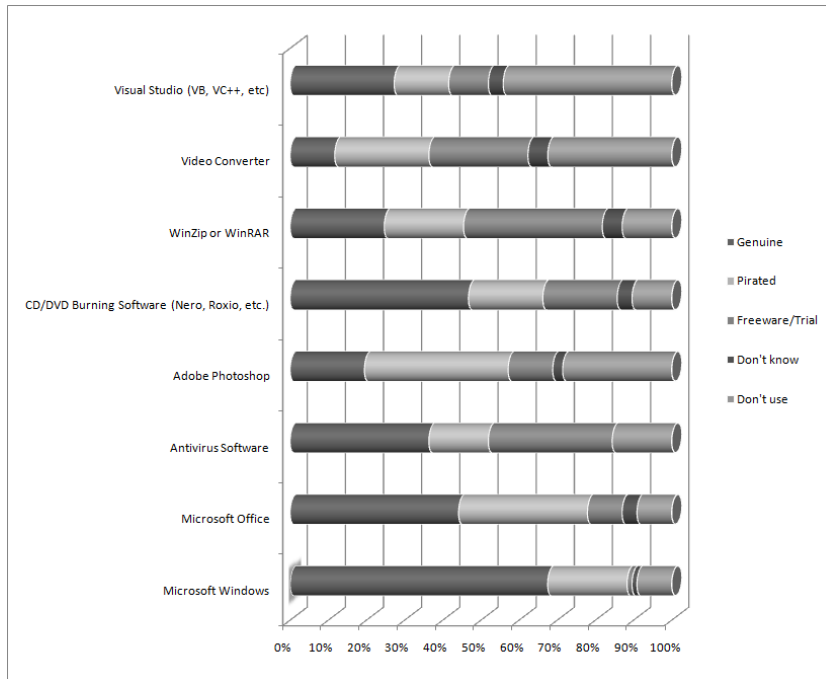


Figure 3.2: Classification of common software used

Figure 3.2: In the second question that we asked we tried to analyze usage patterns for common software. It can be observed that Microsoft Windows and CD/DVD Burning Software such as Nero or Roxio are the two software that are being used as legal copy. The reason for this can be attributed to bundling of licensed versions of these software with most of the laptops available these days. The most used pirated software are Microsoft Office and Adobe Photoshop. Compression software and Antivirus software are the two most used in freeware or trial category.

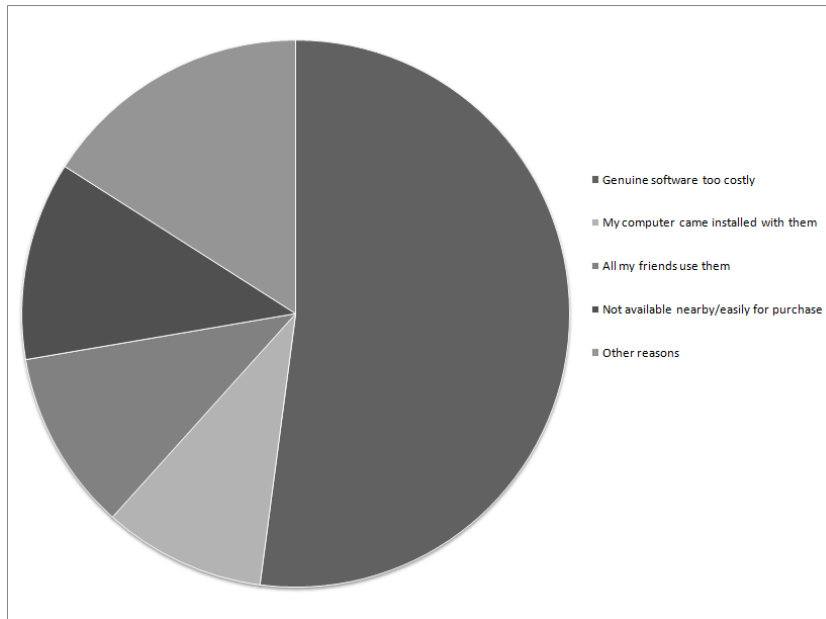


Figure 3.3: Reasons for using pirated software

Figure 3.3: Here we tried to find out why people tend to use illegal copies of software. More than half of those responded believe that genuine software is too costly. Almost equivalent proportion of people attributed it to the next 3 reasons. Other prominent reasons included: they don't use pirated software, need for some project work, and pirated software easily/freely available.

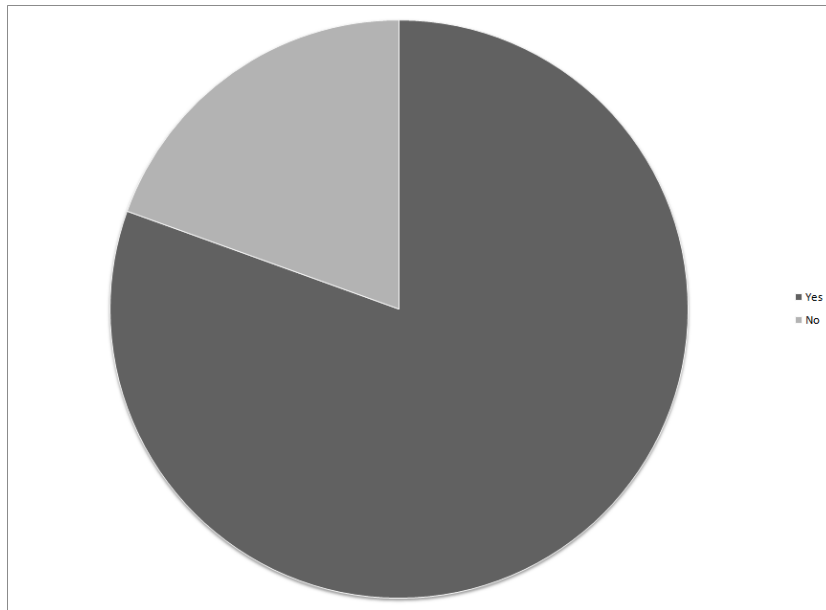


Figure 3.4: Awareness of consequences

Figure 3.4: Over three-fourths of the proportion were aware that using, copying or distributing illegal copies of software can land them up in jail.

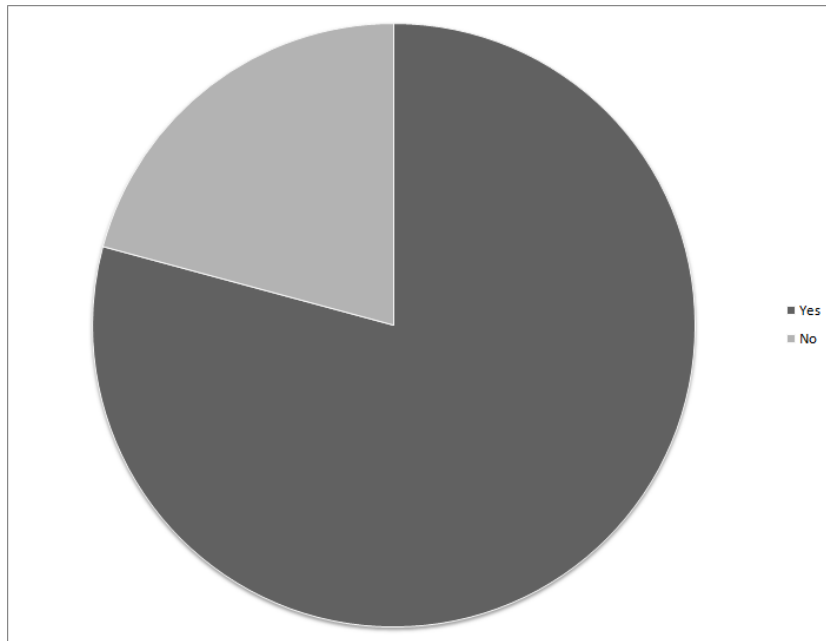


Figure 3.5: Awareness of existence of alternatives

Figure 3.5: Almost same percentage of respondents as in the previous question were aware about the existence of free and open source software alternatives.

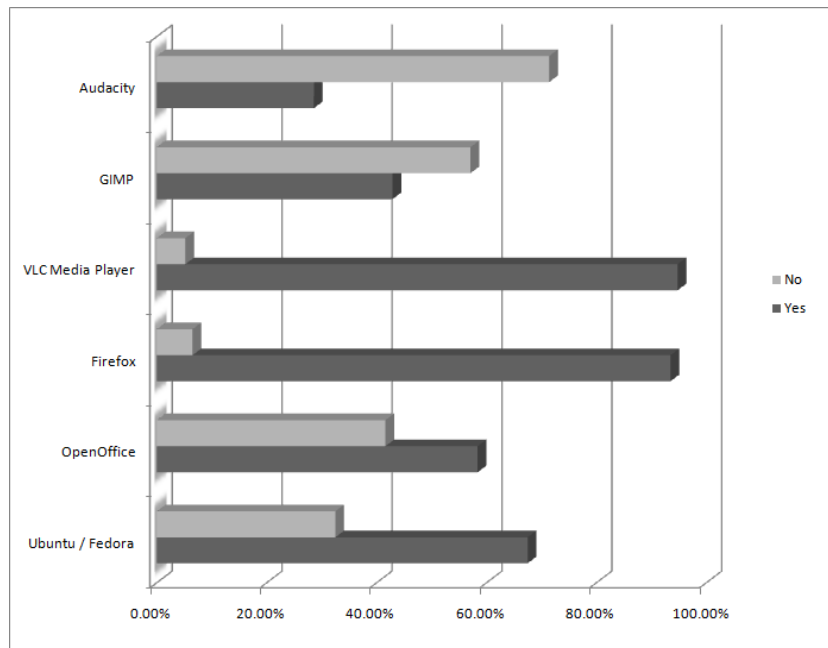


Figure 3.6: Common FOSS usage

Figure 3.6: VLC Media Player and Firefox come out as the most popular free or open source software being used, followed by Ubuntu/Fedora and OpenOffice.

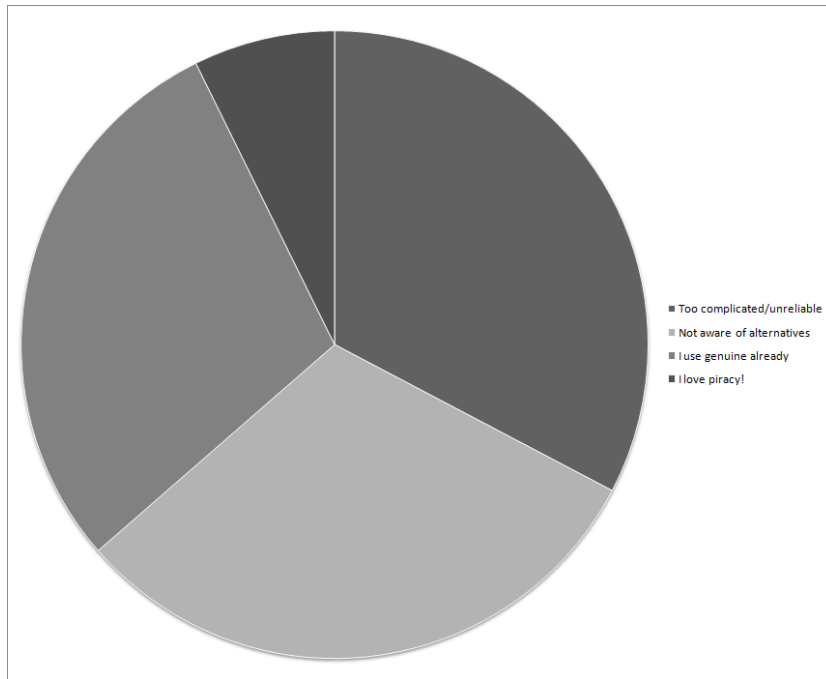


Figure 3.7: Reasons for not using FOSS

Figure 3.7: Almost equal percentages of people cited the first three options as the reason for not using free and open source software alternatives. Alas, there is also a small percentage of people who love piracy!

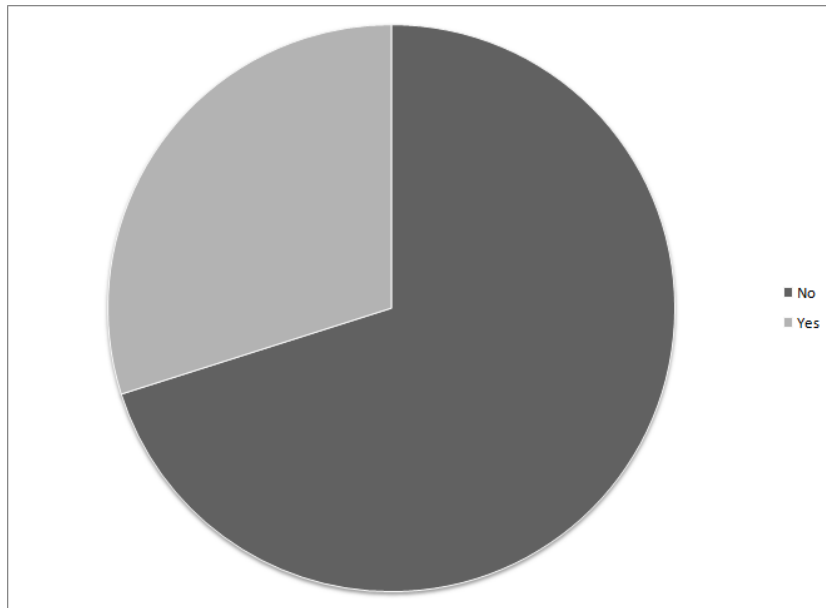


Figure 3.8: Support for piracy

Figure 3.8: Over 70% of respondents responded in negative when asked “Do you support piracy?”. They were asked to write some reason if they chose ‘No’, some of the reasons mentioned were: cost issues, educational reasons, no alternatives, ease of use. One respondent even mentioned that until she starts earning to buy genuine, she will use pirated software.

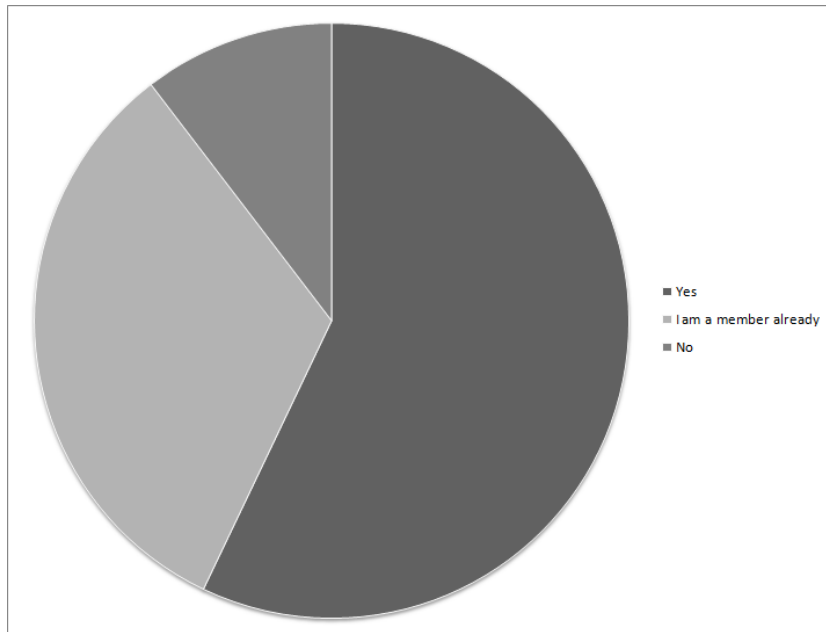


Figure 3.9: Awareness about FOSSCell

Figure 3.9: This question was selected to find out if students knew about a support group that is active in the campus itself. This also establishes that almost one-third of the survey respondents were FOSSCell members. Other than them, almost 60% of respondents were aware of the existence of FOSSCell.

Chapter 4

Future Work

Projects such as this are a continuous process. We had planned a lot more things to do but due to limitations of time and resources we couldn't do everything. The following is a list of other things that could be done in the future:

- A similar awareness survey for the faculty of different departments of the institute.
- With the support of FOSSCell, paste posters in the campus comparing FOSS and proprietary software categorizing them according to the different departments so as to promote use of alternate (freedom) software and reduce dependence on proprietary solutions, ultimately leading to lesser tendency of students to make illegal copies of software.
- Develop an online portal for the same purpose as listed in the last point.
- Continue organizing small-level sessions like Drupal for freshers and others interested to make them aware and skilful in this arena.

Acknowledgments

We would like to express our deep sense of gratitude to **Mr. A. Rajagopalan** for his invaluable help and guidance during the course of this project.

Thanks are also due to all those people whom we worked with — members of FOSSCell, freshers, participants of the Software Ethics Survey both online and offline.

And a special thanks to the people behind this great document preparation system — \LaTeX , which helped us create this report in such a professional way.

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Niel Mishra
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November 2010
National Institute of Technology Calicut

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A Survey on Software Ethics Awareness

- An S3 Value Education Initiative

Tip: Square boxes mean you can tick more than one option. Round circles are for single choice only.

1. Which Operating System do you use?

- Microsoft Windows
- GNU/Linux
- Apple Macintosh
- Others

2. Classify the following software that you use according to the choices given:

	Genuine	Pirated	Freeware/Trial	Don't Know	I don't use this
Microsoft Windows	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Microsoft Office	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Antivirus Software	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adobe Photoshop	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CD/DVD Burning Software (Nero, Roxio, etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
WinZip or WinRAR	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Video Converter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Visual Studio (VB, VC++, etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Why do you use pirated software, if you do?

- Genuine software too costly
- My computer came installed with them
- All my friends use them
- Not available nearby/easily for purchase
- Other reason (please specify) _____

4. Do you know using or copying or sharing pirated software is illegal and can even land you up in jail?

- Yes
- No

5. Do you know that free software or open source alternatives exist for almost all categories of software listed in question 2?

- Yes
- No

6. Which of these popular free/open source software do you use?

- | | | |
|------------------|---------------------------|--------------------------|
| Ubuntu / Fedora | <input type="radio"/> Yes | <input type="radio"/> No |
| OpenOffice | <input type="radio"/> Yes | <input type="radio"/> No |
| Firefox | <input type="radio"/> Yes | <input type="radio"/> No |
| VLC Media Player | <input type="radio"/> Yes | <input type="radio"/> No |
| GIMP | <input type="radio"/> Yes | <input type="radio"/> No |
| Audacity | <input type="radio"/> Yes | <input type="radio"/> No |

7. Why don't you use free/open source software, if you don't?

- Too complicated/unreliable
- Not aware of alternatives
- I use genuine already
- I love piracy!

8. Do you support piracy?

- No
- Yes (please specify why) _____

9. Are you aware that there is a Free and Open Source Software Users Group functioning in the campus by the name of FOSSCell?

- Yes
- I am a member already.
- No

10. At the end, a little info about you:

Name _____

Year of Study _____

Branch _____

Privacy Disclaimer: It is assured that your information will be kept private and won't be used for any other purpose except for the credibility of this survey.