

# Demographic Factors of Software Piracy

Shubhnandan S. Jamwal, Nishant Gupta  
jamwalsnj@gmail.com

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**Abstract:** This paper documents an exploratory study of software piracy in India. It also reports the findings of a survey based on various demographic factors of software piracy among academic as well as professional sector in North India. Although the impact of these factors on software piracy has long been attracting the interest of academics, no quantitative research has ever been realized in this field in the country. Elsewhere also, most of the software piracy-related studies are limited to students and academics and very few have reported findings related to IT professionals in different organizations. The survey was conducted among academicians and IT professionals from government and private sector organizations. The writer of this paper delves into the various types of software piracy which is rampant and negatively impacting both business and consumers. The paper also examines the level of piracy in North India. Based on the survey, the results indicated that most frequent type of software piracy used is HardDiskLoading. The implications of these findings are discussed and analyzed. The paper finishes with some suggestions on combating this particular type of software piracy, including the implementation of some framework.

**Keywords:** Software piracy, types of software piracy, hard disk loading, questionnaire, India.

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## INTRODUCTION

The widespread use of computers and the Internet has provided many advantages to everyday life, but also created new opportunities for unethical and illegal acts such as software piracy. Software piracy is the unauthorized copying or distribution of copyrighted software. This can be done by copying, downloading, sharing, selling, or installing multiple copies onto personal or work computers. What a lot of people don't realize or don't think about is that when you purchase software, you are actually purchasing a license to use it, not the actual software. That license is what tells you how many times you can install the software, so it's important to read it. If you make more copies of the software than the license permits, you are pirating. Each pirated piece of software takes away from company profits, reducing funds for further software development initiatives.

The Business Software Alliance (BSA) and International Data Corporation (IDC) estimated that worldwide software piracy rate went up to 42 percent in 2011 and worldwide losses to software vendors due to software piracy totaled more than \$63.4 billion in 2011 [1]. BSA Report finds 43 percent of Computer users in India admit they pirate software. Value of pirated software in India reaches upto INR13,783 crores in 2011 [2].

Besides being an economic problem, software piracy is also an ethical issue, especially in academic and professional settings. As stated earlier, software piracy is illegal. Ironically, many who pirate software are fully aware of the legalities, though they are able to rationalize continuing the practice. Some have difficulty understanding the distinction between freeware, shareware and commercial software. Others believe students won't be able to take advantage of the many technology-based educational opportunities without access to unaffordable software. Since software budgeting is often inadequate, and occasional upgrade of hardware makes older versions of software obsolete after several years, some think the only "solution" to the problem is to pirate newer versions of past purchased software. Finally, some people don't believe that software piracy is truly stealing because there is no loss of a tangible product involved in the act of piracy.

The objective of this paper is to investigate the use of pirated software among academicians and IT professionals of government and private sector organizations in North India with reference to important concerned demographic factors such as gender, age, use of pirated software, usability, morality and education. In this study, we have also undertaken a comprehensive survey of the existing literature on software piracy.

The remainder of this paper is organized as follows: The following section introduces a discussion of various software piracy-related studies through a review of related literature. The next section describes the method used for

collecting the data. The results of the analysis are then presented and discussed. Finally, the paper concludes with the conclusions and directions for future research in this area.

## LITERATURE REVIEW

The ethical use of computers and information technology has become a subject of great interest in the past decade. Of all the issues within computer ethics, the unauthorized duplication of software (usually called software piracy) has captured more than its share of attention. Software piracy is almost as old as the desktop computer. To protect the software from being pirated has become the core issue in the field of software protection [3].

Software developers have tried various techniques to eliminate so-called software piracy because of the loss in their revenue that can result from it. These techniques have included publicity about the harm that it supposedly causes, electronic copy protection, surprise audits of businesses, requiring users to contact the vendor to obtain an installation code, legal action, and the selling of less expensive versions with reduced functionality. However, such measures have generally met with little success, as determined users soon discover ways to avoid or defeat them. Moreover, some of them have actually alienated users by making software more difficult to install or use, notably the tedious task of typing in long registration codes and the annoyance of having to call the vendor after installation or reinstallation to obtain an authorization code.

Shubhnandan S. Jamwal [4] study focuses on software piracy among university students. Students from computer background are more involved in piracy as compared to others. Sampling has been done on the basis of survey from these students. Limitation of the study was that it was limited to the university students only. Nishant Gupta and Shubhnandan S. Jamwal [5] further studied software piracy expanding the research to IT students in J&K state. The findings of this study insisted upon the level of piracy and type of piracy which further needs to broaden its scope.

In his paper, Samuel Shu Kin Kwan [6] analyzes the optimal protection strategy for software developer in horizontally and vertically differentiated markets. The implementation cost of software protection constitutes the primary factor for software developers to determine their software protection strategies. This study mainly focuses on the effects of protection costs and risk in a competitive market and does not include the externalities and other factors.

Alok Mishra et. al. [7] presents an extensive literature review on software piracy and then reports the findings of an empirical study on the impact of demographic factors on software piracy factors among IT professionals in Turkey. The results indicated that gender, age and experience have significant impact on software piracy. However, the survey was limited only to IT professionals.

Ramayah et. al. [8] studied tested a causal model of Internet piracy among university's students using a structural equation modeling (SEM) procedure. Studies in this line of inquiry is rather limited, particularly in the context of Malaysia, larger sample size to generate better insights into this issue is required.

Petar Djekic and Claudia Loebbecke [9] in their paper studied the influence of technical copy protections on application software piracy. Scientific research has been empirically investigated to what extent technical copy protections avoid illegal copying. The research findings can not confirm to be also applicable to similar industry-specific software like graphics application software.

Yin-Leng Theng [10] proposed a theory-based approach to study the key factors contributing to piracy and counterfeiting issues. The findings proved useful to managers of software companies and policy-makers in reviewing existing software protection policies, laws and regulations, such that any flaws or loopholes can be identified.

Rajeev K. Goel, Michael A. Nelson [11] determines the various influences on software piracy using a large sample of countries. Results show that economic, institutional, and technological factors exert important influences on software piracy, albeit with some qualitative and quantitative differences. But this investigation does not involve examining the piracy differences across software types.

Nishant Gupta et. al. [12][13] proposed an integrated approach for controlling the software piracy. This model is beneficial in combating software piracy and securing the software from redistribution.

## METHODOLOGY

The study being undertaken for the first time in North India suffers from certain disadvantages. The greatest handicap perhaps arises from the information requirements. The study, to begin with, did not have the basic information on the Indian copyright industry itself. One reason for this is the dominance of unorganised sectors in various segments of the industry. As a result, precise data on software usability, information about piracy, level of software piracy, effect on market, risk involved, morality, education and the like are not available. Even in the case of the organized sectors, the data base is far too inadequate.

Given the above limitations, we approached the study by seeking information from various stake holders of academic as well as industrial sector. Firstly, the academic institutions like schools, colleges and universities were identified. Attempts were made to extract information on various aspects of software piracy from the main pillars of this survey. Information was also sought from software industry including software vendors, computer firms, software developing teams, call centre's, service support centre's and some of the website agencies. Based on some of piracy issues like, an online questionnaire was developed to gather information/data. This questionnaire was developed using Visual Basic.NET as frontend tool for interface and SQL Server 2005 as the backend for database management.

As this is an exploratory study with straightforward items and no hypotheses, the questionnaire did not undergo rigorous testing for statistical validity.

Six different sets of issues were included in questionnaire covering software usability, use of pirated software, level of software piracy, effect on market, risk involved, morality, education. The target groups are chosen from among those who are either students, scholars, staff at the academic institution and developers, executives, developers, clients in software industry. The authorities are also contacted for gathering information on stated issues.

Canvassing of questionnaires took place in five major states of North India namely J&K, Himachal Pradesh, Haryana, Punjab and New Delhi. Even though pirated softwares are produced and used all over the country, the intensity of use and therefore the tendency towards copyright violations is generally concentrated in North India. Therefore, we selected five states mentioned above for conducting the field level survey. In any case, an extensive coverage of all the states across country is beyond the scope of the study, because of time and cost constraints.

Field survey was undertaken during June-December 2012. The survey covered all the target groups mentioned earlier. In most of the cases personal contacts were established with the sample respondents by the Universities students and scholars. The web link of online questionnaire was mailed to about 2000 users of computer software. The overall response from the field survey was satisfactory. Against the target number of 2000, we received responses from 1629 sample respondents. The success rate is about 94 %. The detailed break up of responses received against the target numbers is presented in Table1.

## OBSERVATIONS AND ANALYSIS

Users were asked for their experience and opinions about software piracy in all the questions categorized under six different issues. The data collected were tabulated and also their pictorial representation has been shown thereon in this paper.

### a). *Usability:*

This factor of software piracy has been shown in Figure 1. Results indicate that 95% of users are a bit familiar with software piracy and 40% have fair idea about software piracy. 85% users agreed that they have downloaded atleast one piece of pirated software from internet whereas 20% agreed upon uploading the software. 85% respondents do not agree that piracy helps in spreading technology.

### b). *Use of pirated software (Figure 2)*

Users were asked about each type of software used and the medium of software piracy used for acquiring that software. 80% respondents use harddisk loading to acquire MS Windows Operating system whereas only 5% user internet for acquiring it. In case of antivirus software, 65% use harddisk loading for acquiring AVG and 60% use same medium for Norton. A very less percentage of 15% and 5% use internet for same anti-virus respectively. 60% and 50% users use harddisk loading for MS Office and Open Office respectively. Only 5% and 25% use internet for acquiring same softwares respectively. 65% user hard disk loading for having Visual Basic and .NET. A very less percentage of 5% use internet as well as unbundled as medium for Visual Basic where as 2% use shareware for .NET. Java 7.0 has been acquired by 55% users through harddisk loading. And 5 % through borrowing. 45% users acquire SQL Server 2005 through harddisk loading and 10% each through unbundled and borrowing. Tally as well

as Next Generation has been acquired by 45% and 40% through harddisk loading. 20% respondents acquire Adobe Photoshop, Adobe Dreamweaver and Corel Draw through harddisk loading. Whereas 20% acquire Photoshop through borrowing and 10% each acquire Dreamweaver & Corel Draw through borrowing.

c). **Technical (Figure 3)**

A very high percentage of 40% consider copying software from internet as piracy as well as counterfeiting of software. 48% users agree that use of CD/DVD for copying software is acceptable as far as piracy is concerned. 40% users believe that softlifting for copying the software is illegal. 55% respondents strongly disagree that harddisk loading is valid medium for copying the software. 40% agree that corporate software is legally accepted as medium for copying the software.

d). **Effect on market (Figure 4)**

60% users strongly agree that software manufacturers incur a loss due to piracy. 45% are of this opinion that software companies could charge lower prices and still be profitable. Only 45% users agree that use of commercial software development results in underestimation of departmental costs.

e). **Risk (Figure 5)**

50% users find it risky to use pirated software whereas only 30% consider that pirating a small package is not so bad. 80% are of the opinion that software available on the internet can/should be used by anyone.

f). **Morality and education (Figure 6)**

30% users feel guilty if pirating the software. 30% users consider piracy as against their principles and it would be morally wrong to pirate software. 50% respondents are of the opinion that copying of commercial software is always wrong. 80% believe that it is alright for a student to copy commercial software instead of buying it as it is to be used for educational purpose. 60% consider that software piracy, as a concept, received very little coverage in syllabi/curriculum.

**ANALYSIS**

On the basis of observations and findings, it has been analyzed that number of people have a fair idea about software piracy and piracy do not helps in spread technology. Maximum software's being used by the users are copied by harddisk loading and people prefer this method as they are not directly involved in piracy act. Data received in technical sections clearly shows that HardDisk Loading is the most frequent type of medium used for copying the software as compared to borrowing, internet, corporate software and others. Maximum people are involved in harddisk loading type of piracy. Software industry suffers most from software piracy in terms of business and clients. Also, it is highly risky and morally wrong to pirate software. Although, educational sector can have the privilege to copy commercial software. It is felt that awareness and education about software piracy among people is required today.

Figure 1

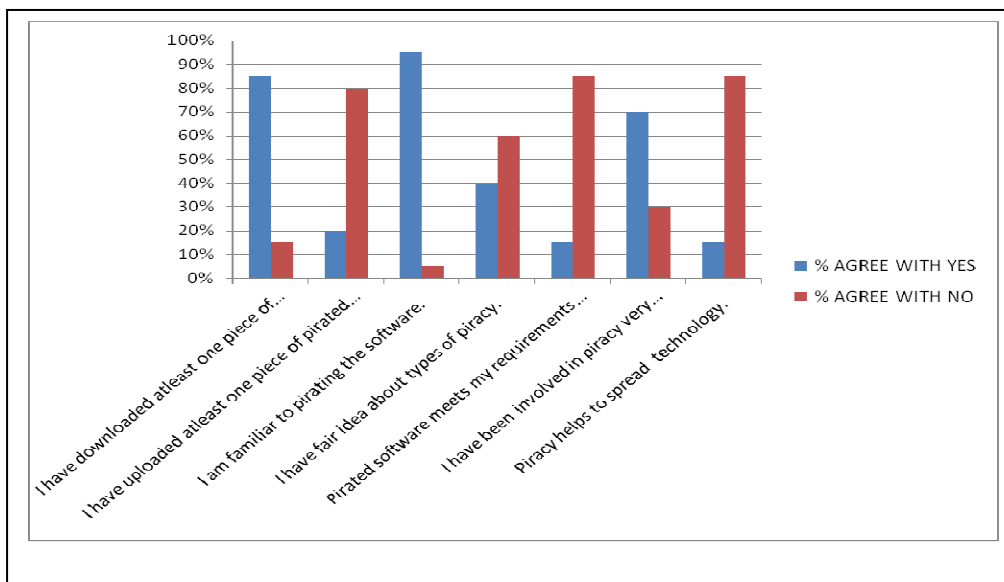


Figure 2 (a)

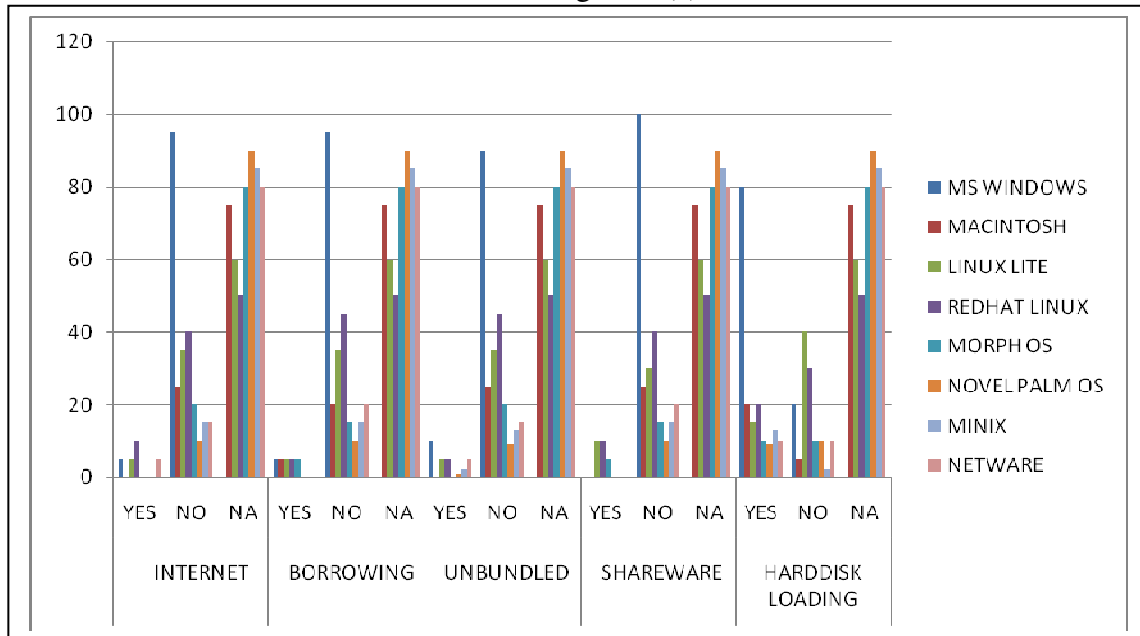


Figure 2 (b)

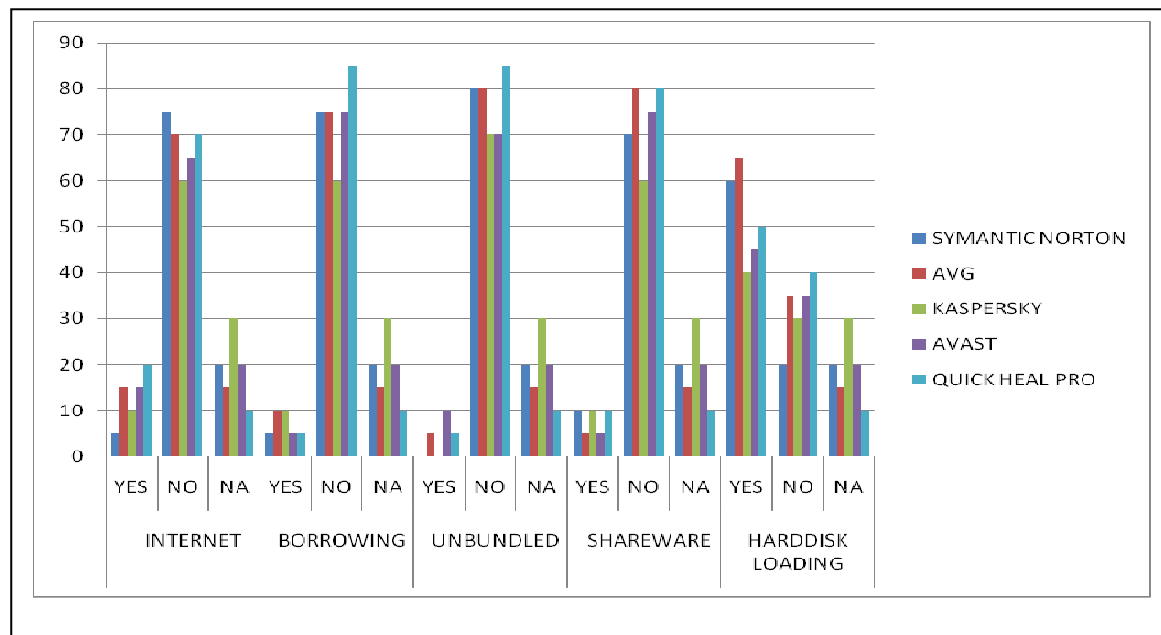


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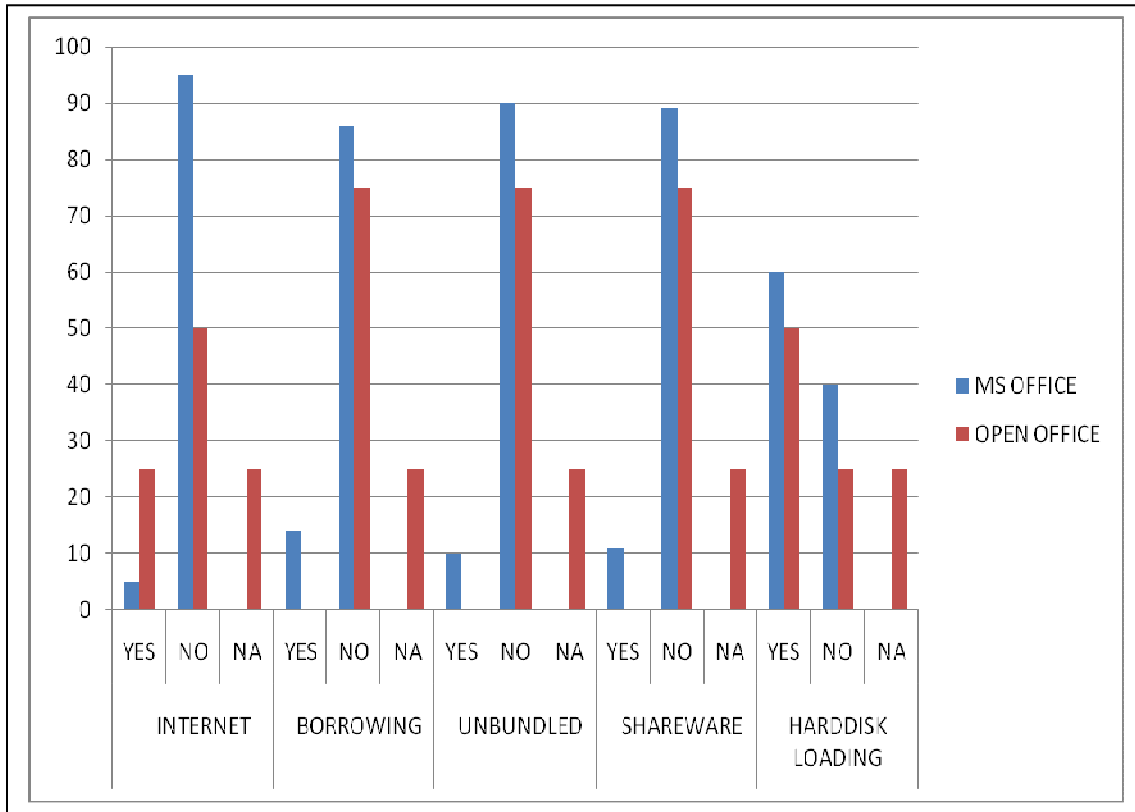


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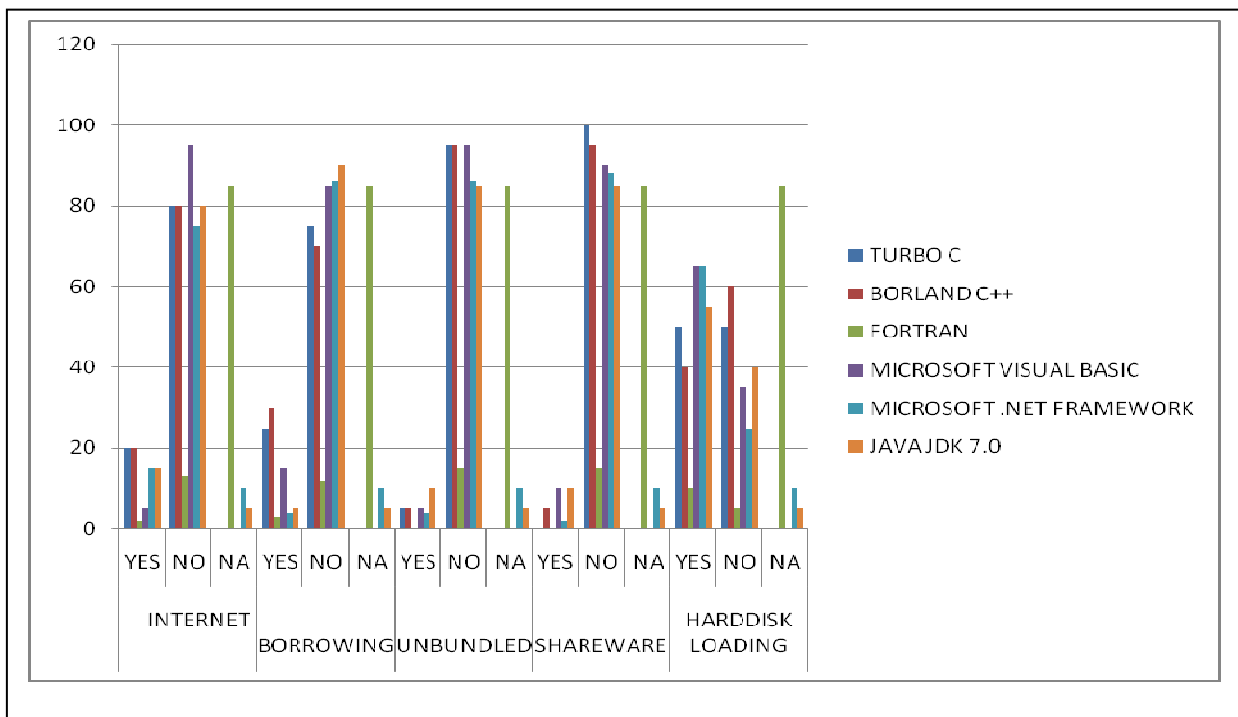


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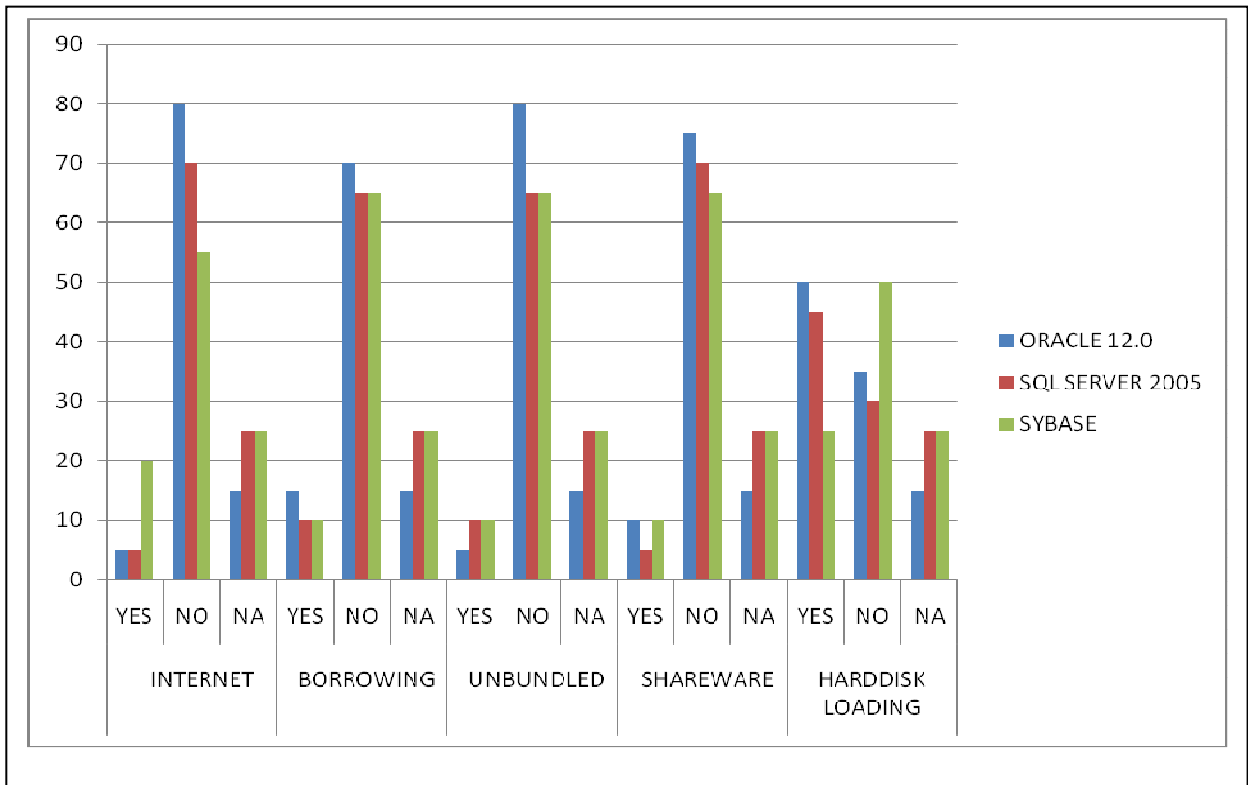


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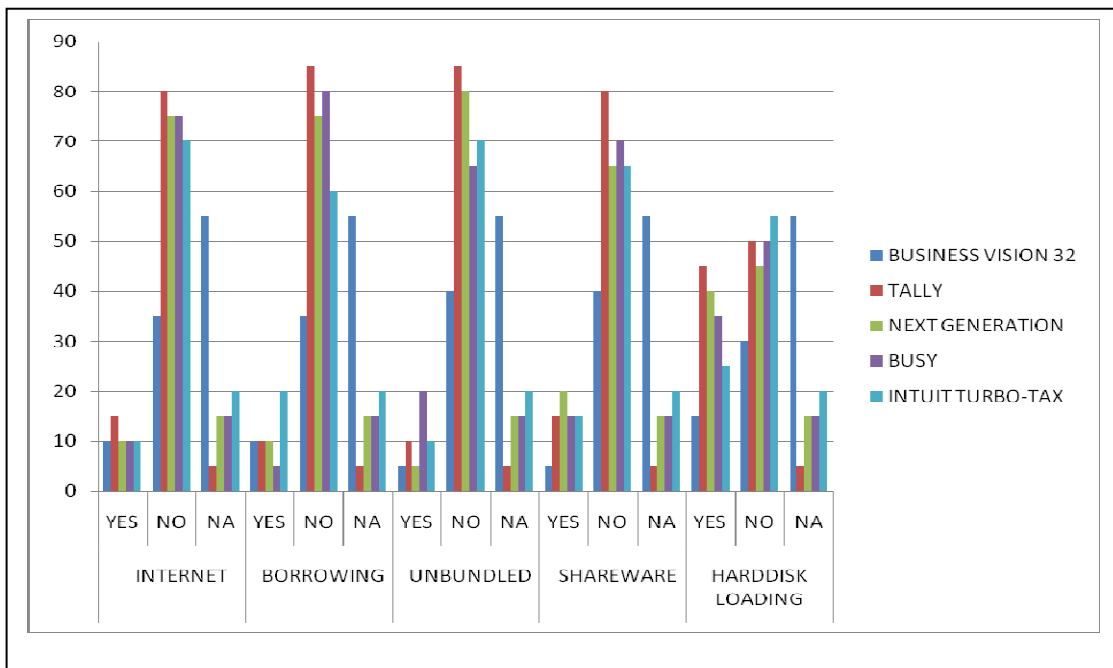


Figure 2 (g)

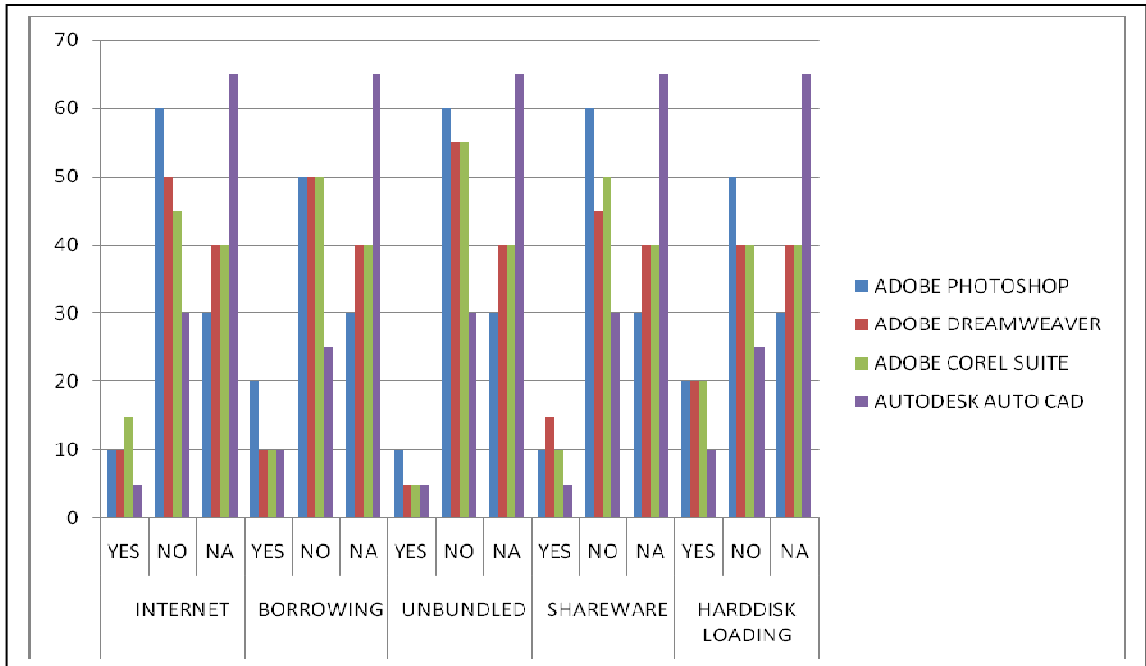


Figure 2 (h)

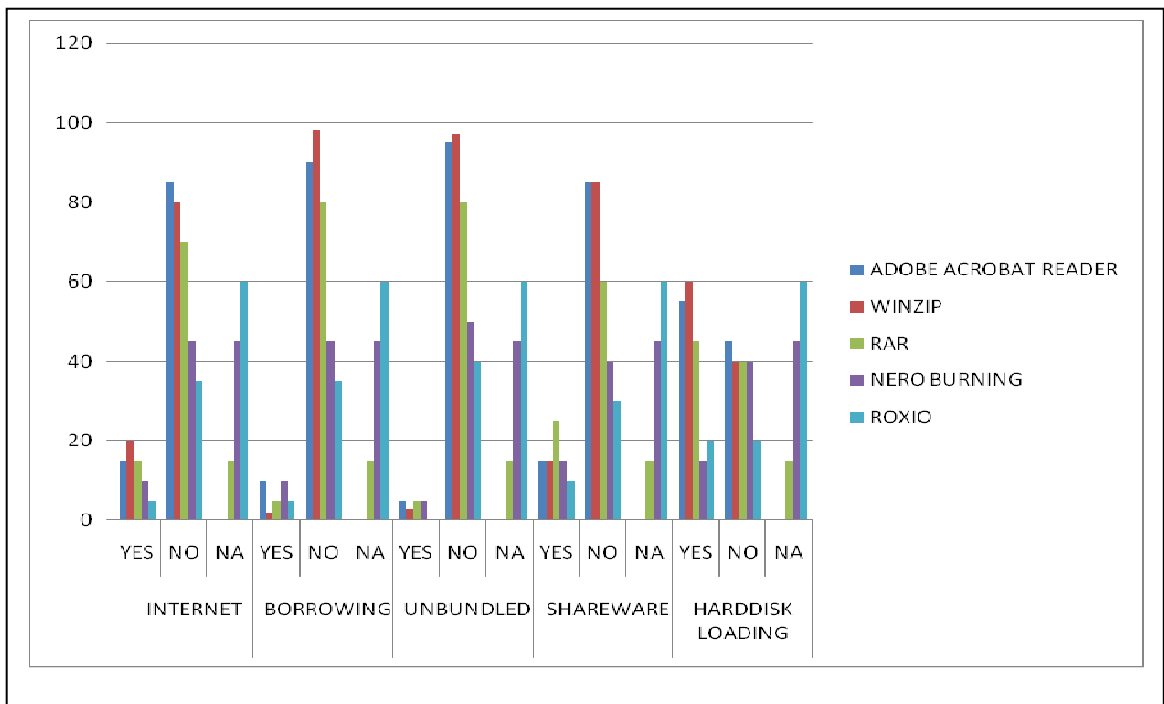




Figure 2 (i)

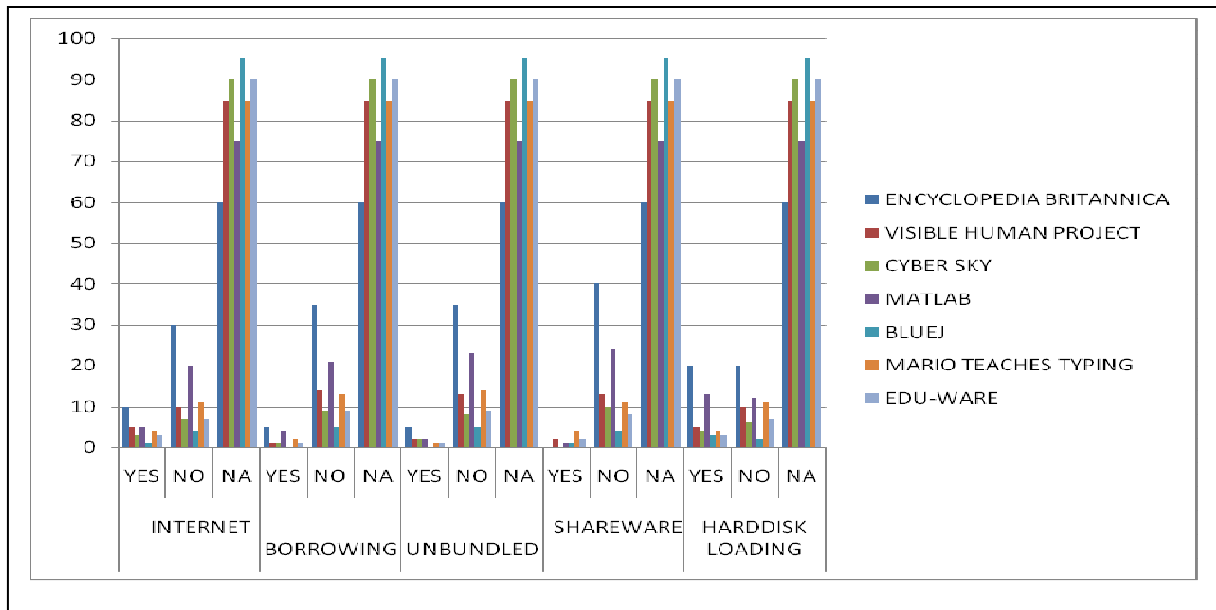


Figure 3

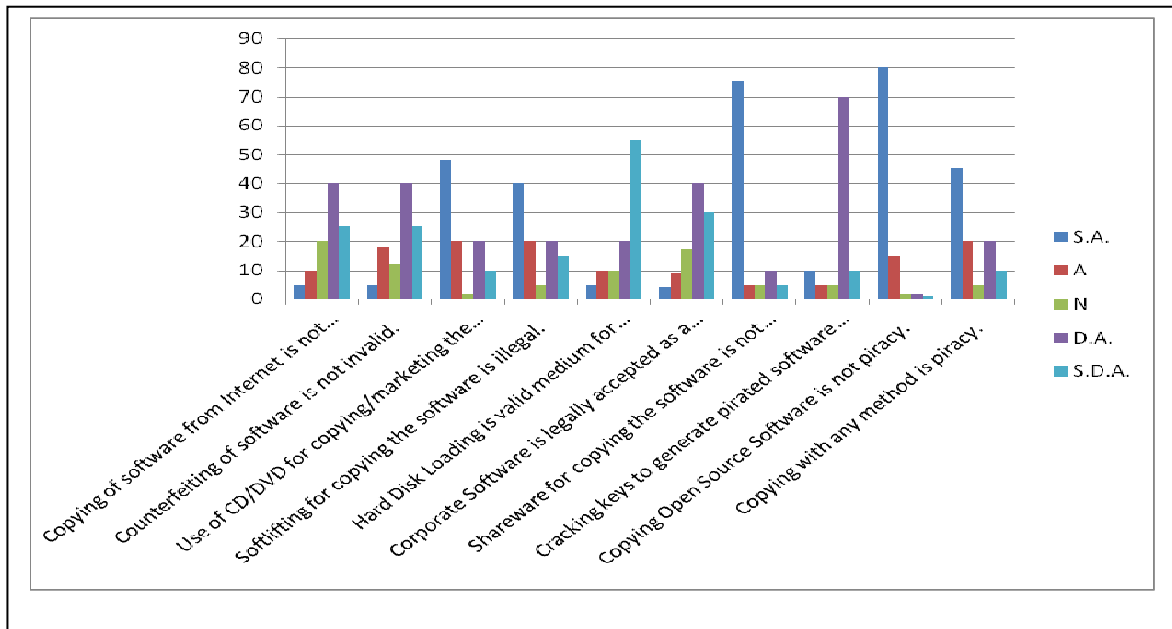


Figure 4

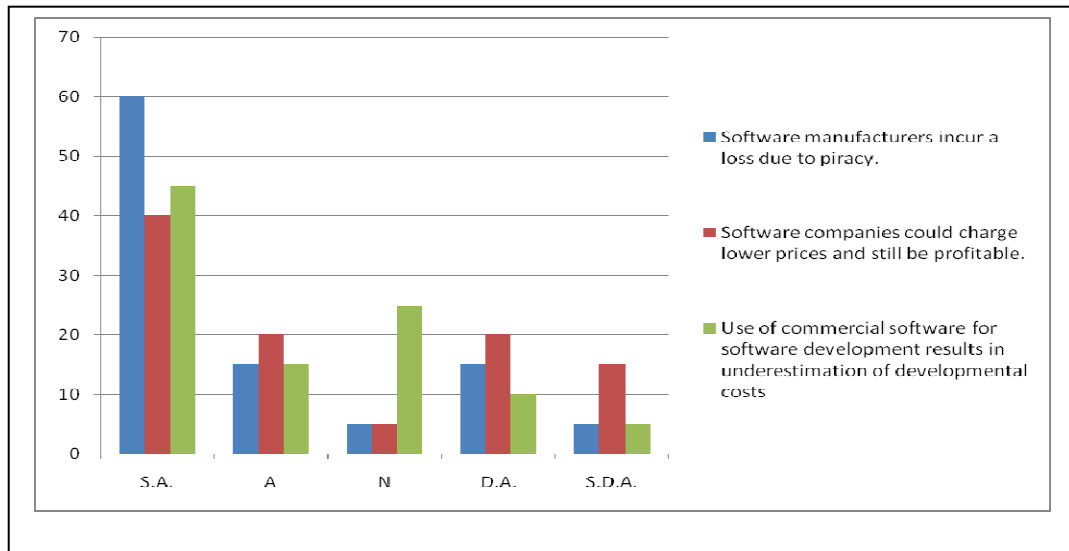
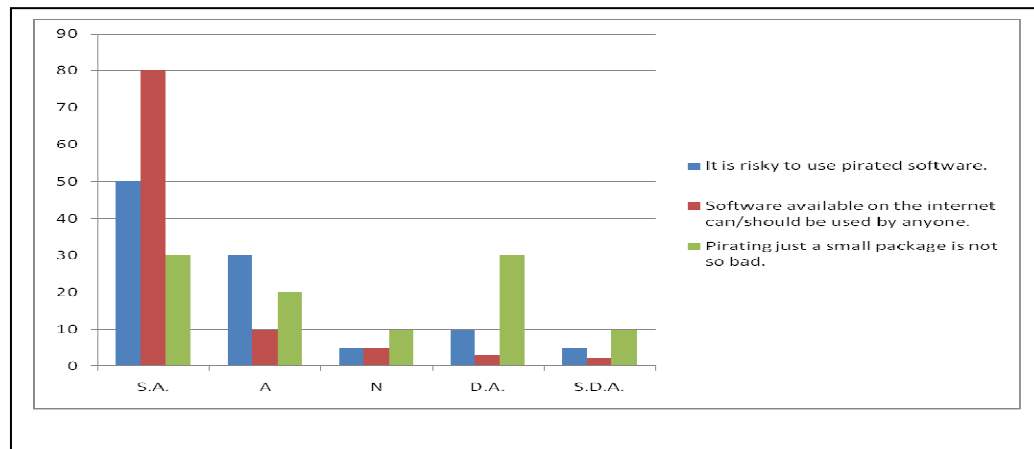


Figure 5



**LIMITATIONS**

There are a few limitations to this study. Firstly, those surveyed were part of convenience sample, making the generalizability of the results to the overall population difficult to ascertain. However, given that this an exploratory study aimed at obtaining basic introductory information, it is not believed that these limitations negatively impact the results garnered. Finally, when asking respondents to admit to an illegal activity, there is always a possibility of response bias. However, the facts that such a high number of individuals freely admitted to illegally copying software, and that anonymity was promised, indicate that any bias was very minimal.

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