

THE IMPACT OF USING OPEN SOURCE SOFTWARE ON THE PROGRESS AND QUALITY OF THE EDUCATIONAL PROCESS

Abdullah Alzahrani¹, Yazeed Al Moaiad², Yousef El-Ebiary³

Faculty of computer science and Information technology

AL-Madinah International University

Kuala Lumpur, Malaysia

DOI: <https://doi.org/10.5281/zenodo.7409044>

Published Date: 07-December-2022

Abstract: The awareness and understanding of open-source software are very limited. In most cases, it is not even there. This deficiency causes a lot of financial expenses ,especially for students who are highly committed to their studies. The education sector itself lacks awareness of open source and most colleges and universities use proprietary software. The general assessment indicates that most people are completely unaware of the benefits of open-source software. The purpose of this research is to survey the education sector and assess their current level of understanding of open-source software. This study will use a quantitative method of research which is the survey questionnaire method, therefore, a formal questionnaire related to open-source software, its understanding ,and its use will be developed. These data were analyzed to conclude. This research will help us to determine the current level of awareness of OSS in the education sector and also will serve as an activity to create more awareness. Moreover, it will allow us to devise a strategy to promote open-source software not only in the education sector but also in other sectors in Saudi Arabia.

Keywords: Awareness, Open Source Software, Organize.

I. INTRODUCTION

Open-Source Software or OSS is that software which has its source code publicly available so that the user can modify it according to their needs and, of course, share it with the world. An open-source method is a form of thinking and collaboration within the open-source community. This philosophy is based on intellectual freedom and the fundamental principles: Transparency, Collaboration, Delivery, Inclusion, and Community. The sharing of ideas and programs developed by local communities has led to creative, scientific, and technological advances in the following areas: Education, Government, Law, Health, and Manufacturing. This movement has created a way for a global community to collaborate, share, and achieve individual and collective goals through open-source code. Open-source software is collaborative and relies on community production and peer review to use, modify, and share source code. Developers share statistics, insights, and code to create more innovative software solutions on a team and individual level. This flexible and scalable program ensures that anyone with source code can modify, improve, and redistribute it to improve reusability and access. Open-source software works with the basic principles of peer production and team collaboration, resulting in more sustainable software development for end-users [1].

Closed source software (CSS) is proprietary software and is not released to the general public. The program is encrypted so that only the original authors who created the code can copy, modify, update, and edit the code. Closed programs restrict what the end-user can do with the application and prevent users from modifying, redistributing, copying, or republishing the source code.

The absolute most famous open-source software licenses are MIT License©: The MIT License is a free software permit that permits clients to alter the first code with the most un-potential limitations. GNU General Public© (GPL): GNU is a bunch of free software licenses that assure end-clients the capacity to run, study, reallocate, and adjust the software. Apache©: Apache License 2.0 is a free software permit that permits clients to utilize, change, and disperse software for any reason. BSD: This permit has fewer limitations on engineers and permits clients to utilize and change code without rearranging the adjustments. MySQL™: MySQL is an open-source information base administration framework with two separate licenses - MySQL Standard Edition and MySQL Enterprise Edition. SUSE: SUSE Linux depends on the open-source Linux portion and is dispersed with framework and application software. Ubuntu©: Ubuntu is an uninhibitedly accessible Linux dispersion and an open-source software accessible in the work area, cloud, or IoT conditions [2].

II. CONTRIBUTION

This study contributes to supporting and encouraging employees of the educational sector in general in the Kingdom of Saudi Arabia to explore, understand, and use open-source software in the educational process and their acceptance of open-source software at the academic and administrative levels. This contributes to the software development process in the future so that they can find the freedom to develop and provide the community with free software in various fields without any restrictions, as well as providing students with the basics and skills of creativity in free programming thinking.

III. LITERATURE REVIEW

Based on the basic literature review and comparison of various Paid Software packages with their alternative Open-source Software packages following are the findings:

A. Paid Software is widely used (i.e. Microsoft products) because of its high awareness among the people, Paid Software companies to spend money on marketing at the OEM level to keep their products as pre-installed packages in new PCs and Laptops.

B. Since Open-source is a community-based activity and major concerns are not about making money, therefore, they are not marketed well. Paid Software companies consider Open-source as cancer to intellectual property in the software industry which is why they have been focusing to destroy open-source. The majority of the educational sector prefers to work with proprietary software because of the sense of flexibility and support - which they never acquire [3].

IV. METHODOLOGY

This study used both primary and secondary data collection methods. The initial set of quantitative and qualitative research methods to obtain objective data from the respondents in a direct way, where interviews and surveys were organized on a group of academic staff as well as students, in addition to monitoring the use by submitting questionnaires that were prepared in a detailed manner that shows the extent of understanding of the software Open source and its use in the educational process and the extent to which it is acceptable if it is understood and the benefits of its use are known. Secondary data were obtained from previous research and literature such as published journals and online articles Or online, press articles and reading material about the extent and reasons for using such software in the education sector in Saudi Arabia. primary data was used as a guide for how the study was conducted [4], [5], [6].

V. SAMPLING AND ANALYSIS

Regarding this research, a questionnaire was used as a data collection method. This was a research survey and hence, an official questionnaire was published containing nearly 50 questions related to open-source software, its understanding, and its use. It was divided into 4 main sections as follows:

- General understanding of Open-Source Software
- Knowledge of various Open-Source Software

International Journal of Novel Research in Education and Learning

Vol. 9, Issue 6, pp: (35-39), Month: November - December 2022, Available at: www.noveltyjournals.com

- Usage of various Open-Source Software
- Expense incurred on Proprietary or closed-source software.
- These main headers have been broken down into sub-parts to make it easier for participants to attempt the survey.

The researcher also used direct interviews, as the interview provides deep and distinctive information to the researcher that is not provided by other study tools, so the researcher dealt with the study sample directly and reached direct answers, as well as monitoring the reaction of the sample through observation and searching for the reasons that led to not using open source software in the education sector in the Kingdom of Saudi Arabia, and search for solutions.

VI. RESULTS

Through the study and analysis of the results of the questionnaire, the data and according to the opinions of the participants indicate the following information:

- 30.6% of students participated in the survey, 42.9 of teachers and faculty members, and 26.5% of employees participated in the survey, which may indicate that the interest in open-source software in the education sector is of interest to many of them.
- According to the measurement results, 92.2% of the participants use Microsoft Windows in their work and library, which reflects a state of mistrust in open source programs or ignorance of their features and capabilities.
- Through the questionnaire, it was found that 58.8% of the participants have no idea about the term (open source software) and therefore are ignorant of the benefits and possibilities of using them in their computer work.
- The number of participants, 95.2% considers open source software suitable for personal use more than those who see it suitable for use in their work, software development, or systems and network management.
- The Ubuntu operating system had the highest usage (as an operating system) among participants who had the opportunity to open-source software as well Libreoffice (Office Suite).
- 61.9% of the respondents to the survey voted on the importance of open-source software in the education sector.
- 76% of respondents want to use an operating system that does not require any license and is free to use, while 100% want to use Office applications and do not require a license, which means they want to use open-source software if they know the benefits and features of using it.
- In the education sector, 80.4% of respondents prefer using a source content management system (LMS).

VII. CONCLUSION

The use of open-source software to support Internet technologies is natural and necessary from the point of view of scalability, universality, and compatibility characteristics. For example, increasing the number of servers or other infrastructure hardware does not require additional investment in software, which provides more flexibility than proprietary software. This becomes especially true when the software cost exceeds the hardware component of the project. The requirements for universality and interoperability are implemented thanks to good cross-platform support for open-source software and the use of open standards, which allow for maintaining a high level of interoperability even with many competing products and platforms in the market. Given the recent development of service applications based on web technologies, open-source software in combination with cheap computers (nettops and netbooks) can significantly put pressure on traditional desktop and mobile systems, which depend on the operating system. Windows and traditional office suites. The use of a specialized lightweight operating system with a graphical user interface based on Linux kernel and modern web browsers allows you to perform most daily tasks on network platforms using only open-source software [7], [8].

It is difficult to calculate how many times you use Linux per day because it is this operating system that powers most of the servers on the Internet. When you visit Facebook, Google, Pinterest, Wikipedia, and thousands of other major sites, the

services these (very different) sites provide you with, you're probably dealing with Linux computers. Linux can be found much closer; Most likely, at your fingertips. Let's say the Android smartphone operating system is based on Linux. If you have a Chromebook, you are using a Linux laptop. This operating system is increasingly used in televisions, thermostats, multimedia systems in airplanes, cars, etc.

The result of this development is highly reliable software code generated by users for users. The goal is not to create something that enriches the company that makes and sells products, but instead to solve a problem common enough for a large community of talented programmers to happily contribute. People who lack programming skills benefit greatly from such a model. Free software seems to materialize out of thin air, anyone can use it freely, and it gets updates as long as expert users are also interested in using it [9].

By purchasing licensed paid software, you automatically get the chance to contact the developer for technical support and update your product regularly as needed. You don't need deep IT knowledge to install it on a PC.

When installing a free program, pay attention to its creation/update date and be sure to check the program for viruses. These programs are used by IT professionals and computer users of various levels. Open-source projects are of interest to programmers and professionals. Usually, the scripts of these programs can be downloaded for free. Assembling a feasible unit and creating the necessary work environment for it requires certain skills from an IT professional.

The undoubted advantage of open-source projects is their independence from the vendor; Large companies prefer to create corporate programs on another basis. This is especially important for state companies because of the potential difficulties in purchasing proprietary products due to economic sanctions. One of the factors limiting the application of open source is some uncertainty related to information security.

No Easy Way Find out which is the best software development model for your business, open-source or proprietary.

Open-source software has many developers and programmers who are least intimidated by the idea of software marketing, but this is a threat to the commercial software industry, which is most threatened by the concept of open-source software.

The difference between them is quite obvious because each model has its share of pros and cons. However, the options must be weighed between open source and proprietary to see which one is a challenge.

As with any complex decision-making process, you can just be sure that "it depends" One person has a slight advantage over another in terms of features and characteristics that define it [10].

REFERENCES

- [1] Awoyemi, J. O., Adetunmbi, A. O., & Oluwadare, S. A. (2017, October). Credit card fraud detection using machine learning techniques: A comparative analysis. In *2017 international conference on computing networking and informatics (ICCNI)* (pp. 1-9). IEEE.
- [2] Asha, R. B., & KR, S. K. (2021). Credit card fraud detection using artificial neural network. *Global Transitions Proceedings*, 2(1), 35-41.
- [3] Dighe, D., Patil, S., & Kokate, S. (2018, August). Detection of credit card fraud transactions using machine learning algorithms and neural networks: A comparative study. In *2018 Fourth International Conference on Computing Communication Control and Automation (ICCUBEA)* (pp. 1-6). IEEE.
- [4] Kiran, S., Guru, J., Kumar, R., Kumar, N., Katariya, D., & Sharma, M. (2018). Credit card fraud detection using Naïve Bayes model based and KNN classifier. *International Journal of Advance Research, Ideas and Innovations in Technology*, 4(3), 44.
- [5] Kaur, D. (2020). Machine Learning Approach for Credit Card Fraud Detection (KNN & Naïve Bayes). In *Machine Learning Approach for Credit Card Fraud Detection (KNN & Naïve Bayes)(March 30, 2020). Proceedings of the International Conference on Innovative Computing & Communications (ICICC)*.

- [6] Kumari, P., & Mishra, S. P. (2019). Analysis of credit card fraud detection using fusion classifiers. In *Computational Intelligence in Data Mining* (pp. 111-122). Springer, Singapore.
- [7] Mehbodniya, A., Alam, I., Pande, S., Netware, R., Rane, K. P., Shabaz, M., & Madhavan, M. V. (2021). Financial fraud detection in healthcare using machine learning and deep learning techniques. *Security and Communication Networks, 2021*.
- [8] Pun, J. and Lawryshyn, Y., 2012. Improving credit card fraud detection using a meta-classification strategy. *International Journal of Computer Applications, 56*(10).
- [9] Zareapoor, M., & Shamsolmoali, P. (2015). Application of credit card fraud detection: Based on bagging ensemble classifier. *Procedia computer science, 48*(2015), 679-685.
- [10] Yazeed Al Moaiad, Daud Elegu., 2021. The Impact of Inadequate Training Facilities On The Production of Secretaries. *International Journal of Engineering Research and Reviews, 9*(4), 1-4.