

## ADVANTAGES AND DISADVANTAGES OF OPEN SOURCE SOFTWARE IN EDUCATION

Vinnytsia National Technical University

### Анотація

*У статті досліджено використання програмного забезпечення з відкритим вихідним кодом у навчальних закладах. Його переваги та недоліки в процесі навчання. У процесі дослідження було виявлено основні переваги, такі як: нижча вартість, філософські причини, краща підтримка, гнучкість і безпека. Також було висвітлено основні недоліки програмного забезпечення з відкритим вихідним кодом, які перешкоджають його подальшому впровадженню в навчальних закладах.*

**Ключові слова:** освіта, програмне забезпечення, відкрите програмне забезпечення, переваги, недоліки.

### Abstract

*The article explores the use of open-source software in educational institutions. Its advantages and disadvantages in the education process. During the process of research was found the main advantages such as: lower cost, philosophical reasons, better support, flexibility and security. Also was highlighted the main disadvantages of Open Source software what stops it further implementation in educational institutions.*

**Keywords:** education, software, open-source software, advantages, disadvantages.

### Introduction

This paper emphasizes the main advantages and disadvantages of Open Source software. In article is considered different aspects of why this type of software can be useful in schools and universities and what is the main factors what stops this transition to open source software.

### Research results

Open-source software is software with code available to view, explore, and modify. Based on this software, you can create modifications, fix errors create new software. Another term is very often used to characterize software systems – free software. The definitions of open and free software are not the same, but they are close. The source codes of open programs are released either as public domain or under "free" licenses such as GNU – General Public License or BSD License. A free license allows you to use the source code of the program for any needs with minimal restrictions that do not contradict the definition of "Open-Source. Schools have a social mission: to teach students to be citizens of a strong, capable, independent, cooperating, and free society. They should promote the use of free software just as they promote conservation and voting. By teaching students free software, they can graduate citizens ready to live in a free digital society. Open source software is free by nature and can be much easier adapted to different methods of study for every student.

Advantages of Open Source software [2]

1) Cost. It is the first and most obvious advantage. With the rising price of proprietary software and its associated license fees, one of the primary strengths of Open Sources is its low cost of entry.

2) Pedagogy. The whole philosophy of Open Source fosters the concepts of sharing, collaboration, the common good, and quality of products. According to Herbert Malcolm in his work "Open Source in Education: An Overview": "It is far better to teach the concepts behind word-processing than it is to teach a particular program"[3].

3) Support. Open Source applications can be supported in the same ways as traditional soft-ware, and this is becoming more widely available.

4) Flexibility. Unlike closed-source software, it is far easier to change to a different application with Open Source software.

5) Security. With the source code openly available for inspection by the community, vulnerabilities are quickly identified and addressed. The collaborative effort in the FOSS community ensures a faster response to security threats, fostering a robust and continuously improving security environment [4].

Disadvantages of Open Source software [1].

1) Anyone can view source code. The source code is available to any user, that is, anyone can find vulnerabilities and errors in the software product and use them for their own purposes (but this option is quite rare)

2) Some software is one person projects. Very often Open Source project is created by one person as the personal project and grow to such a big scale than original maintainer is unable to continue to maintain project.

3) Development diversity. Development of one program in fundamentally different directions - cases when developments are so different that it becomes impossible to combine modules.

### Conclusion

Open Source software refers to programs and applications that have source code that is publicly accessible, allowing anyone to use, modify, and distribute the software freely.

The paper discusses several potential benefits of adopting Open Source software in educational settings. During the research, the main advantages of Open Source Software and the shortcomings of how they become an obstacle to the wider implementation of Open Software in educational institutions were identified and described.

### REFERENCES

1. С. С. Великодний, О. С. Тимофеева, С. С. Зайцева-Великодна, К. Є. Нямцу Порівняльний аналіз властивостей відкритого, вільного та комерційного програмного забезпечення. *Інформаційні технології*. 2018. Р. 21– 24.
2. Jason H. Sharp, Jason Huett The Use of Open Source Software in Education. *Інформаційні технології*. 2006. Р. 3 – 7.
3. Why Schools Should Exclusively Use Free Software. URL: <https://www.gnu.org/education/edu-schools.en.html>
4. Malcolm Herbert. Open Source in Education: an overview. *Інформаційні технології*. 2001. *Інформаційні технології*.

*Дудар Анатолій Михайлович* – студент групи СА-22Б, Факультет інтелектуальних інформаційних технологій та автоматизації, Вінницький національний технічний університет, Вінниця, e-mail: [gigsollt@gmail.com](mailto:gigsollt@gmail.com).

**Науковий керівник:** Мельник Марина Борисівна, викладач англійської мови, кафедра іноземних мов, Вінницький національний технічний університет. E-mail: [melnykmary1@gmail.com](mailto:melnykmary1@gmail.com)

*Dudar Anatolii Mykhailovych* – student of group SA-22B, Faculty of intellectual information technologies and automation, Vinnytsia National Technical University, Vinnytsia, e-mail: [gigsollt@gmail.com](mailto:gigsollt@gmail.com).

**Scientific supervisor:** Melnyk Maryna Borysivna – a teacher of English, a Department of the Foreign Languages, Vinnytsia National Technical University. E-mail: [melnykmary1@gmail.com](mailto:melnykmary1@gmail.com)