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Importance and accessibility of open source software in libraries

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ABSTRACT Being in the digital age, there is an exponential development in knowledge, which is having a negative impact on the resources available to us at our disposal through libraries. Libraries are looking for alternatives to proprietary software in order to deal with ever-shrinking finances and vendor's closed-access mentality. Libraries and information centres can use open source software (OSS) to keep up with the demands of current technology while saving money. As a method of software development, it is growing more and more popular every year.

A look at the benefits and drawbacks of using an open source system is presented in this study. A focus on open source, open access, and open standard techniques is used to illustrate the importance of transparency and accessibility in the library sector. Furthermore, open source software is better to commercial software when developing a digital library under severe electronic constraints. Research communities and libraries have already embraced open source software (OSS). One of the many objectives that may be reached through the establishment of an institutional repository at a knowledge resource centre is the function of serving as a digital archive for all research output produced by the academic staff of an institute. An overview of the most prominent open source software programmes that are easily available on the internet nowadays is presented in this article.

KEYWORDS Digital library, FOSS, ILMS, Institutional Repository, integrated Library Management – Software, Open source software (OSS).

INTRODUCTION: The library can be compared to a living entity [6], and its wants must be met in the same way that the needs of a live thing must be met. Knowledge management has emerged as a significant phenomenon in today's environment. The modern library has evolved from a collection of books to a knowledge bank with a single point of access. As the information technology area continues to advance, new features are being added to the library management system on a regular basis. Nowadays, the emphasis of all academic institutions has shifted towards digitization, with the institutional repository (IR) taking centre stage. Library resources that are stored in digital formats are accessible from anywhere in the world, whereas library resources that are stored in physical formats are not. However, most of the software that we use is categorised as "proprietary," which is a sarcastic way of stating that it is expensive and that its source code is not available to the public.

MAJOR FEATURES OF OPEN SOURCE SOFTWARE

Originally coined by Christine Peterson in 1998, the phrase "open source" refers to software that has freely available source code that is distributed under a licence that allows users to use the

software, modify it, improve it, and redistribute it in its modified form (www.richchristiecomputer.com)

1. Because OSS is freely available and does not impose any limits on its use, modification, or interpretation, libraries are increasingly turning to it for their needs.
2. Due to the fact that it is dependable and customizable, it may be used to improve and extend the life of software.
3. The availability of source code also aids in the identification and correction of errors.
4. The right to redistribute, modify, and improve enables for the sharing of information by huge groups of people.
5. There are no additional costs associated with updating.
6. Because open source software does not require as many "Service Pack" upgrades as proprietary software, the cost of maintenance is reduced.
7. Additionally, it makes commercial software producers more accountable by forcing them to set a suitable price for their product.

OBJECTIVE OF THE RESEARCH

1. The primary goal of this study is to draw attention to the importance of OSS. A great deal of emphasis is also placed on the identification and availability of the aforementioned software in the open source community.
2. Open Source software is increasingly becoming a focal point of our digital society. It is the primary goal of this study to familiarise librarians or libraries with technological advancements and determine whether or not they wish to use or embrace open source software for library automation.
3. To learn about the unique features of various software packages.
4. To discover and count the number of open source software applications.
5. To discuss the significance and advantages of open source software..

METHODOLOGY

This research is entirely web-based, with the goal of identifying the most widely read articles on open source, open source factor, and open source software evolution, among other topics. The information was reviewed based on the following criteria: the name of the program's inventor, the web site, the licence, the system requirements, the operating system, and additional feature descriptions.

WHY OPEN SOURCE FOR INSTITUTIONS AND LIBRARIES? [12]

In the past, programmers and software developers were able to freely interchange their software without encountering any obstacles. Because of this, business-minded individuals recognised significant money creation prospects in placing limits on the open distribution of software source

code. Libraries that adopt and facilitate open source integration emerge as leaders of the information age, thanks to the shared benefits of openness and accessibility. Common open source licences include the GNU General Public License (GPL), the BSD License, the GNU Lesser General Public License, the MIT License, the Mozilla Public License, the Apache License, and the BSD License. Through open source initiatives like as Koha, DSpace, NewGenLib, ABCD, and others, the automatic digitization of libraries and institutional repository content management have been embraced as basic tools for integrated library management systems.[4], [11].

MERITS OF OPEN SOURCE SOFTWARE [7], [11].

1. Open-source code is often the result of collaborative efforts in which programmers improve upon the source code and share their improvements with the community in order for other members to assist in further improving it.
2. It has received more attention recently in the library sector are open access, open standards, and open source.
3. Open source and open standards can assist libraries in providing users with better access to open access materials and other resources, as well as a cost-cutting exercise that is both effective and cost-efficient.
4. Open access has the potential to effectively eliminate the problem of ever-increasing serials prices.
5. In addition to lowering the initial cost of proprietary software and removing vendor lock-in, open source software provides a high degree of flexibility in terms of customization and customization options.
6. In addition to increasing the degree of compatibility between library resources, open standards make data migration between different systems more easier to manage and maintain. They are all incredibly important to libraries, and they constitute the foundation of this new advanced outlook on information technology.
7. Libraries and system administrators can instal a fully functional, production-ready version of OSS and compare it to other offerings.

□ **DEMERITS OF OPEN SOURCE SOFTWARE** [11]

1. It is possible that there is a lack of intellectual resources.
2. The library requires technical assistance in order to upgrade the OSS.

In order to operate and maintain open source products, technical skill is required, which increases the cost of operation and maintenance.

3. In the event of a problem, a commercial software business will reply instantly to the customer's request, whereas OSS must be addressed by the library on its own.

4. ROLE OF LIBRARIAN IN SELECTION OF OPEN SOURCE SOFTWARE [12]

1. Aligning the requirements of the library with the advantages of a particular open source solution.

2. The product's overall quality should be satisfactory.
3. The product should include at the very least a variety of features and functions that meet the needs of the customer.
4. Provide training and support services to employees.
5. The operating system is number five.
6. System requirements in terms of software and hardware.
7. Module requirements and value addition to existing capabilities are discussed in detail in Section 7.
8. Configurable, with an intuitive user interface and proper navigation. It should also provide error alarms.
9. Flexible switching between modules and multifunction modules are among the most important features.
10. Adherence to standards such as MARC, 239.50, ISO – 2709, and so on.
11. Networks with a single or several users.
12. Customization that is managed by the user.
13. Security levels for data migration are discussed in detail in Section 13.

□ LIST OF SOME POPULAR FREE/OPEN SOURCE SOFTWARE (FOSS) IN THE LIBRARY WORLD [12]

1. INTEGRATED LIBRARY MANAGEMENT SOFTWARE (ILMS)

- Koha (https://koha.org./about/features) (https://koha-community.org.)
- NewGenLib (www.verussolutions.biz)
- ABCD (https://www.open.ils.org/)
- Evergreen (https://foss4lib.org/) (http://www.open.ils.org)
- Firefly (https://firefly-iii.org/)
- Senayan (https://slims.web.id/)
- BiblioteQ (https://bibliottqsourceforge.net/)
- Emilda (https://www.emilda,org/)
- Gnuteca(https://www.openhub.net/)
- openBiblio (obiblio.sourceforge.net)
- PYTHEAS (web2.uwindsor.ca)
- WEBLIS (www.unesco.org)

2. DIGITAL LIBRARY SOFTWARE PACKAGS:5

- Fedora (www.fedora.info)
- Greenstone (https://www.greenstone,org/)
- Digital commons (http://digitalcommons.bepress.com)
- Drupal (http://drupal.org)
- Ganesha Digital Library (http://gdal.itb.ac.id)
- OPUS (www.opus.repository.org)
- ROADS

- Invenio (inveniosoftware.org)
- myCoRE(www.mycore.org)
- dLibra
- OJS (pkp.sfu.ca/ojs)
- OPALS (https://opalsinfo.net/)
- CDS/ISIS (www.unesco.org)
- Openoffice(www.openoffice.org/)
- Wordpress(www.wordpress.org)
- Marcedit (https://marcedit.reeset.net/)

☐ Knowledge Tree (www.knowledge.tree.com) LIST OF SOME GENERAL PURPOSE OPEN SOURCE SOFTWARE IN USE [3]

TYPES OF SOFTWARE	**F/OSS**
Database	MySQL, PostgreSQL
Graphics editing	GIMP
Desktop publishing	Scribus
Instant messaging	GAIM
Finances	GnuCash; TurbuCash
PDF Creation	PDF Creator; Ghostscript
Audio editing	Audacity
Flowcharting	Dia
E-mail Client	Thunderbird; Kmail
Operating System	Linux
Web Server	Apache

Brief information about some Popular Open Source Software: [2], [6], [8], [11], [12].

Name of IR Software	E-prints
Web Address	http://software.eprints.org/
Developer	University of Southampton
License	GNU General Public License
Operating System	Unix
System Requirements	Apache, MySQL database, Perl Language.
Description	EPrints is an open source software package for building open access repositories that are Open Archives Initiative Protocol compliant for Metadata Harvesting. It incorporates many features of prominent document Management systems and used for Institutional Repositories and scientific journals.

Name of Software	NewGenLib
On°xu4autbors(S)	Siddharth and {„j
Developer (S)	\'erus Solutions
Initial release	March 2005
Stable release	3.1.1/ April 16.2015: 2vears ago
Written in	Java
@eraooe Sir Aeaz	Linux. Windows
Top	Integrated Libra n stem
License	GB General Public License
\\'ebsite	\'ersso1utions.biz

Name of Sofmare	E\DLDt
Developer	Sourceforee.net
License	. c License. GB General Public License (GPL)
Operatuie System	\\'indow s, Line ñ LLC. OS BSD. Solari

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Name of Software	**FEDORA** Extmsible Orbital Objects Repmñ‹ny-
Developer	**VU NaandCmzaâUMimx#y**
Licea«c	Mozilla Public License
o›•••a›ss ›-	Window or unix
System Requirements	Sun Jax'a softuam, b$'SQL Oracle9
	de£zwd APIS. It also proxâdes applications including search, messaging , Adnunistratixz Clients etc. It provides RDF support aim the ___ mchidmg tbn hfulgara RDF . Fe&aa extmds features for safe aorage of digrIa1 content

Name of IR Software	**Green Stone Digital Library**
Web Address	
Developer	Uoñ ofV o,UNESCOad Human GO)
Licea«c	GNU Gmoal Public License
Operating System	Windows, Linux/Unix
System Requirements	Apache Web server, MySQL database, Perl Language

Description	Grp sts is a software suite for building abut dimib ting digital lfinary Gollecti is. It ii an **OSS,** issued under the GNU Lien that provides innovative ways of organizing information and publishing it on the internet or CD-ROM.

Name of Softn are	**KOHA**
Developer	Koha communin
\\‘ebsite	Koha community.org
License	GNU general public license or later
Initial release	January 2000: 17 Years ago
Repositoo	SKOR-CORHD n’KO
Written in	Perl
Operatui_° Sx item	Linux
Type	Integrated Libras system
Ax ailable in	English

Name of Softn are	**NewGenLib**
Clngxu authors(S)	Siddharth Errabolu and L.J Haravu
Dec eloper (S)	\ erus SoluttOHS
Initial release	March 2005
Stable release	3.1.1 .April 16.201*, aq•o

Written in	Java
Operatinp• Sx stem	Linux. \\'uidouu
Type	Inteerated Library' system
License	GNU General Public License
\\'ebsite	Verssolutions.biz

Name of Software	**Knowledge Tree**
Web address	www.knowledgetree.com
Developer	Knowledge Tree Inc.
License	GNU General Public License.
Operating system	Window, Linux.
System requirements	PHP, Apache web server.
Description	Knowledge Tree makes use of the cloud computing platform from Amazon EC2. Features including workflow, document alert and version control are designed to manage business process around document in addition to enable file sharing among team. The service is available on subscription basis

Name of Software	**ROADS (Resource Organizationand Discovery in Subject Services)**
Web Address	www.ukoln.ac.uk/roads/
Developer	Institute of Learn. & Res. Tech (ILRT) UK Office of Library & Info. Networking
License	Artistic License GNU/GPL
Operating system	Unix
System requirements	HTTP Apache web server & Per Language
Description	With the help of the ROADS project, we were able to build and implement a user-oriented resource discovery system that allowed us to easily create, gather, and distribute resource descriptions, as well as give a transparent way of searching for and using resources.

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CONCLUSION

The spread of digital library activities is expected to continue for several decades into the foreseeable future. More and more libraries will enter the world of digital libraries in the coming years. Though the creation of a digital library needs a careful examination of the organisation and its users, as well as an understanding of the costs and requirements for infrastructure and continuous maintenance (Adams, Jansen, and Smith 1999). OSS specifically targets and empowers underserved populations, but this does not imply that it is restricted to them. Even libraries in developed countries are becoming more interested in open source software these days. By utilising open source software, libraries are able to facilitate electronic access, resource sharing, and the creation of open access to knowledge. Using open source library management software, library professionals must also polish and enhance their abilities in order to create and administer the library effectively. In order to make the best use of the OSS, professional training of the operators is important. As more and more libraries turn to open source software to meet their requirements, selecting the most appropriate software continues to be a difficulty. As a result, to summarise, India has reaped the benefits of the open source movement to a great extent.REFERENCES

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