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Adoption of Open Source Integrated Library System: User's Perception among the Selected Libraries in India

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Abstract

Open Source Integrated Library Systems (OSILS) are gaining widespread adoption in Indian libraries during the last two decades. The study intended to assess the development and rate of adoption of OSILS and identify the major factors that influenced the adoption of OSILS in Indian libraries. The study also measures the activities performed by the OSILS users to sustain it and propose possible solutions to the problems if any they faced which contributed to the popularity of OSILS in Indian libraries. A survey with structured questionnaire was used to collect primary data from users of OSILS across the country through Google doc. Study was limited to libraries in India using OSILS. It was found that, in spite of a drastic enhancement in the rate of adoption of OSILS in Indian libraries, lack of technical support and shortage of skilled manpower to execute installation, maintenance and customization stands as hindrance to its extensive use.

Keywords: *Open Source, Integrated Library System, OSILS, ILS, Library Automation, India, Software*

Introduction

The tasks of libraries have become more challenging and complex due to knowledge explosion and revolutions in the field of Information Technology. There are enormous numbers of new developments both in application and pure thought that results in flooding of knowledge. As per statistics collected two decades back 'The world production of books is around 60 million per year. There are more than 200 000 journals. Over ten Million research papers are published every year in specialized journals besides those in popular magazines' (Raman, 1995). Now all these can be ten times higher. Without automating libraries management of the document resources and extracting their optimum utility is impossible.

But even though the library functions in the developed countries are getting

fully automated and transforming themselves from mere systems for rendering traditional services using books journals, audio files video files etc. to innovative functions which pool knowledge recorded in different formats located at different places canalized in the context of requirement to the user countries like India could not even automate their housekeeping operations at least. Today's live library systems are facilities which harness power of ICT for knowledge management and dissemination. Library professionals now have to offer more sophisticated and user-friendly services to its users exploiting advanced, adaptable and easily configurable technologies over the web. As the demands of users for more efficient, effective and specialized services go on increasing, the role of library professionals also gets elevated from custodians of resources or service providers to knowledge managers. Automation is one of the most important factors that enable efficient services from the library, which requires adequate planning as well as continuous support from technical staff to utilize computers and related technologies efficiently. Automation enhances the use of information products and services in a larger approach and improves the quality and effectiveness of library services and extends services even for remote users.

Till the end of the last century only commercial library software were available for automating integrated library systems. Of them good solutions were developed in foreign countries by multinational companies were not affordable to Indian libraries except a few. A few cheap solutions that were available lacked many facilities. UNESCO's CDS/ISIS promoted by UNESCO was a very powerful package but it has modules only for bibliographical/ or other database management. But developing other modules using that and integrating them was not an easy job. So even though it popularized computers, DBMS and automation among library professionals and broke the psychological barrier, it could not support libraries with an integrated library automation system solution which has to cover all library housekeeping activities in addition to catalogues and indexes (Raman, 1992). But once through ISIS computers and DBMS were introduced it made it easy for librarians to go to other sophisticated integrated library automation packages. This helped many manufacturers of Commercial packages to market their products. LibSys, OASIS, Alice for Windows, TULIPS and Libris found a wide market. But many problems were inherent in commercial products and in the last three decades libraries faced numerous problems related to maintenance, upgradation, data export etc which made the professionals to turn to Open

Source packages.

Open Source Software (OSS) is the outcome of collaborative work of a group of people or institutions and the service oriented participation and discussions to develop the packages considerably reduce the unnecessary features and complexity of the software. OSS is gaining immense importance in libraries especially as an Integrated Library System (ILS) for automating the activities of library primarily as a measure of cost efficiency. The selection and implementation of a suitable ILS is one of the most significant tasks for any library. So the selection of an apt system should be undertaken by proper care, knowledge and skills. For libraries from developing countries where the budgetary restrictions hinder providing quality information services Open Source Integrated Library System (OSILS) is an apt choice that can help to modernizes services of the library and extend libraries multidimensional functionality with limited cost. OSILS offers significant benefits compared to its commercial counterparts as a scalable library automation tool in general and as a cost effective solution in particular. OSILS is an alternative solution for many libraries in India who have insufficient budget to allocate for purchasing proprietary software for library automation. OSILS have opened opportunities for librarians to provide more innovative approaches and services to their clients with less financial obligations. As library professionals are increasingly recognizing the advantages of OSILS, many libraries in India successfully implemented it as a cost effective and easy to use solution for automation. Existing proprietary users are now preferring OSILS as the cost of up-gradation and maintenance of propriety ILS are far less for OSILS. OSILS are stable and secure and provide greater control over the data. In the recent years OSILS have revolutionized the Indian information sector with its advantages of having flexibility and customizability options in a greater way. There are number of OSILS from libraries can choose according to the nature of library and staff available to manage their library retaining their individuality.

Literature Review

Many comparative studies have been conducted pertaining to the advantages and facilities of open and proprietary ILS with special reference to Indian scenario. OSILS is an economical alternative to costly proprietary packages and does not require the expense towards initial cost involved in the commercial one such as software development, license and maintenance etc. In a study conducted by Riewe, it was found that OSILS were perceived to be less costly, more cost effective and affordable when compared to the proprietary ones

(Riewe, 2008). Another study by Nagy et al disclosed that the market potential of OSS seems to be quite promising and could pose major challenges to the dominant position of proprietary software (Nagy et al, 2010). The flexibility, cost effectiveness and availability of source code etc are the major reasons which make libraries to adopt OSILS when compared to commercial packages. OSILS provides technological freedom to the libraries and also help the library professionals to provide services at lost cost or free of cost (Kamble, 2012). Breeding in his automation marketplace survey, found that many libraries continued to opt for open source ILS rather than a proprietary product (Breeding, 2012). OSILS has undergone frequent revisions and updations and provide specialized services to libraries to incorporate the emerging technologies. The next generation ILS is steered by the rapid advancements in the area of computer science and is adapting itself to the state-of-the-art hardware architectures and software technologies getting developed (Tyagi & Senthil, 2015).

Studies revealed that there was a drastic uplift in the rate of adoption of OSILS in Indian libraries during the last few years. However the rate of adoption of OSILS among Indian libraries needs to be enhanced further as most of the public and school libraries in India have not implemented any OSILS. According to a survey conducted recently the primary reasons of libraries not implementing open source solutions for their automation purposes; are lack of awareness, training and absence of encouraging government policies (Jasimudeen and et.al, 2014). Library professional are now aware of the accessibility of OSILS than ever, and in India. Libraries are increasingly recognizing the role of OSILS focusing its advantages particularly on cost saving and customization options it provide to automate their activities. However majority of the professional still continue to depend on proprietary software for library automation. Kumar and Abraham (2011) found that the adoption of open source library management system is restricted in India by the lack of awareness and knowledge in open source technology among library professionals. Another relevant study conducted by Gireesh Kumar and Jayapradeep revealed that though LIS professionals are oriented, insufficient technical support and inadequate training and opportunities are the main barriers in adoption and introduction of OSILS in Indian libraries (Gireesh Kumar and Jayapradeep, 2015). Libraries having staff with the necessary skills and experience to implement and customize the software can be highly benefitted with its vast potential. Satpathy and Maharana suggest cooperative

and participatory organizational system, positive attitude of authorities and LIS professionals, and proper training provision for LIS professionals for the widespread use of OSS in libraries (Satpathy and Maharana, 2012). In OSILS, library staff members are required to acquire minimum technical skills to handle the issues and up keep of the software. Professionals should be able to understand the features and facilities of different ILS and choose them according to their requirement.

Indian libraries which have not automated their systems hitherto with any of the software should consider and look forward to adopt OSILS packages. Reddy suggests that in spite of the challenges, libraries should consider the capabilities of OSILS and evaluate their merits of the features, reliability and support (Reddy, 2004). Study of Hanumappa and others revealed that the Indian ILS space seems to be rich with a variety of solutions and OSS solutions may have a promising future, going by the fact that they have had a recent entry into the Indian markets compared to the proprietary solutions (Hanumappa, 2014). Use of OSILS is to be promoted as they pave the way for collaborative research and this can be achieved with the confluence of professionals. The study of Kamila concludes that it is better to use OSILS because of its many useful features such as importing of data directly from Library of Congress and other large databases which minimizes the processing work of library, main library and branch library automation facilities, MARC21, Z39.50 etc. as well as its freedom to change the source code as and when necessary which can solve the local problems of every institution (Kamila, 2008). OSILS provides technological freedom to the libraries and also help the library professionals to provide services at lost cost or free of cost (Kamble, 2012). However selection of a suitable OSILS depends on various factors such as sustainability, availability of functionalities to meet specific requirements, consortia supports, quality documentations, community participation etc.

Objectives of the study

The main objective of the study is confined to the perception of the library professionals in India practicing any of the OSILS. The specific objectives of the study are:-

- To examine the growth in adoption of OSILS in Indian libraries
- To identify the major reasons which influences the adoption of OSILS in Indian libraries

- To assess the activities executed by the users to promote the adoption of OSILS in Indian libraries
- To recommend some potential resolutions to enhance the rate of adoption of OSILS in Indian libraries.

Methodology

The paper provides a detailed analysis of OSILS user's perception on its adoption. The online survey method was adopted for the study by designing a structured questionnaire keeping in view of the stated objectives and scope of the study. The questionnaire consisted of open and closed ended questions with multiple options to answer and also questions to mark rating and opinions. Questionnaires were used to comprehend the attitude of OSILS users towards its adoption. Total questions were included in the online questionnaire under two major sections. Online questionnaires were sent to various libraries using any OSILS through personal email and responses were received from one hundred and thirty three libraries including university, college, school, special and research libraries. The responses were organized under respective segments. The analysis of tabulated information was carried out for all the responses to identify the factors persuading the users to prefer OSILS. Analyzed data were represented in tabular and graphical formats.

Scope of the Study

Open Source Software technology can be used in libraries for different applications like creating digital library, institutional repositories, portals, subject gateways, content management, learning management and automating house-keeping operations. Though there are many ILS in both proprietary and open source stream, present study uses the responses of only those who use any of the open source solutions to perform basic housekeeping operations. The questionnaire is designed to comprehend the awareness and observation of OSILS among library professionals in India. Study considered all the libraries using OSILS package regardless of kind of libraries such as academic, research or corporate. The scope of the study was further confined to libraries in India using the OSILS.

Analysis and Discussions

There were 133 responses received for the survey and among the respondents 120 (90%) were male and 13(10%) were female respondents. To calculate the age of the respondents, different segments on age group was made. Out of 133 respondents 50% (66) professionals were in the age group of 31-40 years where as the ratio of 41-50 years and 21-30 years were 26% (35) and 20% (26) orderly (Fig. 1). The senior respondents segmented as beyond 51 years stood last at 5% (06).

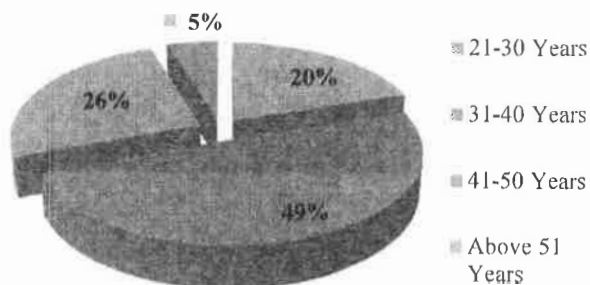


Figure 1: Respondent's age group

Type of the library

Respondents were asked to indicate their library type as academic, special or research, public and corporate and were given as default options to choose. Due to its flexibility, adaptability in customizing to local requirement and an opportunity for innovation, OSILS is being adopted by different kinds of libraries. OSILS is a cost effective solution for any type of libraries as the initial cost for purchasing an OSILS is almost nil. From the responses it is found that higher majority at 47% of libraries from colleges have adopted OSILS followed by University libraries at 27% (Fig.2). Though the rate of adoption in nonprofit institutes and school libraries are found to be minimal of 4%, the proportion of Special and Research libraries are fairly convincing at 17% compared to them. Corporate libraries stood last with a low rate of adoption at 2% only.

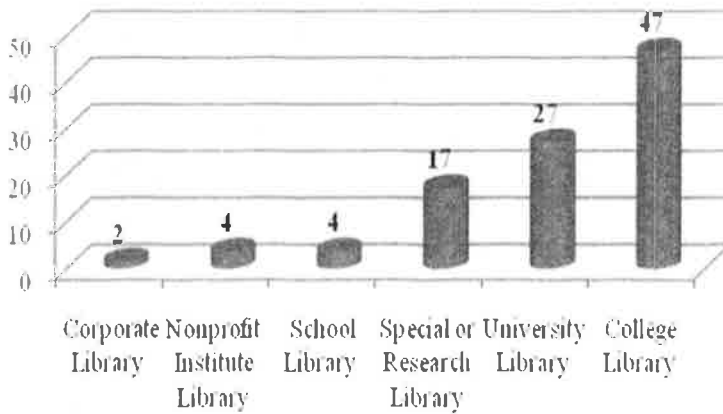


Figure 2: Type of library

Progression of OSILS adoption in Indian libraries

OSILS has been a very successful solution in its kind to manage the activities of a library. The extensive adoption and the promotional activities are influencing the other libraries to implement OSILS for smooth running of their library functions. Implementing an OSILS indirectly creates opportunities for library professionals and in-house technical personnel to explore and contribute to the development process. Over a period of time drastic enhancements in OSILS adoption can be noticed in Indian libraries. From the year 2009 to 2011 and 2012 to 2014 there have been a higher elevation in the adoption rate. The trends of OSILS adoption have been highly progressive and were 47% in 2012-2014 compared to its margin of 37% during the year 2009-2011. The percentage of adoption during 2006-2008 and prior to the year 2005 was marked 10% and 6% respectively (Fig 3). One of the respondents of the survey remarked that "OSILS, if adopted properly, has lot of potential to convert the entire gamut of library services into an automated one, and has shown plethora of opportunities to the libraries in developing countries who struggle with financial constraints to make their libraries automated".

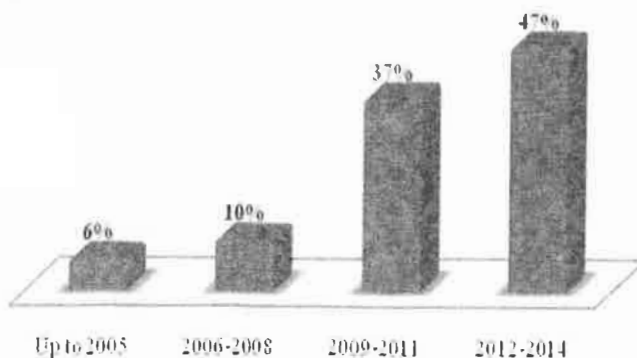


Figure 3: Rate of OSILS adoption in Indian libraries

Distribution of OSILS by the responded libraries

Respondents were asked to indicate the software being used in their library. Koha software received the higher number of responses at 56% followed by NewGenLib (27%) and e-Granthalaya at 14%. Emerging software applications like ABCD and GenISISWEB etc received few responses. Evergreen, the OSILS which is deployed in worldwide in large number has not been much attracted by Indian library professionals (Table 1).

Table 1: Libraries using open source ILS (n-133)

Software	Number of Libraries	Percentage (%)
Koha	75	56
NewGenLib	36	27
e- Granthalaya	19	14
ABCD	01	01
Evergreen	01	01
GenIsisWeb	01	01

Result of the survey shows that majority of the Indian libraries have adopted Koha as their preferred software followed by NewGenLib and e-Granthalaya. The analysis of response rate indicated that Indian libraries have recognized the capabilities of Koha software.

Adoption of OSILS in Indian libraries

The study found that majority of the respondents support the adoption of OSILS in Indian libraries hence they were asked to select the reasons to choose

or the factors influenced in their selection of OSILS. From the responses received, the majority at equal rate (14%) indicated that they have chosen OSILS to reduce the cost of adopting library automation software and the ability of OSILS to customize to fit the needs of the library. Other concerns that were of great importance and equally represented (11%) in the means of selection of OSILS were freedom from maintenance and licensing fee, freedom from vendor Lock-in and easy to install, maintain and modify the software and the wider adoption, support and availability of online community. Availability of source code, quality documentations and the concerns about the supplier of proprietary ILS were the other issues represented as 8%, 7%, 5% respectively. Uncertainty due to merges and outside ownership of proprietary software and the libraries decision to become part of the consortium were equally (4%) prompted some responded libraries to go for OSILS (Fig. 4)

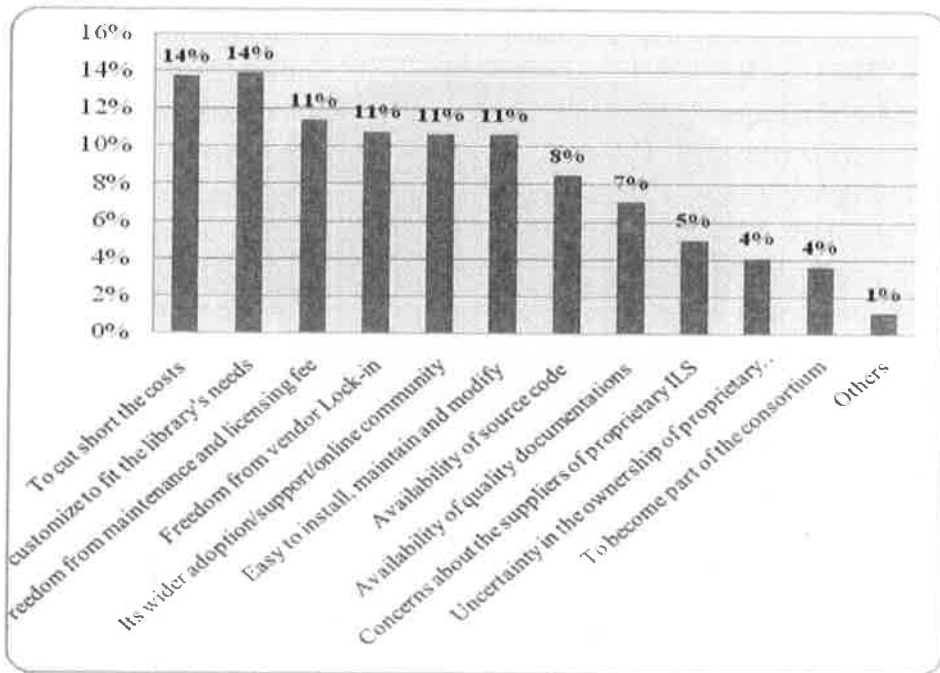


Figure 4: Factors for adopting OSILS

Promotional activities

Literature revealed that lack of promotional activities is one of the major issues encountered in OSILS adoption in Indian libraries. Respondents were asked to indicate the activities they have extended to promote the use of OSILS further.

Analysis indicated that a higher majority at equal numbers (24%) have promoted the adoption of OSILS in other libraries by conducting workshops and training programs. Further 13% of the respondents have provided lectures on OSILS and 13% have organized conferences and seminars. 9% of the respondents have created user groups and forums to share their expertise and experiences where as few (3%) could influence including the subject in the curriculum. However 15% of the OSILS users were agreed their effort to promote the adoption of Koha software is nil (Fig: 4.). Training is one of the major technical issues associated with the adoption of OSILS. Study indicates that there is an expansion of the number of workshops, training programs, conferences, seminars and creation of user groups and forums to promote the awareness on OSILS in Indian libraries, which motivates the professionals to adopt or migrate to OSILS. However intensive training programs for both the library professionals and the users' needs to be conducted.

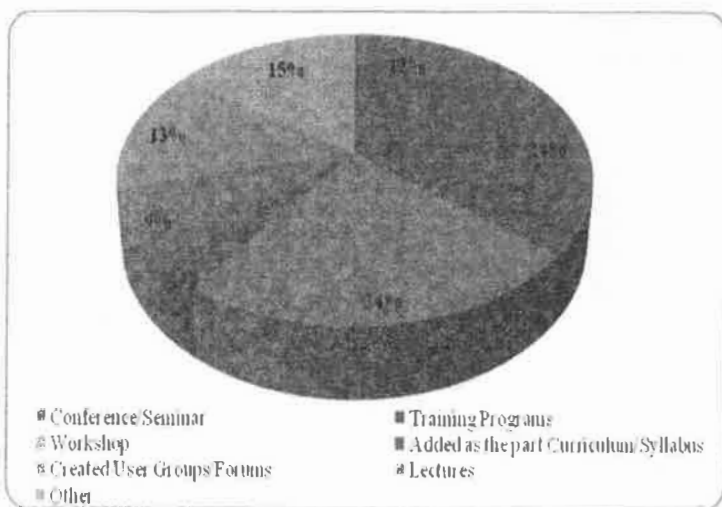


Figure 5: Promotional activities of OSILS

Findings and recommendations

The rate of adoption or migration by many libraries to OSILS in India was drastic during the last two decades. The survey found the growing interest and acceptance among the professionals in adopting and popularizing OSILS in Indian libraries. Among the selected OSILS, Koha software was found to be the most popular and preferred OSILS among the Indian libraries and it indicate that many libraries in India would continue to opt for OSILS rather than a proprietary ILS package in future. Study found that different libraries are attracted to different OSILS for different reasons. The main reasons for this

switch over identified are advantageous features of OSILS, viz. their cost effectiveness, software control, research development behind them, ease of use, ability for customization, and community support from all over the world. Among them the ability of OSILS to cut short the costs and the customization options to fit the local requirement of a particular library stood the major reasons made them to choose OSILS. Wider adoption, support, and online community of OSILS along with its availability of source code being the reasons for some libraries to adopt OSILS whereas capability of OSILS in its easy installation, maintenance and modification compelled many libraries to shift to choose OSILS.

OSILS gives opportunity to collaborate for customization and makes library community innovative and more active. OSILS is more reliable as every step of installation and maintenance involves the library staff who actually carries out the work. Issues associated with reliability of OSILS can be avoided by creating awareness and educating the counterparts. Various issues need to be considered when contemplating a move to adopt OSILS especially when the availability of open and commercial software is large. The factors such as active user community, availability of quality documentations, sustainability of the developer, release of updates etc should be weighed when deciding when choosing an OSILS. LIS professional experts of OSILS themselves should organize promotional activities for the benefit of the new entrants in library profession. Government organizations, educational institutions and universities etc should frequently conduct conferences, seminars and workshops to train and make LIS professionals aware of OSILS and its customization and data migration processes. Awareness on OSILS needs to be inducted in the LIS Course curriculum and the professionals shall be enabled to acquaint with these at the beginning of their profession. OSILS development team should take the feedback and suggestion from working Librarians while releasing new updates. The policy makers should recommend the usage of OSILS at least in Government organizations. Collaboration among the user libraries helps to develop standardization in customizations. Consortium mode of installation, maintenance and modification may lessen the financial burden and bring more affordability to the participating libraries. Better and widely available documentations should be made available to suit needs of all type of Library professionals. Availability of online tutorials and step by step demonstration regarding the installation process and customization in regional languages may enhance the adoption of OSILS. There should be technical

supports from the experts to improve the quality of OSILS according to the individual requirements at a minimal cost and the parent organization is expected to provide such support by deploying minimum required in-house technical experts to its library. Availability of live CD/DVD of OSILS with easy installation and implementation procedures without need for Internet access to download, registration etc. would be better solution for popularizing OSILS packages. But switching over to cloud computing to host OSILS would substantially reduce the cost for its server, maintenance and providing uninterrupted access.

Conclusions

The success of adopting an OSILS basically depends upon the attitude of the library professionals and adequacy of technical manpower. Considering the economic feasibility and need for functional developments it is necessary for Indian libraries to adopt OSILS. Lack of confidence, knowledge and proficiency in the application of OSILS and lack of taking initiatives and attaining self-reliance are the common reasons among professionals for their continuing with the legacy proprietary systems. OSILS comes into focus as an alternative tool for libraries to automate their libraries in a cost effective manner, when libraries experience dissatisfaction with their legacy proprietary system due to poor support from the vendors, expensive maintenance charges, difficulties for customization inefficiency, and inflexibility. Adoption of OSILS in libraries offers significant benefits compared to its commercial counterparts. OSILS provides flexibility and adaptability to keep pace with advances in technology. There is a drastic uplift in the rate of OSILS adoption recently which shows the sustainability of OSILS among Indian libraries. Due to the availability of powerful modules to perform all the major house-keeping operations and the features having advanced web2.0, Koha OSILS has become more popular among the Indian libraries. It is essential to provide frequent hands on training on installation and maintenance to get the professionals skilled and confident in OSILS. A raising trend for supporting adoption of OSILS is self-evident from the study. The open source environment is opening up more opportunities by providing source code to diversified open source applications and this practice adds more value to OSILS in the coming years.

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