

Research Article

Analysis of Information Retrieval System in The Repository of the State Islamic University (UIN) Raden Intan Lampung

Irva Yunita, Reza Nawafella A.P.

Raden Intan Lampung State Islamic University, Indonesia

Abstract.

This research discusses the information retrieval system through the UIN Raden Intan Lampung Repository. This research uses a qualitative research design with data collection using literature study, documentation, and observation. The information retrieval system in the UIN Raden Intan Lampung repository can be done through searching and browsing. Searching the repository can be done with simple search and advanced search. In a simple search, users can search by entering keywords, title, author, and subject. Searching uses Boolean operators, namely AND, OR, and NOT. Browsing at the UIN Raden Intan Lampung Repository can be done by year, subject, division, and author. Furthermore, searching for documents via browsing by author's name is also not optimal, this is due to differences in author name metadata input to different repositories, namely there are names that are reversed and not reversed, so this also requires user accuracy in searching the documents.

Corresponding Author: Irva
Yunita; email:
irva@radenintan.ac.id

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1. Introduction

Technological developments are currently running so fast. Technology has a fairly large role in human life. Many human jobs are being replaced by technology. This of course has an impact on daily human activities. Technology really helps human work for those who are able to keep up with its developments, but will make it difficult for someone who is unable to keep up with these developments.

One thing that stands out is the development of information technology. These developments will of course have an impact on a person's search for information. In the past, someone who needed information had to access the information from information providers by visiting the information provider's building, but with the development of information technology, someone can access information anywhere and at any time. So this has an influence on the performance of information sources.

 OPEN ACCESS

Libraries are a source of information, thus libraries must be able to keep up with developments in existing information technology if they do not want to be abandoned by their users. Libraries must be able to provide the information needed by their users and can be accessed remotely. One of the library's efforts to keep up with developments in information technology is the existence of a digital library.

Libraries as providers of information sources are always improving to provide information according to user needs, including only by providing information in digital format. One effort to provide information sources in digital format is by providing an institutional repository. Juniarti, quoting Jain, stated that an Institutional Repository is a service provided by a group or a university to manage and disseminate scientific material produced by the entire academic community or university in digital format, for example teaching materials, technical reports, theses and dissertations.[1]

Raden Intan Lampung State Islamic University (UIN) as a higher education institution also provides repository services which are managed by the library at the institution. This repository is a place to store scientific work produced by the academic community. Where these works can be utilized by users to fulfill their information needs, both for internal institutions and society in general. This is because the UIN Raden Intan Lampung Repository is open access.

A repository can be utilized optimally in terms of how easy it is to search for information. No matter how good an information source service is, if users are unable to trace the information contained in it then the use of that information source will of course not be optimal. Therefore, it is important to analyze a retrieval system on information source services, such as repositories. This is the basis for the importance of analyzing the retrieval system in the UIN Raden Intan Lampung repository.

2. Methods

This research uses a qualitative research design with data collection using literature study, documentation and observation. Literature study is a technique for collecting data from the results of reviews of books and various literature[10]. Through this technique, researchers want to provide an overview of the retrieval system at the UIN Raden Intan Lampung Repository. The data taken is from documents in the form of books, as well as the results of documentation and direct observation in the Repository. Then the data is processed to obtain conclusions.

3. Results and Discussion

3.1. Institutional Repository

Andike quoted Jones as saying that an institutional repository is an online form for collecting, preserving and disseminating the intellectual output of an institution, especially research institutions in digital form. For universities, this includes materials such as research journal articles, peer reviews, theses and dissertations in digital versions, but can also include other digital assets produced by the academic environment, such as administrative documents, course notes or learning materials.[8]

There are several open sources that can be used to develop Repositories, such as: Eprints, Dspace, Greenstone, GDL, and so on. The repository owned by UIN Raden Intan Lampung is developed by the open source software Eprints. Rodliyah quoted from the eprints.org page stating that Eprints is open source software developed by the School of Electronics and Computer Science, University of Southampton, England United Kingdom. The first version of Eprints was released to the public in 2000. Eprints is integrated with metadata, advanced search for further information search, and other features. Eprints is open source digital library software, which can be modified and adapted to local needs[9]. The UIN Raden Intan Lampung Repository uses the open source application Eprints.

3.2. Information Retrieval

The process of retrieving information in a digital library is an important activity, because with a digital library it is hoped that it can facilitate user access to information and make it easier to search for that information. Supriyanto and Muhsin said that the essence of the information retrieval process is how we can search again for documents that we have saved.[2]

Furthermore, Pendit quoted Baeza-Yates and Riberio-Neto stating that document discovery is determined by two important things, namely the user task and the logical view of the document. In general, the user task itself consists of two activities, namely retrieval and browsing. When performing retrieval, someone translates their needs by formulating words that represent their needs semantically, or formulating an information request (usually called a query) that specifies the constraints that must be met to answer the question. Meanwhile, in browsing, users choose interests that have not been clearly formulated, and users only look at a collection of existing documents, and if only there

is one that suits their needs. Meanwhile, the logical view of a document is the way a person views a document as something that can be represented by a series of indexes or keywords, whether automatically created by a computer or created by humans. This is what is meant by the representative council document. Computers allow us to represent documents with all their contents, so they are called full text.[3]

Based on the explanation above, it can be seen that retrieval is also said to be searching. As stated by Pendit, searching means that users search directly for the words/sentences/collections they want in a structured manner. Meanwhile, browsing is when a user carries out random (unstructured) exploration of information.[4]

3.2.1. Searching

Tedd and Large stated that the purpose of searching is to summarize information what the user needs in one or several queries which will then display matching items from the search results. In digital libraries this can be achieved in a variety of ways that are in many ways similar to those found in web-based search engines such as Google. One approach is to provide a search box where users can enter one or more keywords.[5]

When conducting a search, according to Tedd and Large This can be done in several ways, including:

1. Search with one query

In the search box, only enter one word. Then several results related to the query will appear. Searching using one keyword is called a simple search.

2. Search with Boolean operators

Search for information by entering two keywords in the search box, where the two keywords are connected by a Boolean operator. These Boolean operators consist of AND, NOT, and OR. The AND operator is used to search for two keywords that appear together in the information being searched for. NOT here will provide limits on the information that must appear and not. Next, the OR operator is used to find items that contain one of the keywords, and is useful for handling synonyms.

3. Quick search

Enter one or more keywords into the search box, which usually says quick search.

4. Advanced search

In this case the user is guided by a series of menus and boxes to more closely define their search by selecting subjects, geographic regions, cultural groups, visitor levels, and so on.

5. Structured search

This structured search is a form of advanced search. The search interface provides a series of pull-down menu boxes that allow users to search for keywords in fields such as author, title, and abstract, and offers several different ways to combine keywords: with AND, OR, and NOT. Words used as keywords can also be partially removed and replaced with the * symbol. For example, librar * to match libraries, librarians and so on. And keywords placed in quotation marks will be searched as phrases.[5]

Searching the repository can be done using simple search and advanced search. This will be explained as follows:

3.2.1.1. Simple Search

Simple search is a feature for simple searches. Users can enter keywords into the search box provided. The UIN Raden Intan Lampung Repository has provided a simple search as seen in Figure 1.

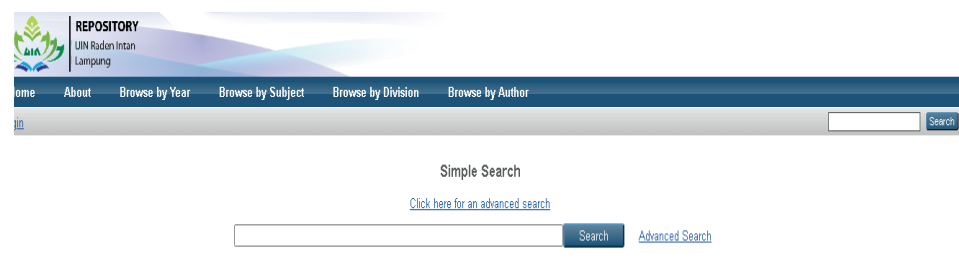


Figure 1: Simple Search on the UIN Raden Intan Lampung Repository. Source: Researcher, 2023.

In this simple search, users can search with several options, including:

1. Boolean Operators

The application of Boolean operators in the UIN Raden Intan Lampung Repository can be seen from the explanation below.

2. AND

The Boolean AND operator is used to connect two words or phrases in the hope that both words will appear together in the information being searched for. For

example, the author enters the keywords “AND Library Management” and results in 7464 documents as shown in Figure 2.

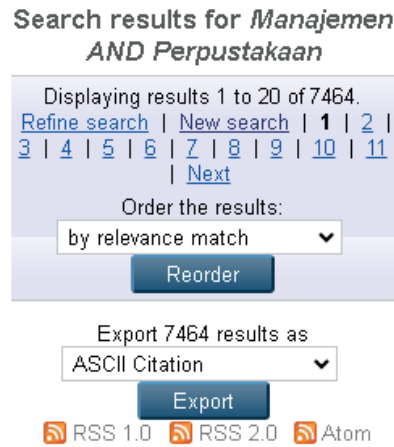


Figure 2: Document search with AND operator Source: Researchers, 2023.

1. OR

The OR operator is used to find items that contain one of the keywords, and is useful for dealing with synonyms. The author enters the keyword with “Library OR Management” and obtains a result of 15,459, thus the NOT function can be applied because the results are different when the author enters the keyword with the AND operator. This can be seen in Figure 3.

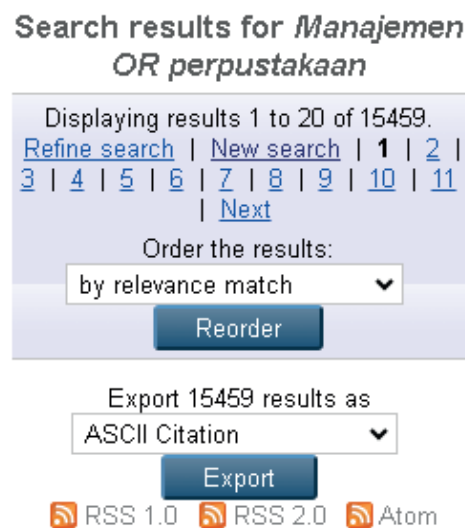


Figure 3: Document search with the OR operator. Source: Researcher, 2023.

2. NOT

NOT here will provide limits on the information that must appear and not. The author tried entering the keyword “Library NOT Management” and then obtained results of 4,630 documents, where these results were fewer than searches using AND and NOT, so this NOT operator can be used in searches in the UIN Raden Intan Lampung repository. This can be seen in Figure 4.



Figure 4: Document search with the NOT operator. Source: Researcher, 2023.

3.2.1.2. Advanced Search

In the Digital Library, searching for information using advanced search is divided into three categories, namely for document, professional and organizational searches. For advanced searches on the UIN Raden Intan Lampung Repository, you can search for documents, title, author, abstract, publication date, keywords, subject, document type, study program, editor, publication status, name of journal or publisher, and document type. This can be seen in Figure 5.

3.2.2. Browsing

Tedd and Large mentioned while browsing, users no longer have to focus on search strategies. Users can move through the database landscape, looking around them while searching for the required items. Browsing relies on users recognizing relevant items when they are confronted with the various information displayed. Browsing requests

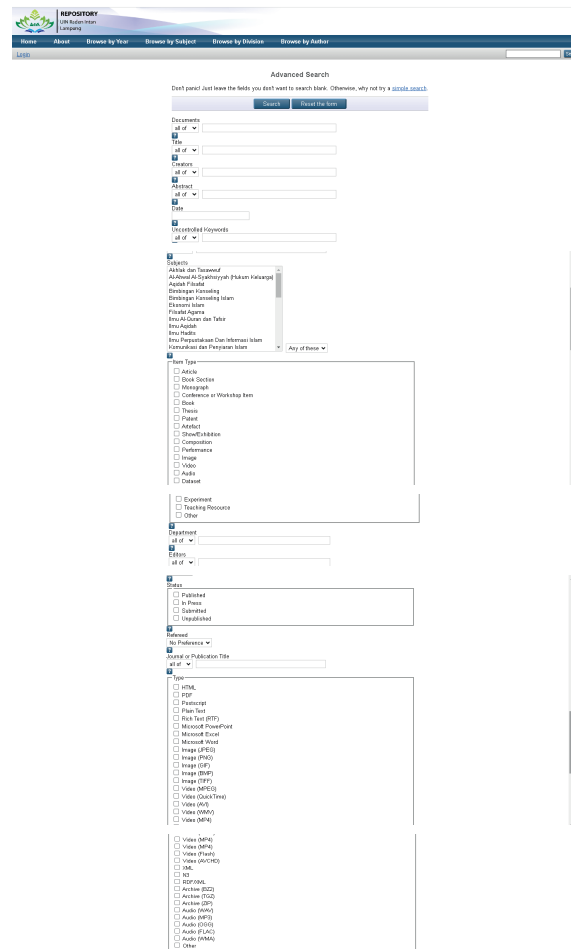


Figure 5: Advanced Search in the UIN Raden Intan Lampung Repository. Source: Researcher, 2023.

identification of documents that are potentially useful to them. Browsing is an important way to find information in digital libraries, and a variety of approaches are offered. Web-based digital libraries make extensive use of hotlinks through navigation to their collections. Browsing can be done in several ways, namely:

1. Provide a list

For example, a list of subjects, regions, countries, continents, and so on.

2. Provides a pull-down menu

One menu, for example, offers the opportunity to browse by title, author or user document type—fiction, poetry, biographies and autobiographies, or essays.

3. Clicking on the first letter of the query

One approach adopted by this digital library is to provide alphabetical access to its images. Users can start browsing by clicking on the first letter of the query word.

4. *Windows browser*

It provides a browser window where the user can position the map for a specific location, and use the zoom feature to vary the level of detail.[5]

Browsing This can be done through the document title, author's last name, year, subject, language, index page, theme category, regional category, classification based on traditional knowledge sources, name of archive collection, community and collection, volume number, journal name and latest issue. Furthermore, the option to search can be done via document title, author's name, subject, year, language, vendor name, search location, scanning center, keywords, bibliographic references, IP code, entire books, chapters, certain section titles, some or all of the word content. search, journal volume, pages, and journal year.

Metadata for a document also plays a role in information retrieval. As stated by Dawson, the use of functional and variable metadata can help users find quickly and identify information resources from a long list of search results. However, he also mentioned that there are several problems faced by digital libraries, namely that users do not access digital library content through the library catalog, but rather through the Google web search engine, because their content is usually found through Google. Additionally users must search through various title tags in their search results to identify items that have relevance. Therefore title tags are very important for digital libraries. This situation is reminiscent of library card catalogs before computerization. A master entry is created where the author and publication date are added to the title, so that users of the card catalog can quickly see the most important metadata in one place. For non-book items, the physical form of the item (called common material) is also included (e.g. sound recordings). This strategy can be adopted by Google to create more functional digital library metadata.[6]

This explanation is also in line with the explanation given by Bainbridge that the way to search for text information in digital library software, namely Greenston, is done by building a full text index from the document text, and from metadata elements, such as title and author. The refractive index is searched for specific words, Boolean combinations or phrases whose results are indicated by relevance ranking or sorting based on metadata elements. Browsing involves hierarchical lists that users can examine interactively. In the article it is also stated that metadata is also raw material for browsing, and must be provided explicitly or be derived automatically from the source document. Different collections offer different search and browsing facilities.[7] From this explanation, it can be seen that searching for text information in a digital library can

be done through the title and author, as well as through the form or format of the information.

Browsing in the UIN Raden Intan Lampung Repository it can be done by year, subject, division and author.

1. *Browsing* by year.

The first browsing menu provided is that users can browse documents based on the year the document was published. The years available in the browsing menu are from 2004 to 2023, however 2005 and 2006 are not available in this browsing menu, then there are several documents whose years are not specifically listed. This can be seen in image below 6.

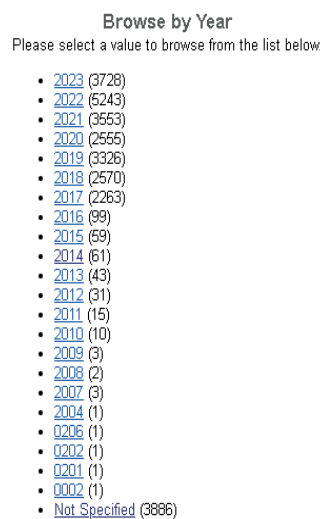


Figure 6: Browsing through Document Publication Year. Source: Researcher, 2023.

Searching using this year is less than optimal because for 2017 – 2023 it cannot be accessed directly through this browsing, because the number of documents for that year has exceeded the document limit of only 2000 titles. This can be seen in figure below 7.



Figure 7: Browsing in years where the number of documents exceeds the limit of 2000 titles. Source: Researcher, 2023.

2. Browsing through subjects, that is, users can search for documents through the scientific fields provided. There are 35 scientific fields provided in this repository. This can be seen in Figure 8.



Figure 8: Browsing through document subjects. Source: Researcher, 2023.

3. *Browsing* through divisions, that is, users can search for documents based on faculties and study programs. Where the browsing menu provides menus from 6 faculties, namely the Faculty of Adab, Faculty of Da'wah and Islamic Communication Sciences, Faculty of Islamic Economics and Business, Faculty of Sharia, Faculty of Tarbiyah and Teacher Training, and Faculty of Ushuluddin, as well as postgraduate programs namely Masters and Doctorate which are in the menu Post-Master's written browsing for Doctoral Programs (S3) and Post-Graduate for Master's Programs (S2). This can be seen in Figure 9.



Figure 9: Browsing menu by faculty and study program. Source: Researcher, 2023.

4. *Browsing* via the author’s name.

Users can search for documents using the author’s name. Browsing using the author’s name can be used using the first letter of the author’s name. This can be seen in Figure 10.



Figure 10: Browsing based on the first letter of the author’s name. Source: Researcher, 2023.

Browsing using the author’s initial letters is less than optimal because in the metadata used there are author names that are reversed and some that are not reversed. So users must be more careful when searching through this menu. As in pictures 11 and 12.

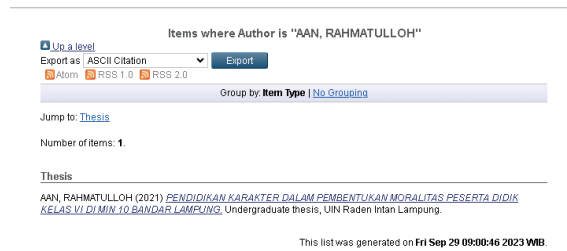


Figure 11: Browsing using the first letter of the author’s name. Source: Researcher, 2023.

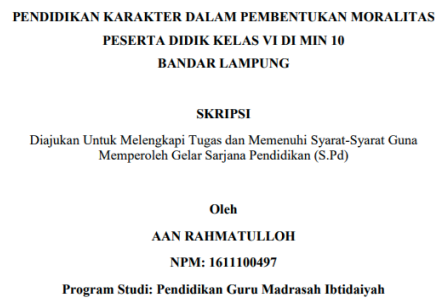


Figure 12: Search results document with the first letter of the author’s name. Source: Researcher, 2023.

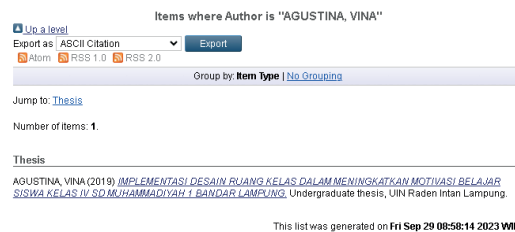


Figure 13: Search using the first letter of the author’s name. Source: Researcher, 2023.

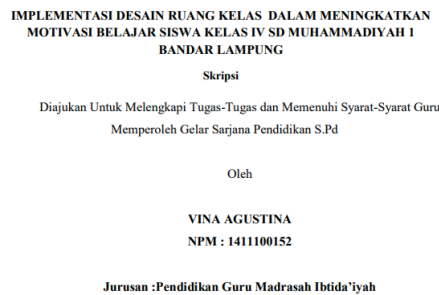


Figure 14: Search results document with the first letter of the author’s name. Source: Researcher, 2023.

Based on figures 11 and 12, it is known that the author’s name metadata entered into the UIN Raden Intan Lampung Repository for the author’s name is not reversed, while

from figures 13 and 14 it is known that the writing of the author's name metadata in the repository is reversed, this is what users must pay attention to when perform document searches by browsing through the author's name.

4. Conclusion

The information retrieval system in the UIN Raden Intan Lampung repository can be done through searching and browsing. Searching In this repository, simple search and advanced search can be done. In simple search, users can search by entering keywords, title, author and subject. Searching via searching can also use Boolean operators, namely AND, OR, and NOT.

Browsing in the UIN Raden Intan Lampung Repository it can be done by year, subject, division and author. Browsing through document publication years is less than optimal because there is a document limit of only 2000 titles, whereas for documents published from 2017 – 2023 the number exceeds 2000 documents. Furthermore, searching for documents through browsing with the author's name is also not optimal, this is due to differences in author name metadata input to different repositories, namely there are names that are reversed and not reversed, so this also requires user accuracy in searching documents.

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