

Magelang City Legal Administration Data Archived Based on Document Tagging: Proposed Concept

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ABSTRACT

The Office of the Legal Section of the Regional Government Secretariat of the City of Magelang (SETDA of Magelang City) currently uses traditional data archiving. Research at the SETDA of Magelang City shows that the processing of records, incoming and outgoing documents is still done manually in a special recording book. The impact is duplicated documents, this is an employee's negligence in filing large numbers of documents. Documents archived at the SETDA of Magelang City are still stored in printed form and stored in a work cupboard. The management of these documents has weaknesses, namely the arrangement of documents is carried out neatly but many documents are not recorded and lost. This situation causes the employees of the SETDA of Magelang City to have difficulty managing the documents that have been received. This study uses 4 stages. These stages include problem identification, literature study, observation and interviews, system design. Efforts to solve this problem will focus on creating a data archiving application system to make it easier for SETDA employees in Magelang City to search for historical data or data that is being worked on. This application will carry the concept of document tagging which is expected to help manage documents and ensure the security of documents. Document Tagging as a process of marking a document with relevant information attached to the document. Research will develop a prototype data archiving system and focus on special tag types in documents to indicate the type of documents in the application. The results obtained from this research are to assist Regional Secretariat employees in managing the filing of letters which were previously manual, now digital by using an administrative data archiving system and making it easier to search for data based on tagging.

Keywords: Archived Data, Document Handling, Document Tagging, Metadata, Tagging.

INTRODUCTION

Section Office Law the Magelang City Government Regional Secretariat (SETDA Kota Magelang) which is located on Banyurojo, Magelang Regency, Central Java Province own four Sub Coordinators management document that has Task principal and function. Each of them namely : (1) Sub Coordinator legislation function process facilitation drafting product law area (include decision guardian city, decision secretary area, regulations guardian city, regulations area) of planning until with determination must through the alignment process in accordance required product managed by the sub coordinator Legislation, (2) Sub Coordinator Documentation and Information function do evaluation product law area, publication regulation legislation, documenting and disseminating information law, fine form book nor data information provided through the JDIH Magelang City website (jdih.magelangkota.go.id), (3) Sub Coordinator Help Law function gift service law and assistance law on potency possible problem arise from implementation (product law area, regulations legislation, MoU or cooperation area, management

government) in secure the way government in a manner whole. (4) The administrative function of the legal division is to schedule, record, administer, continue the disposition and archive all correspondence, both incoming and outgoing documents, for all sub-coordinators in the legal division. Archiving this data will accommodate all of the three sub coordinators.

There are 2 classifications of documents, namely incoming documents and outgoing documents. Incoming documents consist of 4 types and outgoing documents consist of 2 types. Incoming documents such as invitation documents, circular documents, financial documents, and application documents. Outgoing documents such as assignment documents and official documents are sent out of the office. So that a total of all types of documents there are 8 types of documents at the SETDA of Magelang City, namely: (1) invitation documents, (2) meeting documents, (3) document announcements, (4) circular document documents, (5) application documents, (6) the text of the grant agreement (NPHD), (7) the PKS document or cooperation agreement and (8) the Momerandum of

Understanding (MoU) concept. Regarding the flow of dispositional or non-dispositional document management, currently using a special bookkeeping process for incoming and outgoing documents. Documents are submitted to the Head of Section or Head of Section to be grouped based on dispositional and non-dispositional documents. Disposition documents will be submitted to the operator or administration for distribution to the four legal Subdivisions. Meanwhile, nondispositional documents which are not distributed will become archival documents and documentation.

The SETDA of Magelang City currently does not use technology in processing data archiving, where the agency has a very busy level of work, namely incoming and outgoing mail activities can reach approximately 10 documents per day per Subdivision. In addition, there are obstacles to the use of information technology that is not optimal, such as data archiving which is still done manually. This means that some parts of the document are still stored in hard files stored in lockers. Even though the arrangement is done neatly, there is a risk of damage or loss of a lot of documents. This makes employees experience difficulties and inefficiencies in calculating and recapitulating existing documents. Therefore, we need a system that can manage incoming and outgoing mail and archives to facilitate a more efficient storage and search process (Salman, 2019).

Document tagging as the process of marking a document with relevant information such as author, owner, source (Nuryasin & Effendy, 2023). Document tagging are used as marking or labeling documents that have been digitized to group, categorize, and include a brief description of the document (Suheri, 2019).

Document tagging has been under supervision for several years by reasearchers. In the year of 2018 explains document tagging in existing project recommendations (Thushara et al., 2018). while 2019 document tagging is also used by document experts in the field of information retrieval and machine learning (Hagerman et al., 2019). Document tagging is also be inspected especially in document extraction (Sun et al., 2020), in Semi-Automated Documents (Müller et al., n.d.) and in higher education document management systems (Nuryasin & Effendy, 2023).

In order to achieve research objectives, questions research to be answered through this study are:

1. How to make it easier to search and sort data in SETDA of Magelang city?

2. How to design a data archiving application system to manage documents with Document Tagging?

This study aims to be able to apply effective and appropriate document tagging to help manage documents from the Legal Department of the City of Magelang Regional Secretariat. (Reskianto, 2020).

LITERATURE REVIEWS

Archives are written texts which contain important information (Nugraha et al., 2018). Archives play an important role in an institution as a presentation of information and a memory center for a leader to be able to formulate policies and make decisions, so as to be able to provide or present accurate and complete information there must be good procedures and systems to manage it (Fitri M., 2020). Archives are a source of information that has an important function to support the administrative and management activities of an agency (Prasetyo, 2020). Data Archiving is an operational activity that is routinely carried out by every admin in an office. Starting from incoming documents, outgoing documents and employee data that are considered important and must be archived by the office (Setiawan, 2022).

The function of the document is a means of delivering messages in writing, documents play a role in achieving the goals of an agency or organization in establishing cooperation between organizations. Documents have functions including representatives of the sender or writer, guidelines for taking further steps, organizational measurement tools, evidentiary materials, means of shortening distances (Asyari et al., 2021). Correspondence is a sheet of paper written on behalf of his position in the organization for various purposes. Another meaning of a document is a written communication tool to convey your heart's content or intentions to other people (individuals or organizations) (Oktaviani et al., 2020).

Archives are texts or records made and received by government, private, and individual organizations regarding an event or right in their life, and in any pattern, whether singly or in groups, which have a certain function and are stored systematically (Fitri M., 2020; Nugraha et al., 2018). So that the documents if needed can be provided easily and quickly. An archive is a collection of documents that are useful and stored systematically so that when the users needed the information can be retrieved quickly and accurately (Prasetyo, 2020). Article 1 Law Number 43 of 2009 concerning Archives, the

notion of archives is a record of activities or events in various forms and media in accordance with the development of information and communication technology made and received by state agencies, regional governments, educational institutions, companies, political organizations, community organizations, and individuals in the implementation of social life as a nation and state (Romindo & Ameylia, 2019).

Document handling (also known as document management) is the process of efficiently and effectively managing documents within an organization. It involves a number of tasks and activities related to the creation, receipt, storage, organization, retrieval, distribution, revision and disposal of documents. The purpose of document handling is to maintain the accuracy of information, improve accessibility, ensure legal compliance, improve operational efficiency, and reduce the risk of errors (Dinda et al., 2020). Document management is one of the most important things in an organization because it is useful for increasing operational efficiency (Nugraha et al., 2018). Good document handling will make employees quickly save work time, make reports accurately and quickly search data (Alim & Ramdhani, 2021).

Here is a complete explanation of each stage of document handling such as Document Creation, Receiving Documents, Document Storage, Document Organization, Document retrieval, and Document Distribution.

The first stage is document creation, this stage involves creating a new document, both in physical and digital form. Documents can include reports, documents, contracts, forms, proposals or other types of documents required in business operations (Nugraha et al., 2018). Document creation can be accomplished using software such as word processors, spreadsheets, presentations, or specialized document management systems. The second stage is receiving documents. documents are received from various sources, both internal and external to the organization. This can include incoming mail, e-mail, fax, completed forms, or other electronic documents. Every document received needs to be clearly recorded and recorded for future tracking and reference purposes (Alim & Ramdhani, 2021).

The third stage is document storage, where documents are received, the next step is to store them safely. Physical documents can be stored in filing cabinets, shelves or organized storage rooms. Digital documents are usually stored on servers,

storage drives, or electronic document management systems (EDMS). Proper storage helps prevent damage, loss or unauthorized access to documents (Suheri, 2019).

The fourth stage is document organization, which is to facilitate the search for documents, it is important to organize documents properly. This can be done by creating an organized folder structure, grouping by category, or using metadata and tags. Effective organization allows users to easily find and access the documents they need (Dinda et al., 2020).

The fifth stage is document retrieval, namely when documents are needed, the retrieval process must be fast and efficient. Users should be able to easily find and access the documents they need. Text search, index, metadata, or advanced search systems can be used to help quickly retrieve documents (Romindo & Ameylia, 2019).

There is document distribution (the final stage) explaining that documents may need to be distributed to related parties inside and outside the organization. This can be done through various methods, such as sending an email, sharing a link, use a file sharing platform, or publish a document on a portal or distribution website (Hagerman et al., 2019).

Document tagging has been used several times to improve document handling, such as in 2018 MG Thushara discussed recommendations and analysis of a project (Thushara et al., 2018), while in 2019 C.Hargeman used it for information retrieval (Hagerman et al., 2019). In 2023 tagging will also be used for document management systems in universities (Nuryasin & Effendy, 2023). The document management system is a document management model that is structured according to the function and ownership of the document. One model of document identification is using document tagging. Document tagging is document marking using special tags to indicate document ownership (Nuryasin & Effendy, 2023). The benefits of this tagging document are expected to make it easier for agencies or individuals to archive and obtain copies of the required documents.

Metadata is structured information that describes, explains, finds, or at least makes information easy to find, use, or manage (Prasetyawan Erwan Setyo, 2019). Metadata can produce evidence that is not always easily visible and must ensure the collection of this data and its validation (Anwar et al., 2022). Metadata is especially important in environments that involve storing, managing, and exchanging

large, complex data. With the right metadata, users can find, understand, and use data more efficiently and effectively. Metadata also supports interoperability between systems and facilitates better data integration in various contexts and applications (Sun et al., 2020).

The Unified Modeling Language (UML) is one of the most reliable tools in the world of object-oriented system development (Sunarsih et al., n.d.). UML is a standard language for designing and documenting systems. UML offers a standard for modeling a system and is widely used and uses familiar notations for analysis and object-oriented design (Sunarsih et al., n.d.).

Flowchart is a visual representation of a sequence of steps or a process in diagrammatic form. Flowcharts are used to describe the logical flow of a process or

system, from start to finish. A flowchart consists of various geometric symbols connected by arrows, each of which represents a specific action or decision (Aliman, 2021). Flowcharts can be used in various fields, such as computer programming, business analysis, process engineering, project management, and others. In programming, flowcharts are used to plan algorithms or describe the flow of code execution. In business analysis, flowcharts help in understanding and describing complex business processes (Aliman, 2021).

METHODS

In this study using 4 stages. These stages include problem identification, literature study, observation and interviews, system design (can be seen in Figure 1).

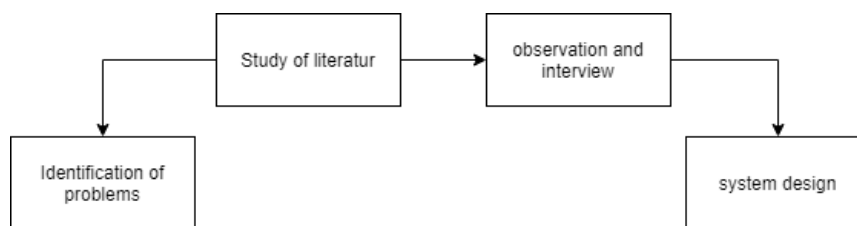


Figure 1 Stage of research methods

1. Identification Problem

Problem identification is the process of identifying and defining problems or challenges encountered in a particular situation or context (Purwanto, 2021). Identification that has been obtained in the Regional Secretariat of Magelang City is carried out by analyzing archive recording documents, incoming and outgoing documents from the three sub-coordinators in the Regional Secretariat of Magelang City.

2. Studies Literature

The Literature Study Stage collects references related to reading books, journals, the internet and other scientific articles related to data archiving information systems (Asyari et al., 2021). At this stage of the literature study, the writer looks for sources of reference and information in the form of journals from previous research and the internet related to the research to be carried out. The theoretical data collection technique, by reading books, proceedings, research journals and references from the internet and so on related to the issues discussed.

3. Observation and Interview

Observation, namely making direct observations of relevant agencies to obtain the data and information needed to develop and complete this research (Romindo & Ameylia, 2019). The interview that was conducted was to visit the Regional Secretariat of Magelang City to ask how complicated administrative data management was and what features the software system wanted from the Regional Secretariat itself.

4. System Design

This System Design Stage explains the general description to the user and the complete design of the system to be developed to the intended party. This stage describes the UML (Unified Modeling Language) diagram process design, there are 5 UML diagram designs that will be used in the design.

a) Use Case Diagrams

Use Case Diagram is a UML model that is used to show graphs of use cases and their relationships with users. UML or Unified Modeling Language is a standard set of diagrams and model construction used in system development (Asyari et al., 2021).

b) ERD (Entity Relationship Diagram) Diagram

ERD is a technique used to model the data requirements of an organization, usually by System Analysts in the requirements analysis stage of system development projects (Wati et al., 2020).

c) Class Diagrams

UML class diagrams are used to show the class of objects for a system. On the Class Diagram, the rectangles represent the classes, and the lines connecting the rectangles show the associations between classes. In the Class Diagram, there are three types of relationships between object classes, namely association relationships, generalization or specialization relationships, and whole or part relationships (Asyari et al., 2021).

d) Sequence Diagrams

Sequence Diagrams are used to describe interactions between actors and systems in and around applications in the form of messages that are described over time. Sequence Diagram consists of a vertical dimension (time) and a horizontal dimension (related objects). Messages are actions that are called on the destination object, such as a command (Yulisman et al., 2020).

e) Activity Diagrams

An Activity Diagram is a visual form of a workflow that contains activities and actions, which can also contain choices, repetition, and concurrency. In the Unified Modeling language, activity diagrams are made to explain computer activity and the flow of activities within the organization (Fathullah & Ambarwati, 2020).

RESULTS AND DISCUSSION

At this stage of the research includes problem identification, literature study, observation and interviews as well as system design. In accordance with the explanation of the previous research method, at this stage the results of each stage will be discussed.

Identification Problem

Based on the identification of problems regarding administrative problems that exist in the SETDA of Magelang City which is conducted interviews and observations with several lists of questions (can be seen in Table 1) found that archive records, incoming and outgoing documents are still managed manually in the record book to be submitted to the Head of Section and then distributed by the operator or Administration according to the disposition of the documents.

For mail management, it is still in the form of documents that are stored in print and then stored in a work locker. The lack of a document management process causes the possibility of data being lost and many documents not being recorded. The Cooperation Agreement and Memorandum of Understanding (MoU) documents amounted to approximately 800 documents which made it impossible to record them manually. For document numbering, it has its own code for documents that are disposed to the destination and documents that are only stored as archives. Following are the main problems of data archiving

Table 1. Main Problem of Secretariat

No	Problem Statement	impact
1	The process of storing data or documents that are not efficient	A lot of time is wasted in vain
2	Documents are stored in hard copy	When employees looking for documents takes a long time
3	Document storage is still done manually	Documents are vulnerable to loss and damage
4	Employees do not immediately record incoming or outgoing documents	There was a communication error due to unclear document arrangement

Studies Literature

In this literature study stage, the author also includes previous research, especially related to keywords such as reading journals about city archival data in Indonesia, reading books about archives at the Regional Secretariat of Magelang City, looking for references regarding the methods used such as designing a UML diagram system.

In the following, the author will provide and explain references related to journals regarding data archiving in cities in Indonesia. The first is the journal Archive Transformation in Facing the Digital Age, 2020 written by Muhammad Fitri. This study describes archiving in the era of the industrial revolution 4.0. Digital archives are stored and transmitted in discrete form or in the form of binary

code which can be opened, created and deleted by means of computing that can read or process data in binary form, so that they become digital archives.

The second is the journal Document Archiving Information System at PT Sinergi Perkebunan Nusantara, 2020 written by Dessy Santi. This study describes At PT. Perkebunan Nusantara Synergy, Management of incoming and outgoing documents is done manually starting from recording documents, searching processes, and storing which requires time and costs which are not effective and efficient. Archiving information system is the solution to this problem. This archiving information system facilitates the process of data communication between sections. This information system was created using PHP as the programming language, MySQL as the database.

The third is the journal Correspondence Archive Information System, 2021 written by Muhammad Rizky Asyari. This study explains that employees of the Ministry of Religion of Payakumbuh collect and process incoming and outgoing mail data using conventional methods. Based on problems existing, then built an information system that can help employees in the Ministry Payakumbuh Religion. Based on the results of the black box test this system is running well and accordingly expected. Based on the User Acceptance Test (UAT) that has been carried out by system users at the Ministry of Religion of Payakumbuh City said the whole system this is easy to understand and in accordance with what is expected. The fourth is the journal Web-Based Employee Data Information System at the Ministry of Maritime Affairs and Fisheries Ternate City, 2018 written by Muhdar Abdurrahman. this research explains The Ministry of Maritime Affairs and Fisheries of the Archipelago of Ternate is one such agency the government in the city of Ternate in the field of Maritime Affairs and Fisheries, in managing and storing media information related to data, employee profiles and activities is still done manually. Manual data collection is considered ineffective and takes time, while checking and

searching employee data one has to open the Employee Files one by one. This research was conducted at the Ministry of Maritime Affairs and Fisheries of the Ternate Archipelago. The system is designed based on the Web as a medium for information to the public. The programming language used is HTML, PHP, CSS and MySQL as a database. It is hoped that it will make it easier for Admins to manage employee data efficiently and information media. to the community in Maritime Affairs and Fisheries. The fourth and last is the journal Design of a Land Book Archiving Information System at the Bireuen District Land Office, 2021 written by Desvina Yulisda. This study aims to avoid land disputes, so data and information on land books need to be archived. One of the problems that arose in the case study at the Bireuen District Land Office was the inefficiency of processing and archiving land book data which still used a manual system. Therefore a land book filing system was developed. The goal to be achieved through the system built is to assist Bireuen District Land Office officers in processing and archiving land book data.

Observation and Interview

The interview that was conducted by the author by the Sub-coordinator of SETDA Legal Aid for the City of Magelang was to discuss and provide solutions to the main problems in managing documents and what were the obstacles that occurred during the process of managing these documents. There are several administrative categories in the SETDA of Magelang City and what documents will be entered into the system. The author also inquires about the meaning of the numbering of each type of document that has been managed and how many documents have been stored at this time, because this will be the main point in working on a Document Tagging-based web system in which tags are included for easy search of documents. required and what will be stored. The following questions submitted to the SETDA sub coordinator of the city of Magelang (can be seen in Table 2).

Table 2. Main question of Secretariat

No	Question	Answer
1	how many documents are managed?	the number of documents, especially legal products, is 800 documents including the draft Memorandum of Understanding (MoU).
2	Ask if there is data in the form of a list or table about the document? Example: excel	There isn't any. because all data is still in the form of recording in the book manually including incoming documents and outgoing documents.

3	Asked how many categories of administrative documents were managed?	there are 8 types of documents : (1) invitation documents, (2) meeting documents, (3) document announcements, (4) circular document documents, (5) application documents, (6) the text of the grant agreement (NPHD), (7) the PKS document or cooperation agreement and (8) the MoU (Momerandum of Understanding) concept.
4	Ask the meaning of document numbering? Example: disposition documents or documents that are only stored.	for document numbering it has its own code such as invitation documents, meeting documents or official notes. Disposition documents and non-disposition documents have different codes, in terms of their needs and designations.
5	Was there previously a data archiving system in the Magelang City Secretariat?	already exists but it is a system from the library and archives service. the function of this system is to receive documents such as gmail originating from the informatics and statistics communication service.
6	Asking how complicated is the management of all documents that are currently being managed?	The complexity in managing documents is an error in the disposition of documents, meaning that in the distribution and selection there is an error between employees. Then documents are often lost because they are not immediately recorded and stored.

Design System

The design of the system used in making this filing administration system is using the UML. System design stages provide convenience in designing system development. This study uses several types of UML such as flowchart, use case diagrams, ERD (Entity Relationship Diagram), sequence diagrams, activity diagram, class diagrams.

Flowchart

This flowchart describes the design that will be made regarding the document tagging-based data archiving system flow (can be seen in Figure 2). The

flowchart starts from the login page then inputs the username and password then validates the user's personal data whether it is appropriate or not. if not appropriate will return to the login page. after entering personal data, you will enter the dashboard page to check or search for the documents needed. Filtering using document tagging is the main feature. That will be used in system design. this is used to select documents between invitation documents, application documents or meeting documents and then they will be processed by the system and displayed according to the choices that have been determined.

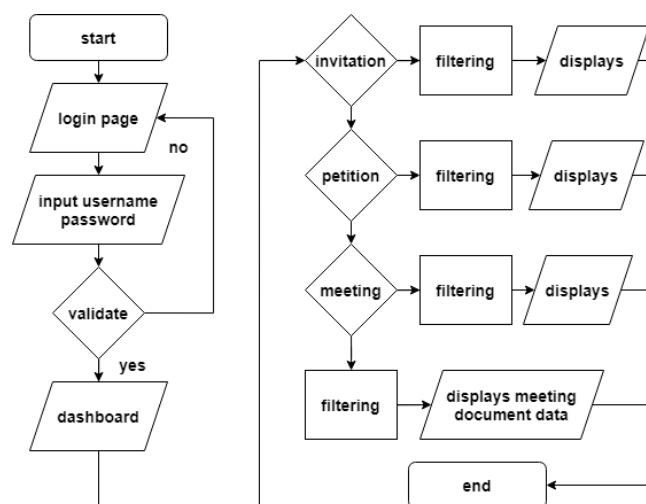


Figure 2. Flowchart

Design Use Case Diagrams

To get an overview of the system to be created, it is described in the use case diagram model as shown in the following Figure. Use Case Diagrams are useful

for knowing what functions are in a system and who has the right or may use these functions. From the picture it can be seen that there are 2 actors in running this system, namely Admin and Employees.

admin can insert a cooperation agreement letter and managing letters on the website. Meanwhile, employees can carry out verifying letters based on

their type and regulations, validating cooperation agreement letters, managing requested letters. (can be seen in Figure 3)

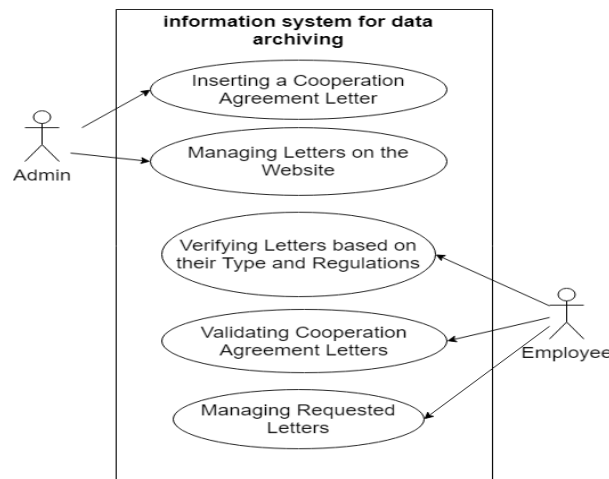


Figure 3. use case diagrams

ERD (Entity Relationship Diagram) Design

Entity Relationship Diagram (ERD) is an entity diagram that is used For planning a database and show relation between object or entity along attribute attribute in detail (Santi & Tongkuru, 2020).

In Figure 4 there are 7 entities include archive identity, metadata, categories, component, archive tags, tags, and partners. On the archive identity entity there are 6 attributes include id document of agreement, about, information, function, id category, id metadata. On the metadata entity there

are 3 attributes include id metadata, file size, and date. On the category entity there is category id and category name. On the component entity there are 3 attributes include id component, id cooperation agreement document and id partners. On the archive tags entity there are 3 attributes include id archive, id tags and id cooperation agreement document. On the tags entity there are 3 attributes include tags, tags and descriptions. On the partner entity there are 4 attributes include id partners, names of partners, employment partners, addresses of partners.

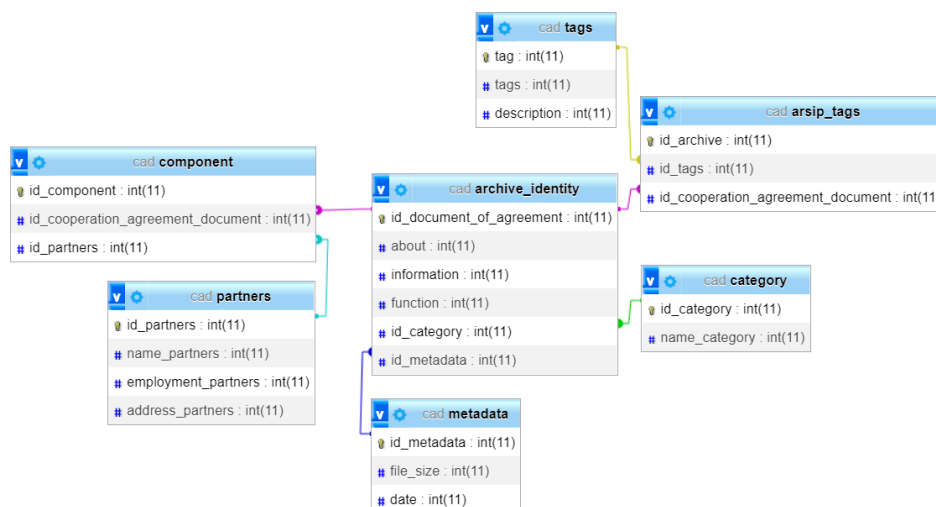


Figure 4. Entity Relationship Diagram

Sequence Diagram Design

The following is a sequence diagram of System Information Data Archiving at Regional Secretariat of Magelang City. Sequence diagrams depict behavior actor use case diagram against use system start from logging in to with input data. This sequence diagram flow starts with the employee

logging in and then entering the user and password. After accessing the employee can open the document menu and select a document using the tagging filter. Furthermore, employees can open or download the required documents. (can be seen in Figure 5).

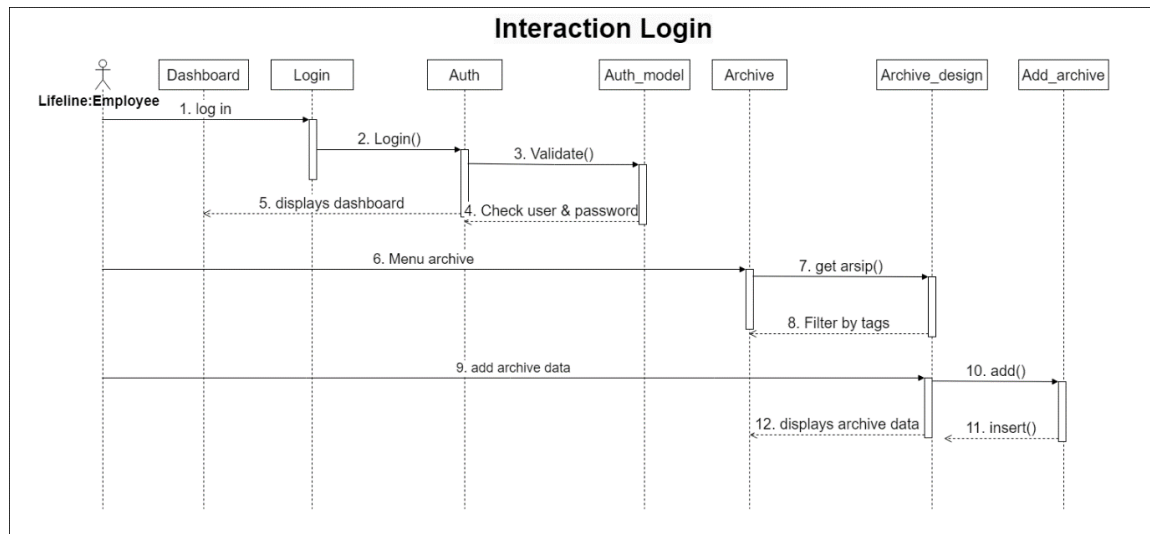


Figure 5. Sequence Diagram

Activity Diagram Design

The following is an activity diagram of System Information Data Archiving at Regional Secretariat of Magelang City. Activity diagrams describe workflow (stream work) or activity from A system or business process. These diagrams explain activity system start from log in, data validation, archive menu and data search using tagging feature. Activity

diagram flow describes user activity to the system. It starts with the employee logging in and then displays the dashboard. The system will validate and check the user and user password. If it is correct, it will continue to the document menu, if not, it will return to checking the user and password. After entering the document menu, employees can access and select the desired document. (can see Figure 6)

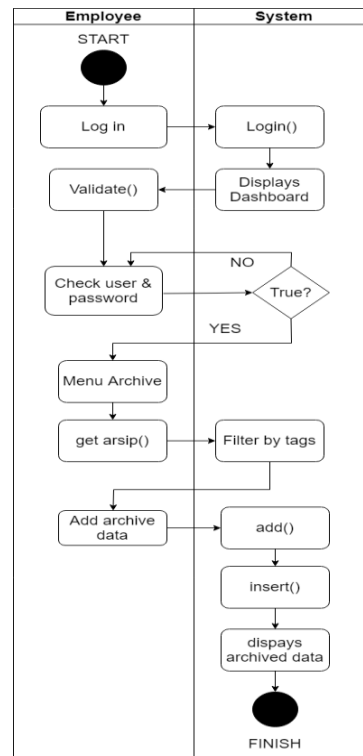


Figure 6. Activity Diagram

Design Class Diagrams

Design system model class diagram aims describe relations between tables. In the class diagram image shows seven table that is table identity archives, categories, componenet, partners, metadata, archive_tags, and tags. In the categories table,

partners table, tags table can add and edit data. In the metadata table, it only inserts data. The component table only retrieves data from the identity table and the archive only retrieves archive and tags. (can see in Figure 7).

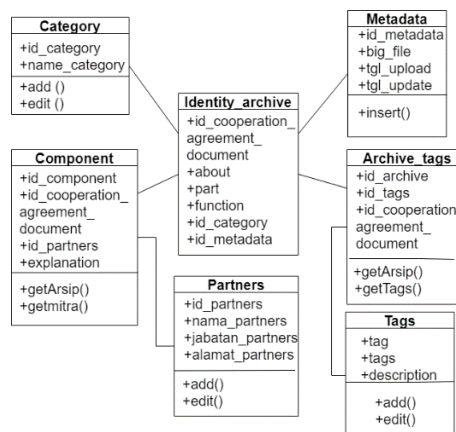


Figure 7. Class Diagram

CONCLUSION AND RECOMMENDATION

The conclusion of this reasearch that administrative data archiving legal department of Regional

Secretariat of Magelang City based on smart tags can give a number of excess or profit like convenience in search and data retrieval, reduction risk physical data loss that is not time manage and improve efficiency in data management. However, you also need to consider a number of challenge in application system filing This like maintenance system, training user system, and data security (Yulisda & Nurfasha, 2021).

Suggestions for maximizing the benefits of document tagging and document handling based administrative data archiving, it is necessary to carry out careful evaluation and planning in the selection and implementation of this system. Then it is necessary to carry out a suitability study with the benefits to be obtained. In addition, it is also necessary to provide training to system users regarding the correct use and management of data. In terms of data security, it is necessary to secure data with technology such as data encryption and periodic data backup. Finally, it is necessary to periodically evaluate and improve data for filing this system to ensure optimal performance and development of the system in a better direction ok (Yulisda & Nurfasha, 2021).

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