Plan To Build User Interface And User Experience In Knowledge Management System Application

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Abstract

Knowledge Management System (KMS), a system that has the aim of managing and maintaining knowledge (knowledge) owned by a company or organization. With KMS, it can minimize the loss of a company if one of the employees resigns where the employee has an important role in the company or organization, because all the knowledge that is known and owned by the employee is already contained in the KMS. The application is designed using the waterfall model. The application is built based on a website, the application is designed with a user interface and user experience approach as a web-based knowledge management system application. And this application was created to assist companies in maintaining and developing the knowledge possessed by employees.

Introduction

Companies or organizations usually have knowledge assets that must be maintained continuously. So that the company or organization has a brand, call it "PerluApps", PerluApps provides a platform to make it easy for business people to communicate with their customers. with superior features such as promotions, discount vouchers, ticket bookings, food places reference, and so on.

The knowledge management system application has a purpose, as an application in which it can manage the knowledge possessed by company employees about company assets. so that employees can share their knowledge with employees. Employee knowledge can be in the form of meeting results, and training that can be shared by other employees. For example, employees who take part in training, because not all employees are given the opportunity to attend training, so employees who take part in training can share information about the training they have attended. With an application employees can share their knowledge, the application provides different access rights for administrators and ordinary users. With the application, if the company loses an employee who has an important role in the company, the company will not lose the knowledge that the employee has because there is already documentation in the application of this knowledge management system.

This application is designed for user interface and user experience for knowledge management system applications in a company or organization. The existence of this application design, so that good applications are built in terms of interface design and user experience that are in accordance with user needs.(Akbar, Andriansyah, & Utomo, 2016)

Based on the background presented above, the following problems can be formulated: (1). Design of user interface and user experience in knowledge management system application, (2). Management of user data, training data, and meeting data, (3). Development of applications that can provide different access rights to users to access applications. Based on the three problem formulations that have been mentioned, it has a purpose. Wesite-based software objectives are: (1). The knowledge management system application that is built can maximize user interaction to provide a good user experience, (2) the application is built for user data management, training data, and meeting data, and (3). Applications can give different permissions to users to access applications. The study was built according to the following scope: (1). This application development is a local website, (2). In the application, there is a register page and employees data can only be accessed by admins, and (3). The application has a delete user feature, Recycle Bin, Restore, Detail Document Activity, and User Activity can only be accessed by the Admin, and (4) In the system the Delete Document feature can only be done by the User who uploaded the document.

Literature

Website

Website or site can be defined as a collection of pages that are used to display text information, still or motion pictures, animations, sounds, and or a combination of all of them, both static and dynamic, which form a series of interrelated buildings, each of which is linked to page networks. The relationship between one web page and another is called a hyperlink, while the text used as a connecting medium is called hypertext (Batubara, 2015).

User Interface Design

The purpose of UID is to design effective interfaces for software systems. Effective means ready to use, and the results are in accordance with the needs. The need here is the user's need. Users often judge the system from the interface, not from its function but from the user interface. If the user interface design is bad, then that is often a reason not to use the software. In addition, a bad interface causes users to make fatal errors. The design must be user-centered, meaning that the user is very involved in the design process. Therefore, there is an evaluation process carried out by the user on the design results (Suteja & Harjoko).

User Experience

User experience is how you feel about every interaction you are dealing with with what is in front of you when you use it (J, 2015; Suteja & Harjoko).

Knowledge Management System

Knowledge management system (KMS) is a technology that enables knowledge management to run effectively and efficiently. KMS can also help the development of the organization into a learning organization (Suteja & Harjoko; Yudha, 2015).

PHP

PHP is a script for server-side web script programming, a script that creates HTML documents on the fly, meaning HTML documents generated from an application are not HTML documents created using a text editor or HTML editor. PHP is officially short for PHP Hypertext Preprocessor, is a server-side scripting language embedded in HTML. The basic things PHP can do include getting data from forms, generating dynamic web page content, and accepting cookies, but the most reliable and significant feature of PHP is support for multiple databases. PHP also supports communication with other services using IMAP, SNMP, NNTP, POP3, HTTP, and countless other protocols (Mustaqbal, Firdaus, & Rahmadi, 2015; Sovia & Febio, 2017).

Laravel Framework

Laravel is an open-source PHP web framework created by Taylor Otwell, which is intended for web application development following the model-view-controller (MVC) architectural pattern. Some of the features of laravel is a modular packaging system with a custom dependency manager. The laravel framework is easy to understand and powerful, the framework itself provides authentication, routing, session manager, caching, IoC containers, database migration and integrated unit testing support, all these tools give developers the ability to build complex applications (Chen, Ji, Fan, & Zhan).

PHP MyAdmin

PhpMyAdmin is a MySQL client in the form of a web application and is generally available on PHP servers such as XAMPP and other commercial servers (Lisnawanty, Khaldun, & Irmayani, 2018).

XAMPP Control Panel

XAMPP stands for Cross Platform (X), Apache (A), MySQL (M), PHP (P) and Perl (P). XAMPP is a simple, easy tool for developers to create local web servers for testing purposes. To set up a Web server - application server (Apache), database (MySQL) and scripting language (PHP). Apache is a web server application used to process information and deliver web content to computers. MySQL is a database for storing data (Yuvaraj & Sangeetha).

Data Flow Diagram

Data Flow Diagram (DFD) is a graphical technique that describes the flow of information and transformations that are applied when data moves from input to output (Roger & Pressman, 2012). There are several symbols used in DFD to represent:

1. External Entity, an external entity is an entity that is outside the system that is directly related to the system (Yuvaraj & Sangeetha). There are two types of external entities, namely, sources outside the source and external entities. In addition, outside entities can be people, groups of people, organizations, companies that are outside the system and use nouns. Here's a symbol of

an external entity. See figure 1 below.
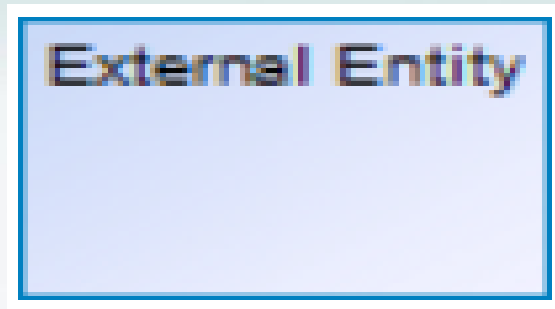
Figure 1: External Entity

2. Process, the process describes the transformation or change of input into output. This naming is adjusted to the process that occurs. Processes must have inputs and outputs, can be connected to external entities, data stores or through data flow processes. According to Gane & Sarson the process symbol is as follows (Yuvaraj & Sangeetha). See figure 2 below.
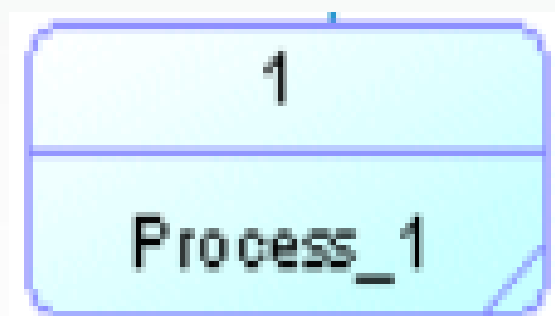
Figure 2: Process

3. Data flow, data flow is used to provide information about data transfer from one part to another. The data flow can be in the form of messages, words or information. The data flow must not have the same name between other data flows and the name must be in accordance with its contents. The following is a symbol of the data flow, see Figure 3 below.
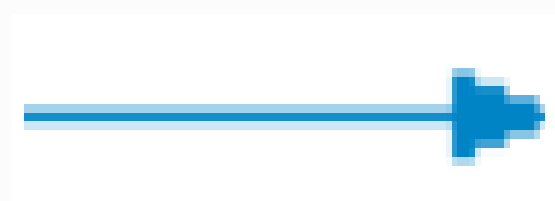
Figure 3: Data Flow

4. Data Store, the data store serves to create a model from a set of data packets named with plural nouns. Data stores can be in the form of databases/files stored on the hard disk or manually such as books, files and others. According to Gane & Sarson, the data store symbol is as follows (Yuvaraj & Sangeetha). See figure 4 below.

Figure 4: Data Store

System Analysis

System Functionality

Table 1 describes the functionality of the system made in the design of the knowledge management system in accordance with the existing features.

Table 1
System Functionality

No.	Description of Needs	Information
1	*Login*	This function aims to enter the application in order to use the pliers functions available in this application.
2	Logout	This function aims to exit the application so that the user cannot access the application.
Admin and User Level		
1	Page of Meeting Report	This function aims to display a list of Meeting Reports, Add Meeting Reports, View, Download, Delete Meeting Reports, and Edit Meeting Reports.
2	Page of *Training Report*	This function aims to display a list of Training Reports, Add Training Reports, View, Download, Delete Training Reports, and Edit the Training Reports.
Admin Level		
1	*Register*	This function aims to register a user account (employee).
2	Page of *Meeting Report*	Additional functions that only admins can do are the Recycle Bin, Restore Meeting Report, and Detail Activity Document features.
3	Page of *Training Report*	Additional functions that can only be done by admins are the Recycle Bin feature, Restore Training Report, and Activity Document Details.
4	Page of *Employees Data*	This function aims to display a list of Users, Delete Users, access the Recycle Bin (User) page, Restore User, and access the User Activity page.

Needs Analysis

The following table will explain the requirements of the system for the required hardware and software, in table 2.

Tabel 2
Analisis Kebutuhan Sistem

| No.	System Requirements	Information
1.	Operating System at least Windows XP SP2 32 bit	Operating System Software
2.	Sybase ASA 9.	Database Software
3.	Processor minimal Dual Core	Computer Hardware
4.	RAM minimal 512 MB	Computer Hardware
5.	VGA minimal 128 MB	Computer Hardware
6.	Minimum screen size 1280 x 768px	Computer Hardware

User Analysis

The following is a table that will explain the users of this system with the level of officer users. It can be seen in table 3.

Table 3
User Analysis

No.	User Category	Task	Access Rights
1	Admin	• *Login* • Registering users on the Register page • Displays Meeting Report data on the Meeting Report page (Add, Recycle Bin, View, Edit, and Details) • Displays Training Report data on the Training Report page (Add, Recycle Bin, View, and Details). • Displaying user data on the Employees Data page (Recycle Bin and Details)	- FormLogin - FormRegisterUser - FormAddMeetingReport - FormEditMeetingReport - FormViewMeetingReport - FormDetailMeetingReport - FormRecycleBinMeetingReport - FormAddTrainingReport - FormEditTrainingReport - FormViewTrainingReport - FormDetailTrainingReport - FormRecycleBinTrainingReport - FormEmployeesData - FormRecycleBinUser - FormDetailUser
2	User	• *Login* • Display Meeting Report data on the Meeting Report page (Add, View, and Edit) • Displays Training Report data on the Training Report page (Add, Edit, and View)	- FormLogin - FormAddMeetingReport - FormEditMeetingReport - FormViewMeetingReport - FormAddTrainingReport - FormEditTrainingReport - FormViewTrainingReport

DCD (*Data Context Diagram*)

Figure 5 illustrates that there are two external entities involved in the process (knowledge management system), namely the user and the admin. Data storage data_user and data_documents are data flow from user entity to system (process) and information_data_user and information_data_documents are data flow from system (process) to user entity. Meanwhile, data_admin, data_documents, and data_user are data flows from the admin entity to the system (process) and information_data_user, information_data_documents, and information_data_admin are data flows from the system (process) to the admin entity. The following is a context diagram or DFD Level 0:
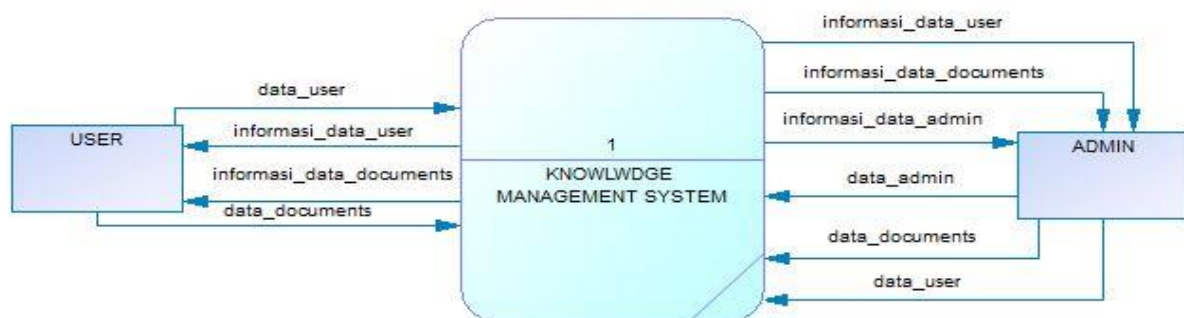
Figure 5: Context Diagram

DFD (*Data Flow Diagram*)

In Figure 6 shows DFD level 1 there are two external entities, namely admin and user. In this knowledge management system, it is further elaborated that it has four processes, namely login, register, document menu access, and employees data menu access. data_user is the data flow in the login process from the user entity, and information_data_user is the data flow in the login

3455

process to the user entity. data_admin is data flow in login process from admin entity, and information_data_admin is data flow in login process to admin entity. data_user_baru is the data flow in the register process from the admin entity, and information_data_user_baru is the data flow in the register process to the admin entity. data_user is the data flow in the process of accessing the employees data menu from the admin entity, and information_data_user is the data flow in the process of accessing the employees data menu to the admin entity. The data store involved in the login, register, and access to the employees data menu is the users table. While data_documents is the data flow in the process of accessing the documents menu from the user and admin entities, and information_data_documents is the data flow from the documents menu access process to the user and admin entities, in this process the data store involved is the files table.
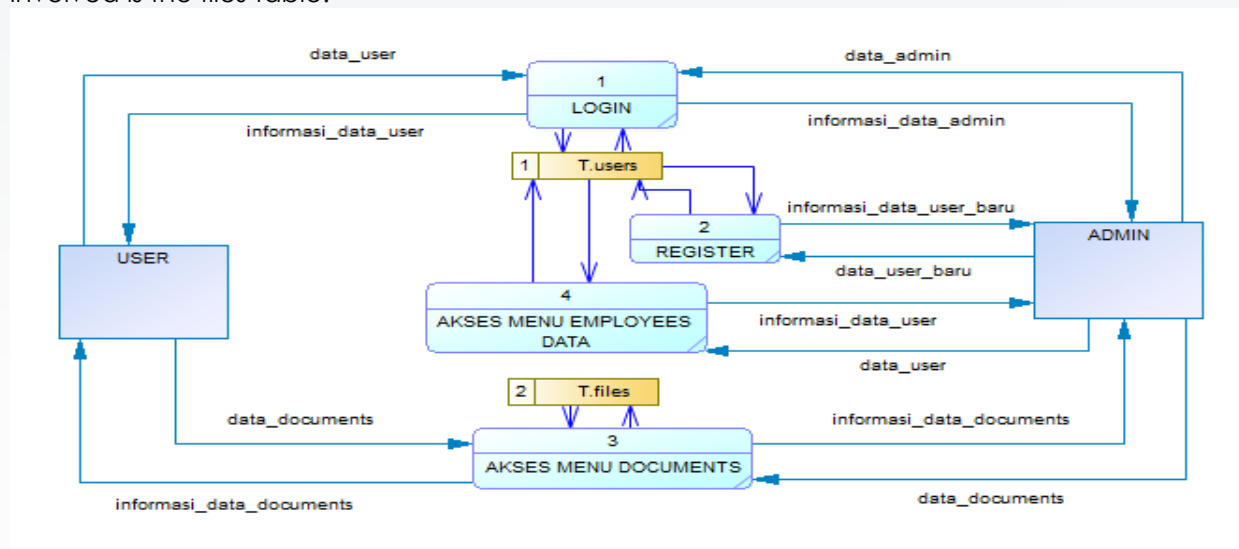
Figure 6: DFD level 1

Application Planning

Design in building a website-based application is part of the process of an application. The design is carried out after the analysis stage has been passed. The design describes in detail the application made. The design stage is carried out before the implementation and trial stages.

Interface Design

Interface design will explain the design of the display for an application to be built. The following is the interface design of a web-based knowledge management system application.

1. Login page, this page will appear when the officer opens the application for the first time. The system will ask the officer to enter the username and password. In Figure 7 is the design of the login interface in the application.
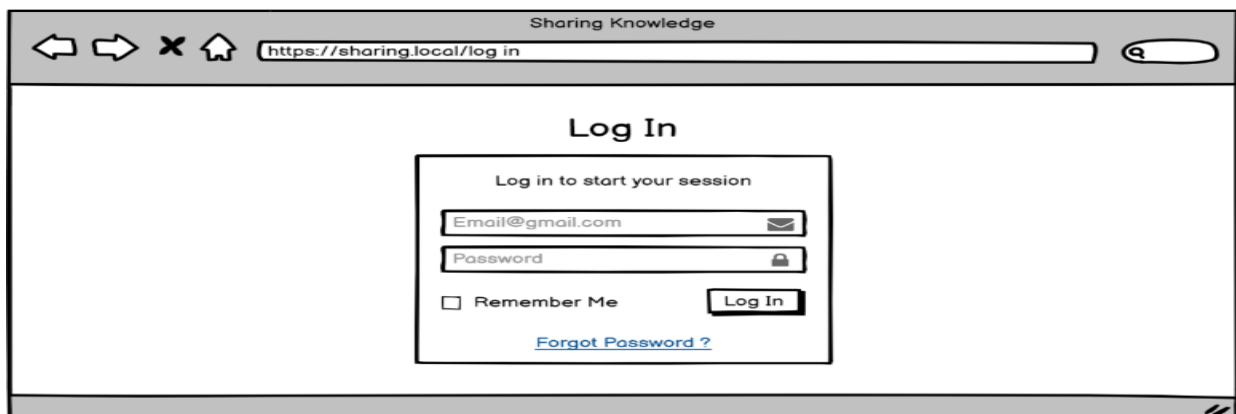

Figure 7: Login Interface

2. The admin home page, in Figure 8 displays the user profile and on the left there is a navigation bar where the admin can access several menus. The design of the home page interface for the admin in the knowledge management system.
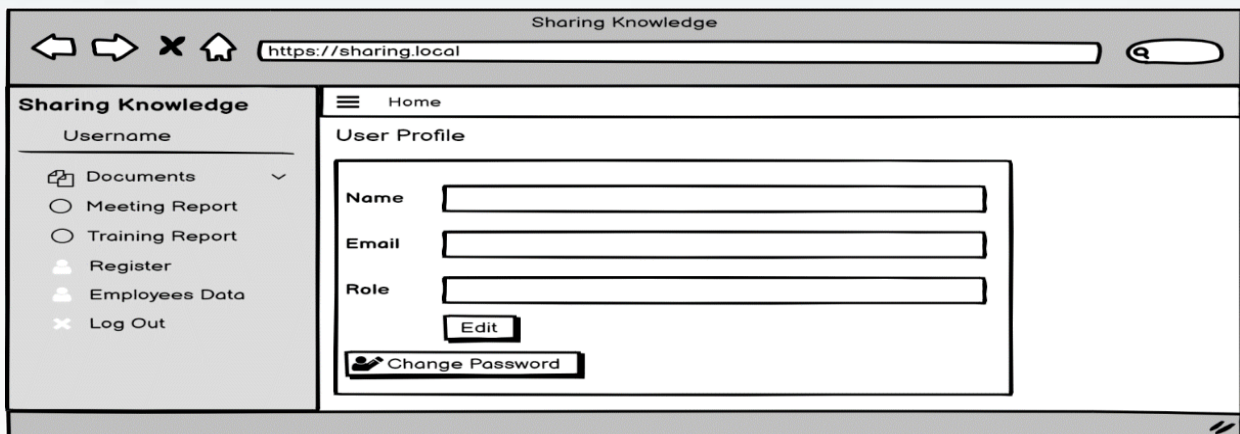

Figure 8: Admin Home Page

3. The user's home page, Figure 9 is the user profile page interface. And on the left there is a navigation bar where the user can access several menus on the user in the knowledge management system.
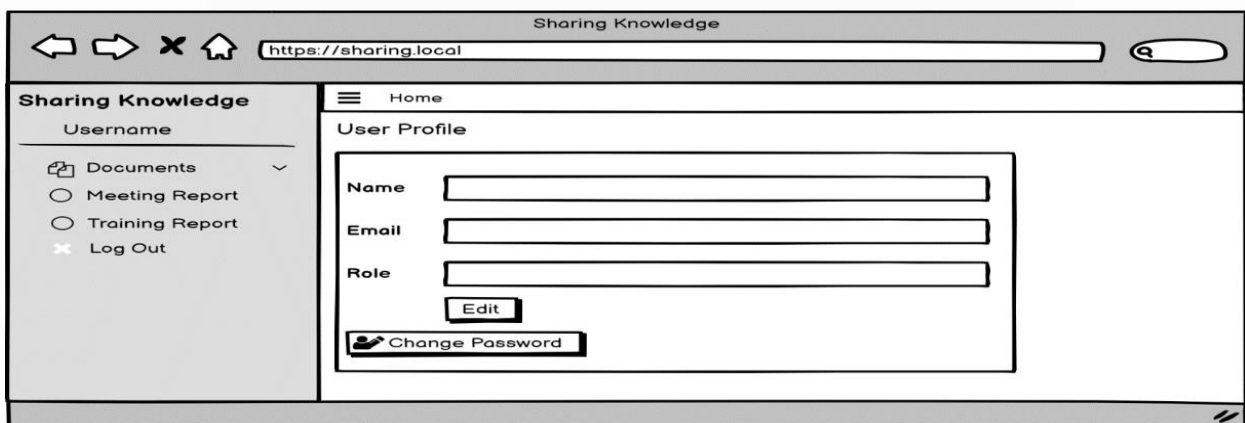

Figure 9: User Home Page

4. The meeting report page for the admin, on this page displays a list of previously uploaded meeting reports, this page is only for admins. Admin can access the recycle bin page, and in the action only admin can access the document activity page (detail document). Figure 10 is the design of the interface for the meeting report page for the admin in the knowledge management system.
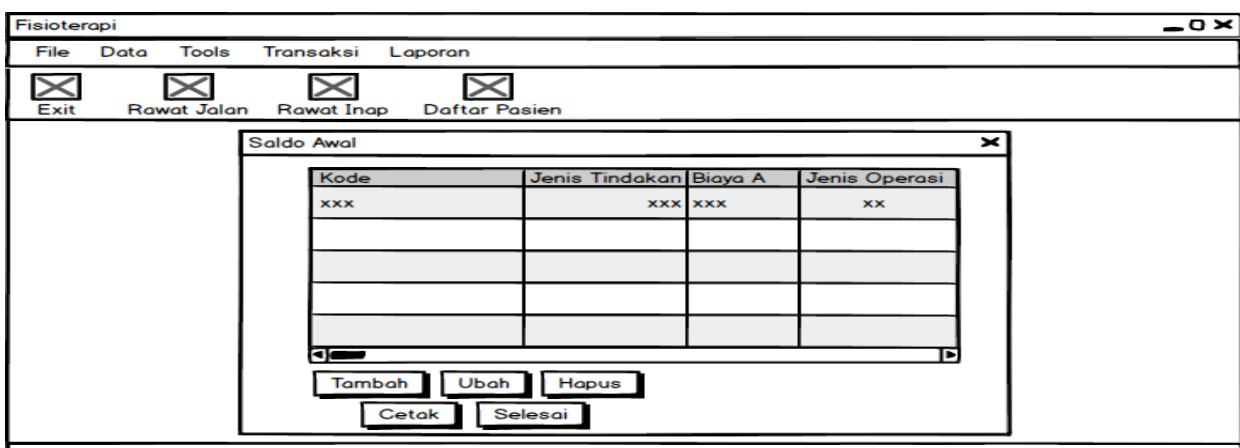

Figure 10: Meeting Report page on Admin

3457

5. The meeting report page on the user displays a list of meeting reports that have been uploaded before, the user cannot access the register menu and employees data. Figure 11 is the interface design of the meeting report page for the user in the knowledge management system.
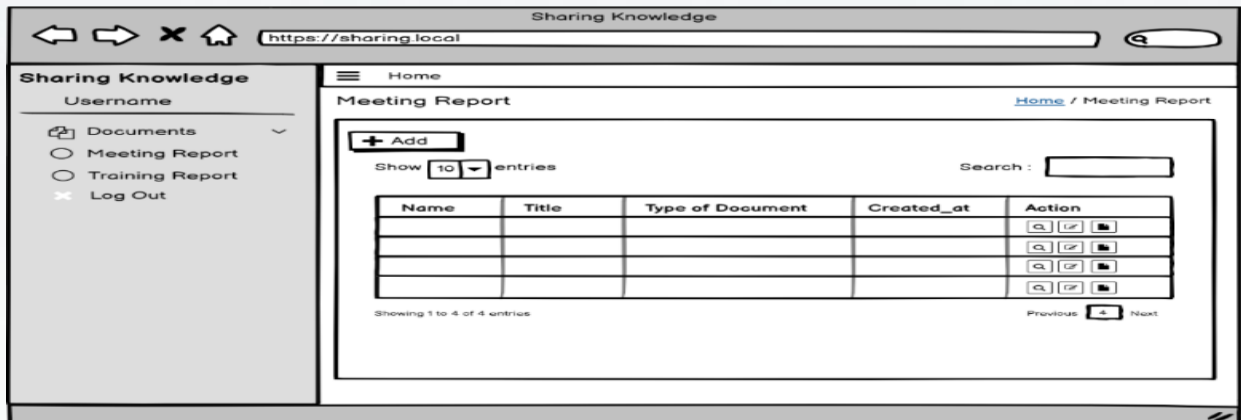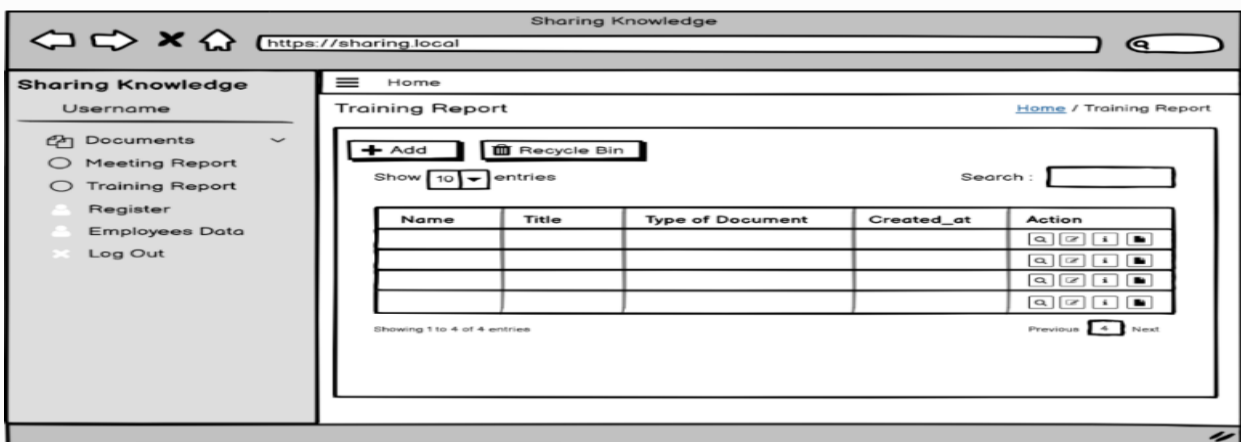

Figure 11: Meeting Report page on User

6. The training report page on the admin displays a list of previously uploaded training reports. Admin can access the recycle bin page, in the action only admin can access the document activity page (detail document). Figure 12 is the design of the training report page interface for the admin in the knowledge management system.

Figure 12: Training Report page on Admin

7. The user training report page displays a list of previously uploaded training reports. Users cannot access the register menu and employees data. Figure 13 is the training report page interface to the user in the knowledge management system.
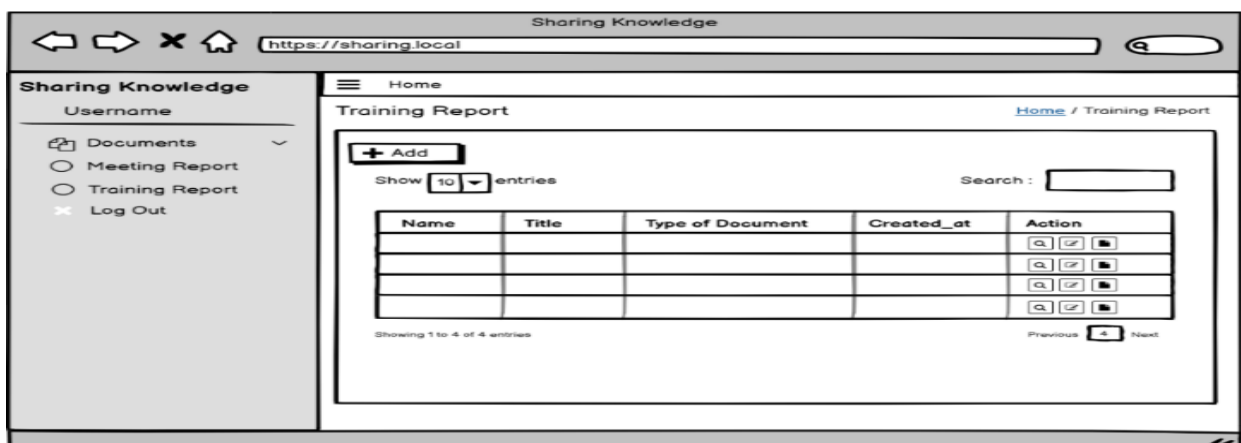

Figure 13: Training Report page on User

8. Upload document meeting page, to upload meeting documents. Figure 14 is the interface for the upload document meeting page in the knowledge management system.
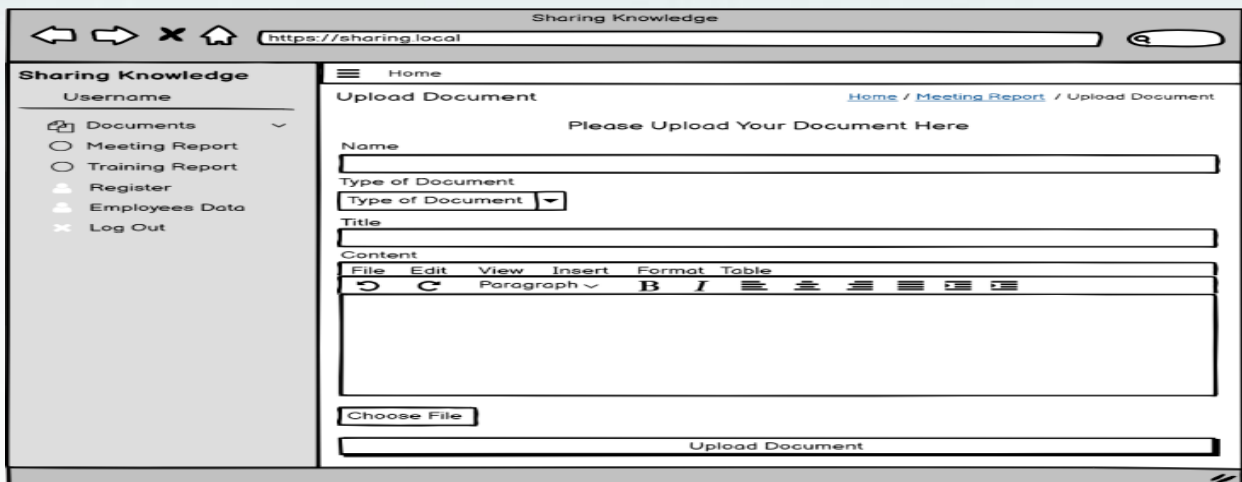

Figure 14: Upload Document Meeting page

9. Upload training document page, to upload training documents. Figure 15 is an interface display for the upload document training page in the knowledge management system.
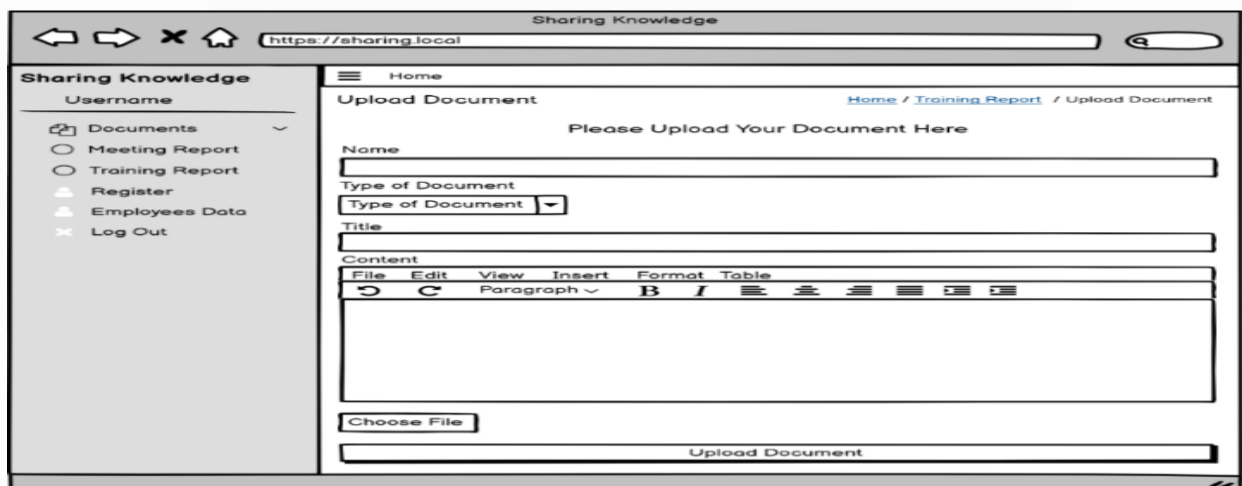

Figure 15: Document Training Upload Page

10. The view meeting report page on the admin, displays the attribute details of a meeting report to the admin. Figure 16 is the interface for the view meeting report page for the admin in the knowledge management system.
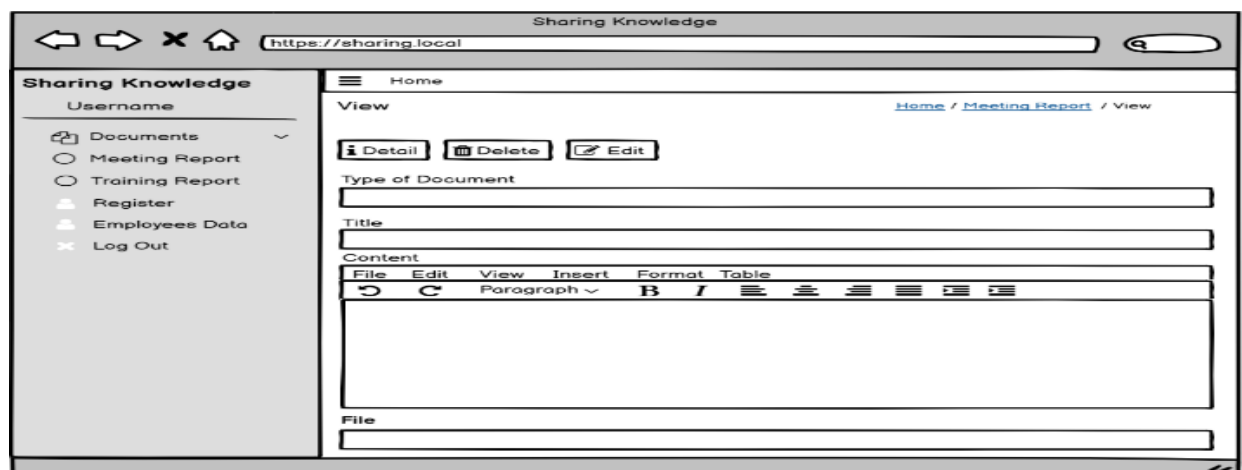

Figure 16: View Meeting Report page on Admin

11. The view meeting report page to the user, displays the attribute details of a meeting report to the user. Figure 17 is the user interface for the view meeting report page for the user in the knowledge management system.
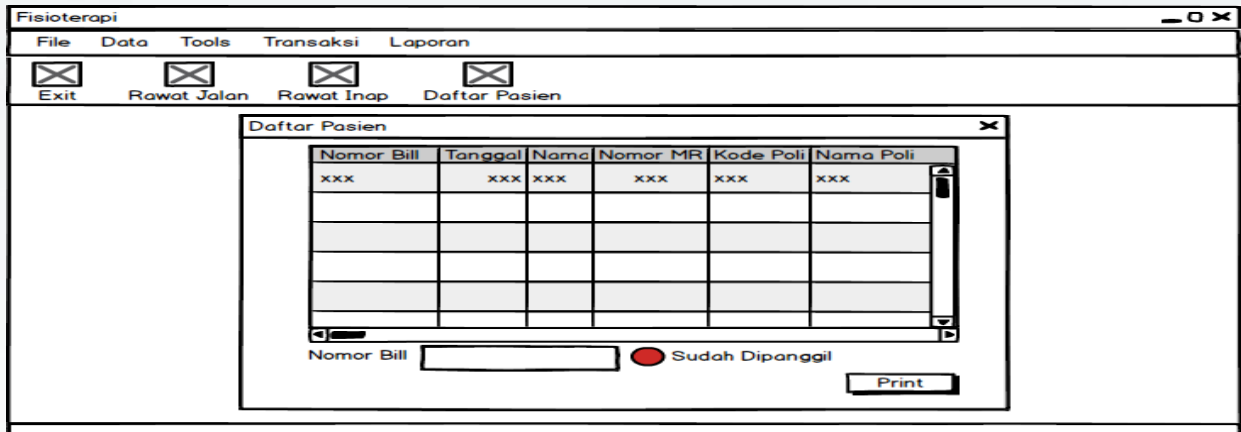

Figure 17: View Meeting Report page on User

12. View training report page on admin, showing detail attribute of a training report to admin. Figure 18 is the interface design of the training report view page for the admin in the knowledge management system.
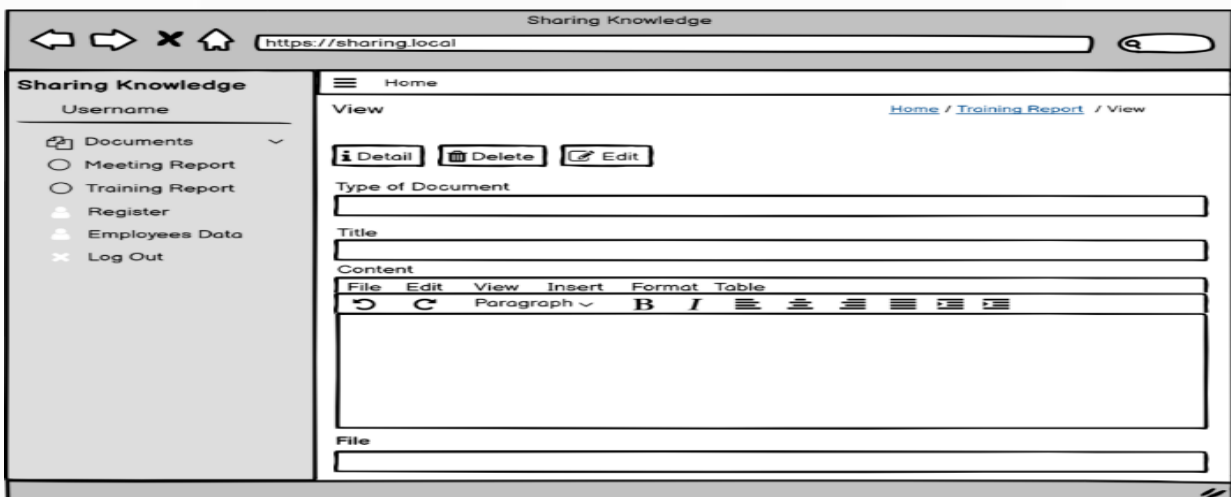

Figure 18: View Training Report page on Admin

13. The view training report page for the user, displays the detailed attributes of a training report to the user. Figure 19 is the interface of the training report view page to the user in the knowledge management system.
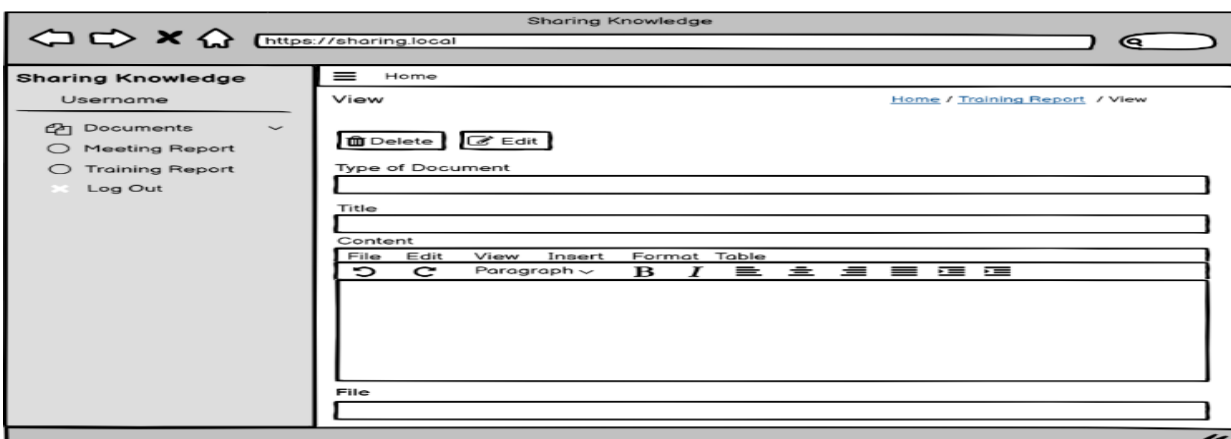

Figure 19: View Training Report page on User

14. Edit meeting report page, to edit a meeting report. Figure 20 is the interface for the edit meeting report page in the knowledge management system.
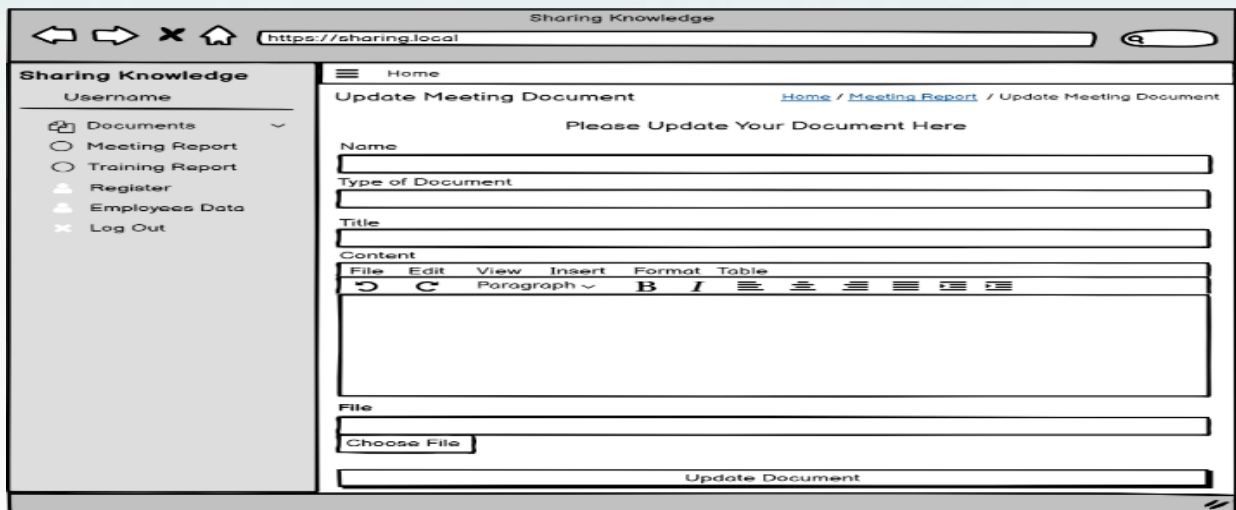

Figure 20: Edit Meeting Report page

15. Edit training report page, to edit a training report. Figure 21 is the interface display for the edit training report page in the knowledge management system.
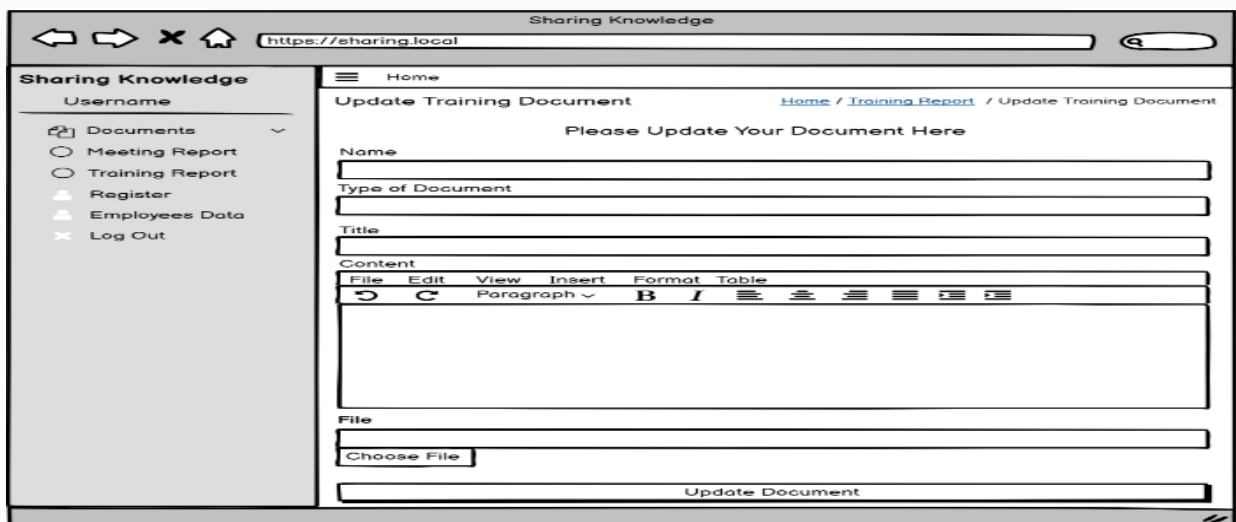

Figure 21: Edit Training Report page

Conclusion

Based on the results of the design on the application user interface and user experience on a web-based knowledge management system, conclusions can be drawn. The conclusions that can be expressed on the design of website-based software applications are as follows:

1. This application provides the features needed by the user that are adjusted to the user analysis at the analysis stage, with the main component of the interface design. The use of key components can provide a good user experience of the system or application.

2. Applications are built with the ability to manage user data, meetings, and training by displaying user data, meetings, and training, adding user data, meetings, and training, changing user data, meetings, and training, deleting user data, meetings, and training, as well as the recycle bin feature for user data, meetings, training with the ability to restore data.

3. The application is built with the ability so that the system can automatically detect differences in users based on the level given by the admin, so that the access rights of each user in accessing the application are different.

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