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Digital Transformation in Religious Organizations: The Application of Data Management for Church in Magelang

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Abstract
The Plengkung Javanese Christian Church Synod (GKJP) is one of the Protestant church groups located in several areas on the island of Java. The condition of data recording in GKJP is still done by recording using book media. This causes data inconsistency or redundancy. GKJP also requires data management that can be used to obtain classes for congregation groups according to several needs. This Community Service aims to build the GKJP Magelang City Congregation Information System, where this system will focus on recording congregation data so that it is hoped that the problems of inconsistency and redundancy can be resolved and can utilize the congregation data to obtain certain criteria groups using the classification analysis menu.

Keywords: *Data Management, Information Systems, Classification*

INTRODUCTION

Digital transformation is one of the main needs for various organizations, including religious organizations. The Plengkung Java Christian Church in Magelang as one of the religious institutions in Indonesia, faces challenges in managing congregation data. The Synod of the Javanese Christian Church (GKJ) is one of the Protestant church groups found in several areas on the island of Java. Until now, GKJ has 342 churches that gather in 32 classes and spread across 6 provinces on the island of Java, namely Central Java, Di Yogyakarta, East Java, West Java, DKI Jakarta and Banten. The Plengkung Java Christian Church (GKJP) is one of the branches of GKJ located in the Magelang area, precisely on Jalan Kapten Piere Tendean No.4 Magelang. Accurate and structured data is essential to support more effective church programs and ministry activities. However, manual data management often results in inaccurate information, difficulties in data access, and limitations in needs analysis. (Qadir Abdul, 2003b) (Kadir Abdul, 2003a)

There are several administrative activities in GKJP, including the management of congregational data. The collection of congregational data for now is carried out by recording in a ledger. This conventional model data collection makes it somewhat difficult for GKJP to obtain accurate information related to congregations. The difficulty of information and access to congregational data makes congregational data unusable for the classification analysis process. Classification analysis on congregation data can be used to get classes from congregation data, such as age class, regional class, and so on. The class of the congregation will provide an overview to the church administration regarding the number of congregations in the class or detailed information of the congregation in a particular class.

This condition can be overcome by creating a web-based information system using a database. It is hoped that the existence of this database can overcome data redundancy and with the existence of an information system, the process of collecting congregational data at GKJP can also be used for the classification analysis process. GKJP congregation data information can be used by the administration to get target participants for activities held by the church. For example, there will be an elderly health check-up activity which is held every 3 months, with age class information on the application, then a list of congregations that are the target for this activity will be obtained.

Several studies related to management data in the church are used as a reference for this service. The research (Ananta Jean Sontri & Somya Ramos, 2023; Asih Yuni Retno et al., 2022; Christi Lili & Fachrie Muhammad, 2023; Kurniawan Yohannes, 2014; Olipas Cris Norman P. et al., 2021; Paramita Adi Suryaputra & Ramadhan Arief, 2022; Ancient Armando Ondihorn Kristoper et al., 2019; Royani Ivana Lara et al., 2022; Rupeles Frits Gerit John, 2018; Safitri Ramona Dyah et al., 2021; Sihombing Vertex Desy Christina & Wahab Sharia Rukmana , 2021; Wagiu Charlene Alicia & Palopak Julian , 2017; Wata & Charitas Fibrians , 2022) discusses the development of information systems for churches. The focus of the research is to use Performance, Information, Economy, Control, Efficiency and Service (PIECES) analysis as the basis for designing the system. Meanwhile, the research focuses on the concept of Customer Relationship Management (CRM) in designing the system. The focus of the research is the technology used to design the church's information system. The research conducted an assessment of the church information system, the assessment was carried out as a basis for the development of application system design. The application system in the study contains an information system for church financial problems, while the information system in the study has information content related to worship schedules and congregation information that can be used to access details. (Asih Yuni Retno et al., 2022; Purba Armando Ondihon Kristoper et al., 2019) (Wata & Charitas Fibrians , 2022) (Ananta Jean Sontri & Somya Ramos, 2023; Olipas Cris Norman P. et al., 2021; Paramita Adi Suryaputra & Ramadhan Arief, 2022; Purba Armando Ondihon Kristoper et al., 2019; Royani Ivana Lara et al., 2022; Rupeles Frits Gerit John, 2018; Safitri Ramona Dyah et al., 2021; Sihombing Vertex Desy Christina & Wahab Sharia Rukmana , 2021) (Olipas Cris Norman P. et al., 2021) (Sidabutar & Simanjuntak, n.d.; Wagiu Charlene Alicia & Palopak Julian , 2017) (Ananta Jean Sontri & Somya Ramos, 2023; Christi Lili & Fachrie Muhammad, 2023; Paramita Adi Suryaputra & Ramadhan Arief, 2022; Rupeles Frits Gerit John, 2018; Sihombing Erpina Desy Christina & Wahab Syari Rukmana, 2021)

This Community Service aims to build the GKJ Plengkung Community Information System in Magelang City. The novelty of the discussion in this journal with previous research lies in the technologists used and the content presented. The system was developed using the CodeIgniter framework version 4.1.5 and is web-based. CodeIgniter was chosen because it has a fairly complete library and CodeIgniter also has a small footprint which will make the application have a smaller size and make the application lighter. Currently the application is still not hosted to any web and only runs on a local server using the XAMPP application. The information system built focuses on collecting detailed congregational data to be used as a classification analysis process.

METHODS

There are several stages in the process of service to GKJP. Where the focus is to help analyze the problems faced and find solutions as solutions to these problems.

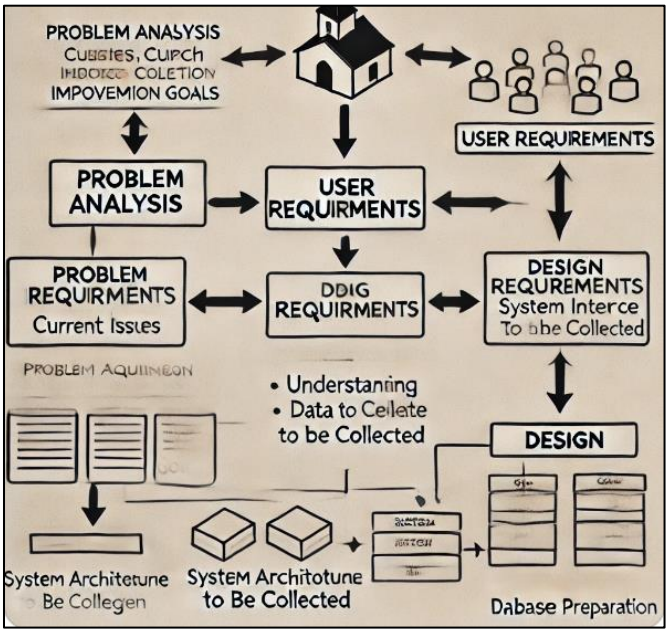

Figure 1. Stages of Service

a. Problem Analysis

In the early stages, interviews were conducted with the administration, IT department administrators and the assembly regarding the problems faced by GKJP. It was found that there was often data redundancy and data inconsistency in the congregation's data collection process. This happened because GKJP had not used an information system related to data recording. Another problem found is that the administration has difficulty obtaining data on congregation groups for certain activity programs. In Figure 2, you can see the documentation during the discussion process with GKJP to find out about problems in data management.

Figure 2. Problem Analysis Process Documentation

b. User Requirement

Furthermore, by conducting interviews with GKJP, it was obtained what things must be done related to the information system for GKJP, where this information system contains congregation data information and web bases. The GKJP needs a congregation data collection information system that can be used to obtain information on certain congregation groups. The grouping of congregations is based on region, gender, age, marital status, family status, baptism, education and occupation. In Figure 3, it can be seen during the process of collecting what is needed from the GKJP related to the information system that will be designed by the service team.

Figure 3. User Requirement Process Documentation

c. Application Design

The application design design uses use cases to provide an overview of the congregational information system to be created. A use case diagram is a chart that illustrates the requirements of the system from the user's perspective, and is a mode of behavior of the system. It is used to describe the relationship between internal systems and external systems, or the relationship between systems and actors.

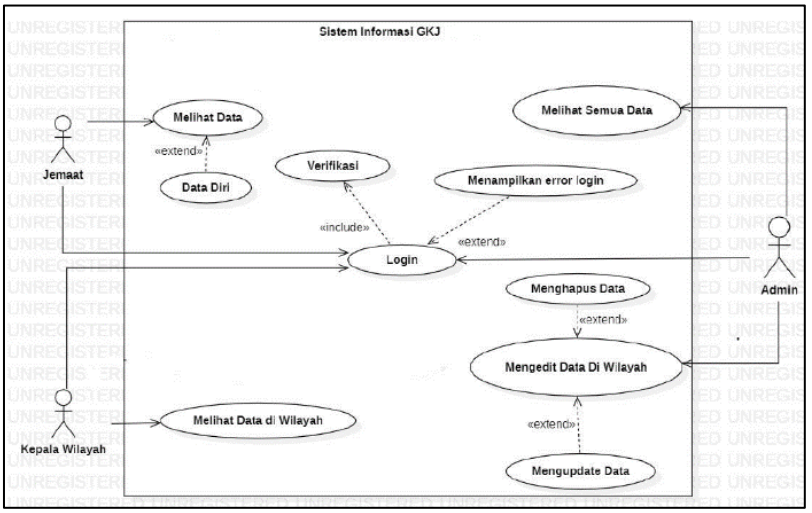

Figure 4. GKJP Information System Case Diagram

In Figure 4, which is the use case of the GKJP Community Information System, where the information system will have 3 actors, namely admins, regional heads, and congregations that have their own characteristics and functions. The congregation can see information related to him, this can be used to verify whether the information related to him is correct or not, if there is a discrepancy, the congregation can report to the admin to adjust the correct information. Regional heads can see the data of congregations in their area, classification at the group level can be used to see age class, gender class, marital status, family status, baptism, education and employment. Classification analysis can be used to obtain group data for church activities so that the target participants are more suitable. Admins can input, edit and delete congregation and regional head data.

Database design is a grouping of data tables that contain related information. A database can consist of one or more tables. The database design for the GKJP Jemaan Information System, the database consists of 2 tables, namely the user and region tables. The user table contains data related to congregation information, while the region table contains regional information in GKJP. The database design can be seen in Figure 5.

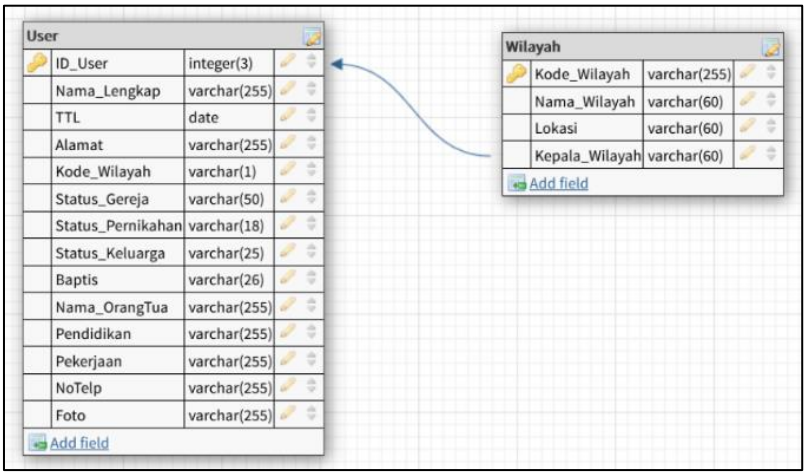

Figure 5. GKJP Information System Database Table

RESULTS AND DISCUSSION

The GKJP Information System has 3 actors, including admins, regional heads, and congregations. Each actor will have a different appearance according to his or her level of importance.

1. Admin

Admin actors have access to add data, view data, delete data, and edit data in the information system in GKJP. Here are some features or functions that are made to support the activities of admins.

a. Menu for Addition, Editing and Deletion of Church Data

In this one feature, admins can view data from users who have registered into the information system. In Figure 6, it can be seen that the admin can see the list of users that have been registered in the database, to see more detailed data, the admin can press the detail button on the user list table. Figure 7 shows the condition if the detail function is executed, which generates a modal or there is a pop-up menu containing the pressed user details. In Figure 8, you can see the add data feature, admins can add user data to add to the database. This data includes information about your full name, *username, password,* place and date of birth, address, area code, family status, parents' names, and recent education. Figure 9 shows the feature display when the admin performs data management on congregation data to update existing congregation data. Figure 10 shows the feature if the admin wants to delete user data. Once approved, it will delete the user's data. This mailbox serves as a safeguard in case of accidental deletion during the deletion process.

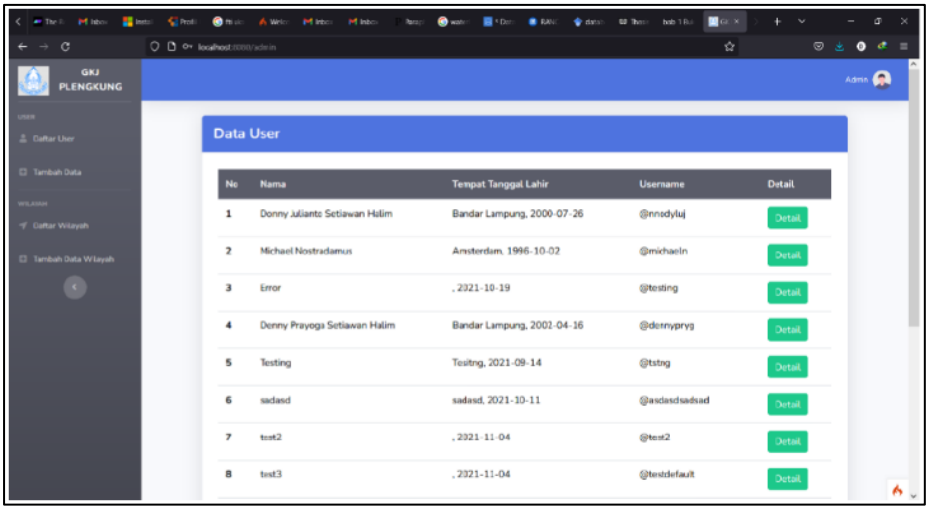

Figure 6. Features of the Church List

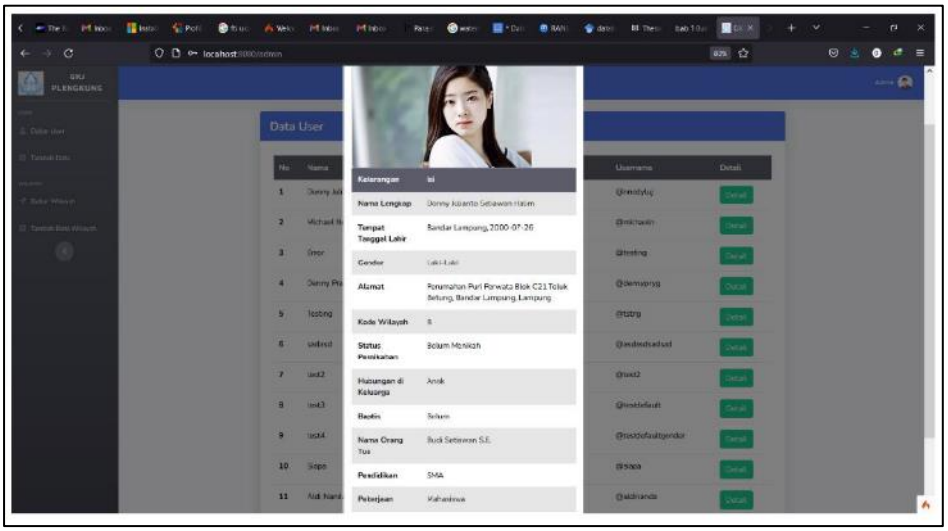

Figure 7. Feature of Detailed Church Information

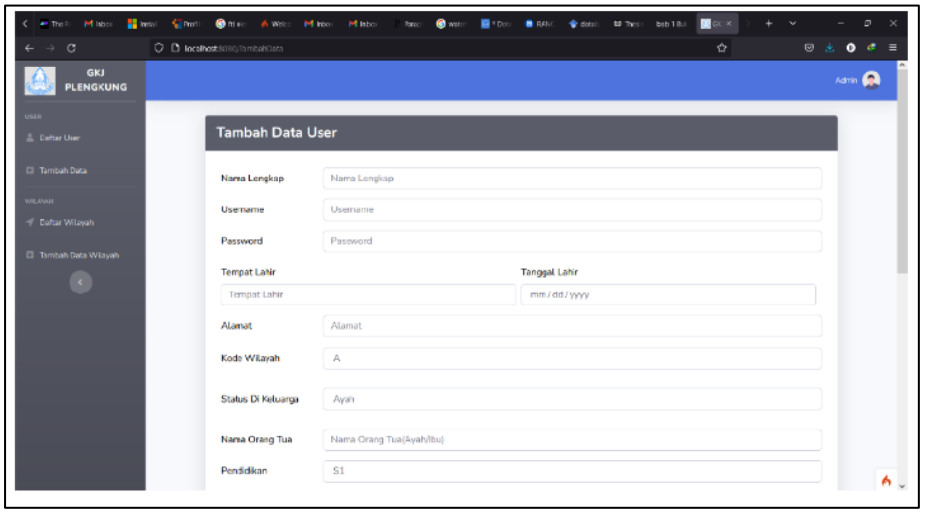

Figure 8. Church Data Addition Feature Church Data Addition Feature

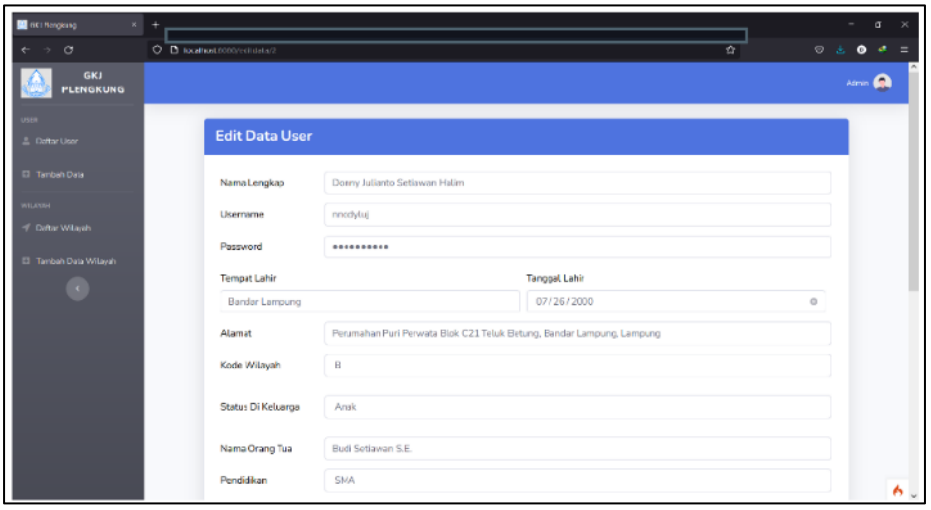

Figure 9. Features of Editing Church Data

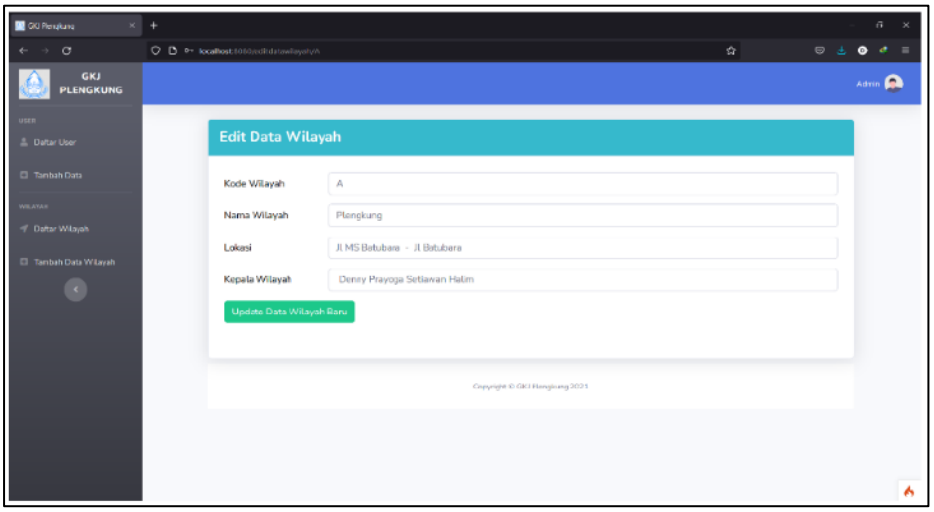

Figure 10. Feature of Delete Church Data

b. Menu for Adding, Editing and Deleting Regional Data

In Figure 11, it can be seen that on the territory list function, the admin can view the territory and update or delete the territory data. The list of regions is an area intended for group division among members of the congregation. The division of this group is consciously based on the proximity of each congregation's territory. In Figure 12, the admin can add a region by filling in the data on the form provided. The addition of this new territory is if there is a new territory outside the old territory that has been saved, or the expansion of the new territory with a new name. Figure 13 shows a confirmation message box before deleting the region data. This box message will appear as a confirmation message if the admin wants to delete the region data. Once approved, it will delete the user's data. This mailbox serves as a safeguard in case of accidental deletion during the deletion process.

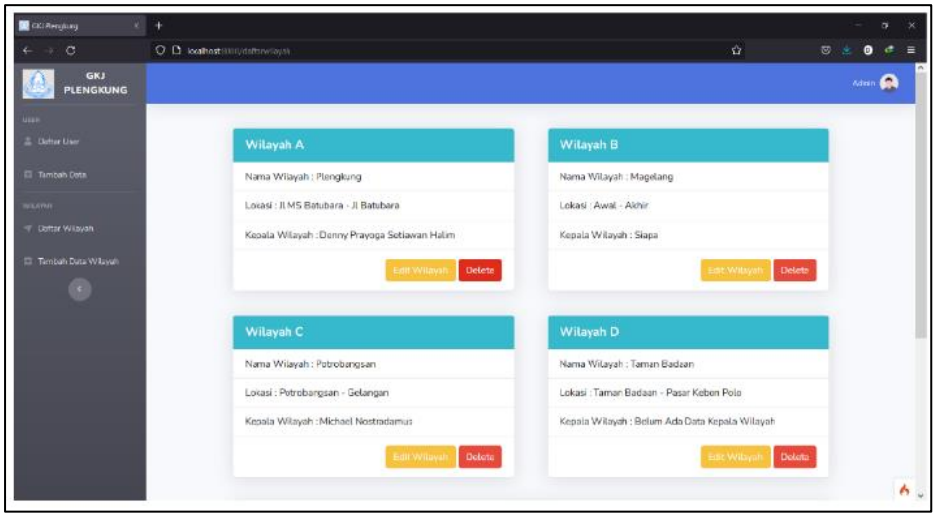

Figure 11. Region List Information Feature

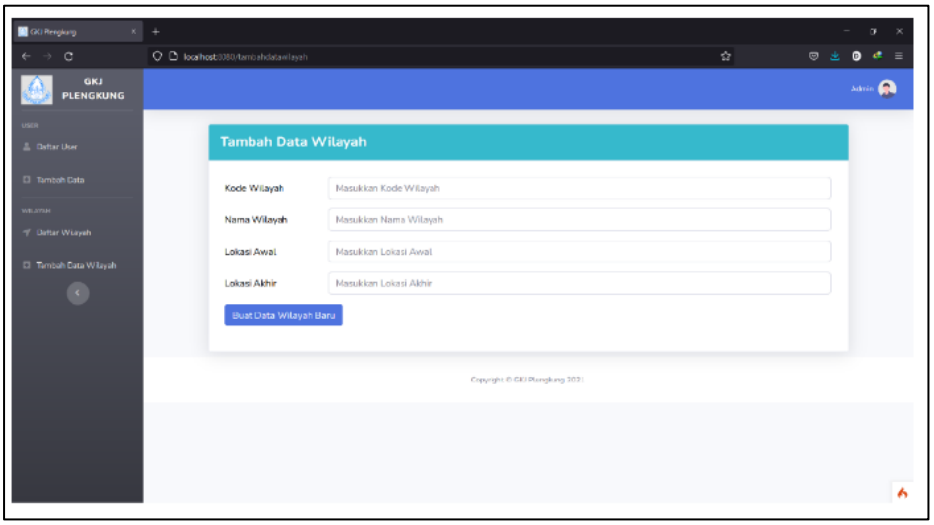

Figure 12. Regional Data Addition Feature

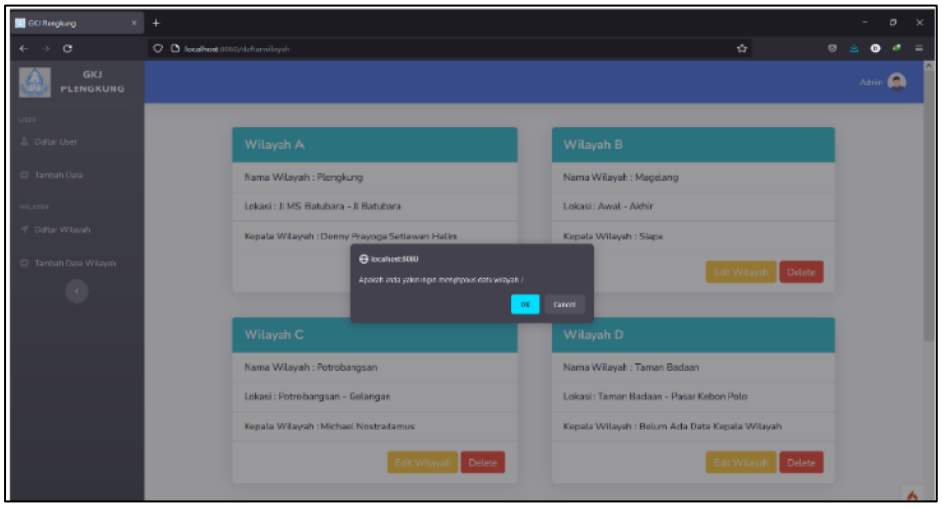

Figure 13. Remove Region Feature

2. Regional Head

As for regional heads, they can see their own regional data and also their own data. The feature in the information system that can be accessed by the regional head is to view the user's own data and also the regional data as seen in Figure 14 and Figure 15 where for Figure 14 shows the homepage of the regional head which contains information related to him or her as a regional head. Figure 15 shows the data access feature of the region and has access to the analysis process of grouping congregations within the region. The classification menu can be seen in Figure 16, the grouping of congregation data can be seen by region, gender, age, marital status, family status, baptism, education and occupation. In this menu, regional heads can get congregation data information per the requested criteria.

Figure 14. Regional Head Home Page

Figure 15. Region Head Region Page

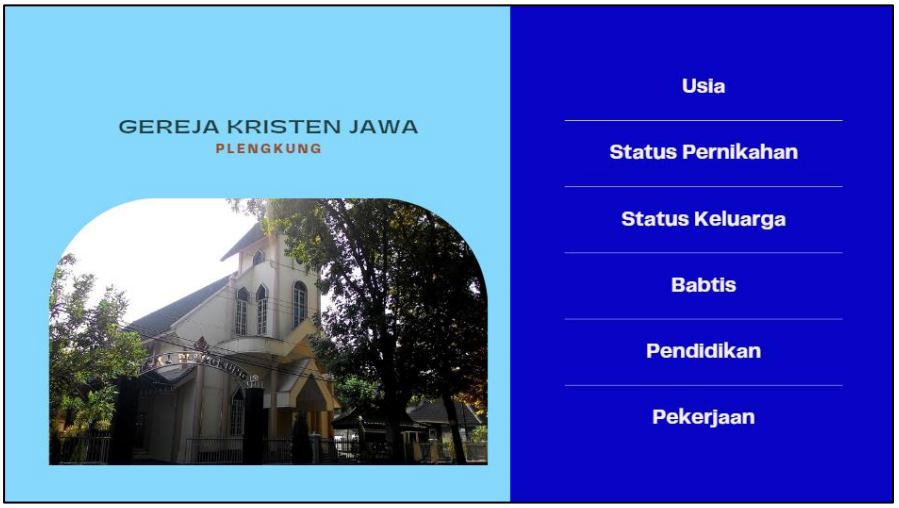

Figure 16. Classification Analysis Home Feature for Region Heads

Figure 17 can be seen the feature display for the selection of the required age group. There are 3 groupings, namely <18, 18-50 and >50. The first group is minors, usually grouping targets for catechization guidance or activities that support spiritual development from an early age. The second group is the ecclesiastical age of adulthood, usually used to obtain information on active congregations and can be used to find out the number of participants for activities targeting active congregations, while the third group is the age of the elderly, usually the church holds examinations for this age group and serves private worship services to the home.

Figure 17. Age Group Analysis Home Feature

In Figure 18, you can see the feature display for the selection of the required marital status group. There are 3 groupings, namely Single, Married, and Widower/Widow. The first group is a group that has never been married, usually grouping targets for counseling guidance related to dating or activities related to relationships. The second group is the group that is in a marriage bond, usually used to get a target group for marriage problem counseling. While the third group is a group that lives as a widow or widow, the activities that target this group are counseling related to living alone in spirituality.

Figure 18. Home Features of Marriage Status Group Analysis

In Figure 19, you can see the feature display for selecting the required marital status group. There are 2 groupings, namely Babtis and Belum Babtid. The first group is the group that has been baptized, this group is a group of congregations who have been able to get rights and obligations in the church and its organization, including being able to participate in the supper of love. While the second group is the congregation that has not been able to participate in the supper of love and is the target in the catechization of spiritual development.

Figure 19. Babtis Group Analysis Home Features

In Figure 20, you can see the feature display for the selection of education groups. This grouping is used to see the condition of congregational education. This grouping is a target for training activities and getting training mentors, because the concept of GKJP is from and for the congregation, so that the equal distribution of expertise can be owned by all congregations.

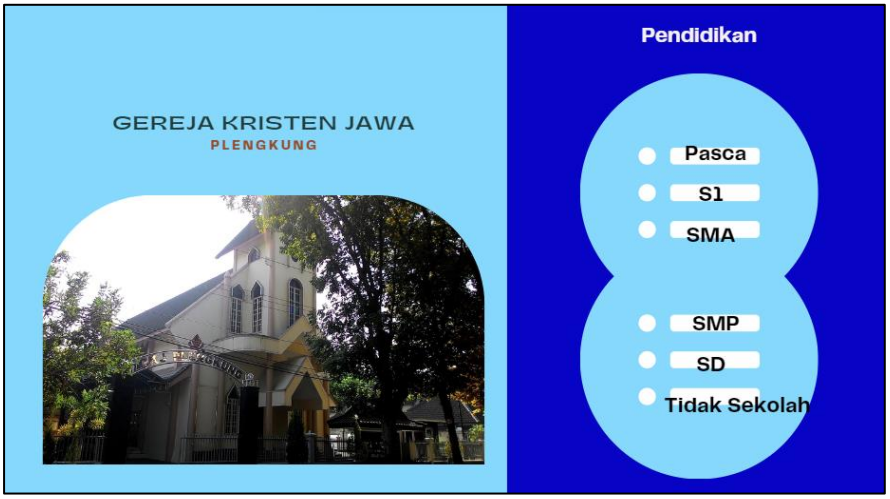

Figure 20. Education Analytics Home Features

In Figure 21, you can see the feature display for the selection of the Job group. This grouping is used to see the working conditions of the congregation. This grouping is a target for training for those who have not yet found a job and sometimes get job information in a certain field to share knowledge.

Figure 21. Job Analysis Home Feature

CONCLUSION

The GKJP information system is a web-based application that has 3 actors or users, namely admins, regional heads, and congregations. Admins are the actors who have the most access to information systems such as being able to view, create, change, and delete user and region data. Regional heads and congregations can only see their own data, with additional regional heads also able to see their regional data. The focus of the system is the classification analysis process per category needed by the GKJP. The grouping of congregations is based on region, gender, age, marital status, family status, baptism, education and occupation.

The system is built using the PHP programming language with the CodeIgniter 4.1.5 framework. In addition, the front-end system is built using the Bootstrap 5 framework. The system uses MySql as its database and for now still uses a local server with XAMPP applications. CodeIgniter is used because it has a small size so it is lighter to run whereas Bootstrap 5 was chosen because it is easy to implement and easy to understand.

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