# Design and Development of the Volunterr Corps at Samarinda State Polytechnic

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The Volunteer Corps of Samarinda State Polytechnic (KSR Polnes) faces challenges in managing personnel data, correspondence, inventory, and organizational information because these administrative activities were previously handled using conventional methods, resulting in limited accessibility and inefficient information management. This study aimed to design and develop a web based information system to support administrative management and facilitate the dissemination of organizational information within KSR Polnes. The research employed the Prototype method, with requirements identified through observation, interviews, and questionnaires. The system was developed using Laravel and MySQL, while system functionality was evaluated using Black Box Testing and user perceptions were assessed through a Likert scale questionnaire. The Black Box Testing results showed that all tested system functions operated according to the specified requirements without errors. The questionnaire results indicated positive user assessments, with an Information Quality score of 89.3%, a User Interface score of 88.4%, and a System Functionality score of 91.1%. These findings indicate that the developed website provides accessible organizational information and supports administrative activities within KSR Polnes. Therefore, the proposed system can serve as a digital platform for improving information management and supporting the delivery of organizational information to the Polytechnic community.

**Keywords:** Website, Information System, Volunteer Corps, Prototype Method, Laravel.

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## 1. Introduction

The Volunteer Corps (Korps Sukarela/KSR) is an organization that plays an important role in supporting humanitarian and disaster management activities within higher education institutions. The Volunteer Corps of Samarinda State Polytechnic (KSR Polnes) is a Student Activity Unit (Unit Kegiatan Mahasiswa/UKM) that focuses on humanitarian services and activities related to the Indonesian Red Cross (Palang Merah Indonesia/PMI). Established on September 22, 2015, KSR Polnes aims to prepare students to become volunteers who are capable of participating in social and humanitarian activities both within and outside the campus. Through its organizational activities, KSR Polnes manages various forms of information related to members, organizational structures, correspondence, inventory, activities, and public information.

The increasing complexity of organizational activities requires KSR Polnes to maintain administrative information in a systematic and accessible manner. However, personnel records and administrative documents at KSR Polnes were previously managed using conventional methods. This condition creates difficulties in tracking member information, accessing correspondence, maintaining inventory records, and disseminating organizational information [1]. The absence of an integrated information platform can also increase the possibility of delayed information retrieval and loss of administrative documents. Interviews with KSR Polnes management indicated the need for an official website that could centralize organizational information and support personnel management, correspondence administration, and information dissemination[2].

Several previous studies have demonstrated the potential of web based information systems to address administrative problems in student organizations. [3] developed a web based information system for a Student Activity Unit that integrated member data management and musical instrument inventory. Their system improved the organization of member and inventory data; however, the scope was primarily limited to membership and inventory management. Other research has addressed specific administrative components separately [4]. , for example, developed a Laravel based web inventory system for the Directorate of Infrastructure at Universitas Kristen Maranatha, focusing on inventory control, transaction monitoring, and reporting. Meanwhile, [5] developed a Laravel based correspondence management system using the Prototype method to facilitate the management of student academic letters and reduce administrative delays.

Research on organizational administration has also applied the Prototype method to student organizations. [6] developed a web based activity management information system for a student association using Laravel and MySQL. The system addressed administrative activities such as proposal submission, budgeting, and accountability reporting, and its functional testing demonstrated that all tested functions operated successfully. These studies demonstrate that web based systems can improve the organization and accessibility of administrative information [7]. However, the reviewed studies generally address specific administrative functions, such as membership, inventory, correspondence, or activity administration, rather than integrating these functions with organizational profile and public information within a single platform for a humanitarian oriented student organization.

Based on these previous studies, a research gap remains in the development of an integrated information system specifically designed for KSR organizations that combines personnel and organizational data, correspondence management, inventory information, and public information dissemination in one web based platform. The integration is particularly relevant to KSR Polnes because its administrative activities involve not only internal data management but also the provision of organizational information to members, prospective members, partner institutions, and the wider community. In addition, the existing problem at KSR Polnes is not limited to one administrative function but involves several interconnected information management activities that were previously handled conventionally[8].

Therefore, this study proposes the development of a web based KSR Polnes information system using the Prototype method, with Laravel and MySQL as the primary technologies. The proposed system integrates administrative and public facing functions, including organizational structure and member information, division information, organizational profile, vision and mission, correspondence, inventory, announcements, and contact information. The Prototype approach is employed to allow the system requirements to be identified, evaluated, and refined based on user feedback during development [9]. The specific contribution of this study lies in the integration of these functions into a single information platform tailored to the administrative and information dissemination needs of KSR Polnes, rather than developing an isolated system for only correspondence, inventory, or membership management [11]. The system is subsequently evaluated through Black Box Testing to examine functional performance and a user questionnaire to assess users' perceptions of information quality, interface, and system functionality [10].

Accordingly, the objective of this research is to design and develop a web based information system that supports the management of KSR Polnes organizational information and administrative activities while facilitating the delivery of accessible and structured information to website users. The development is expected to provide an integrated digital platform that can support personnel data management, correspondence, inventory information, organizational content management, and public information dissemination within KSR Polnes.

## 2. Methods

### Research Location and Timeline

This research will be conducted at one of the Student Activity Units (UKM) at Samarinda State Polytechnic, entitled "DESIGN AND CONSTRUCTION OF THE VOLUNTARY COMMISSION WEBSITE AT SAMARINDA STATE POLYTECHNIC." The research is planned to last 1 4 months, encompassing requirements gathering and systems analysis, rapid modeling and design, prototyping, prototype evaluation, prototype modification, and system use.

### Research Objective

This research will be conducted at one of the Student Activity Units (UKM) at Samarinda State Polytechnic. This system is designed to provide information related to the Voluntary Corps organization, including personnel management, mail administration, contacts, materials, and the vision and mission. The primary objective of this research is to facilitate the delivery of information to visitors and facilitate content management for incumbent administrators.

### System Testing

The developed system was evaluated using Black Box Testing. This testing method examined system behavior based on the input provided and the expected output without examining the internal source code implementation. Testing was conducted on the main system functions, including login, organizational structure management, division management, profile management, vision and mission management, correspondence management, inventory management, and announcement management. The test results showed that the tested functions were valid and operated according to the specified requirements

### Tools and Materials

The tools and materials that will be used in this research are:

1. Hardware
   The following is the hardware that will be used in this research:
   a. Laptop: Lenovo Legion Pro 5, Processor: Intel Core i9 13900HX, VGA: NVIDIA GeForce RTX 4060 Laptop GPU
2. Software
   The following is the software that will be used in this research:
   a. Laravel
   b. Visual Studio Code
   c. Figma
   d. PHP
   e. Canva
   f. Draw.io
   g. Laragon
3. Research Materials
   The following are the research materials that will be used in this research:
   a. Observation
   b. Interviews
   c. Journals and scientific references

### Research Stages

The research activities consisted of requirements gathering and system analysis, rapid design and modeling, prototype development, prototype evaluation, prototype refinement, and system implementation. These stages followed the workflow presented in Figure 1.

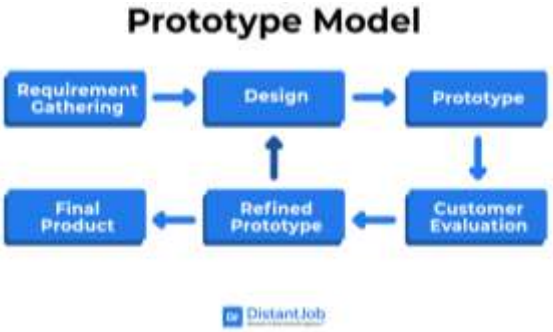



**Figure 1.** Prototype Method

## Flow Charts

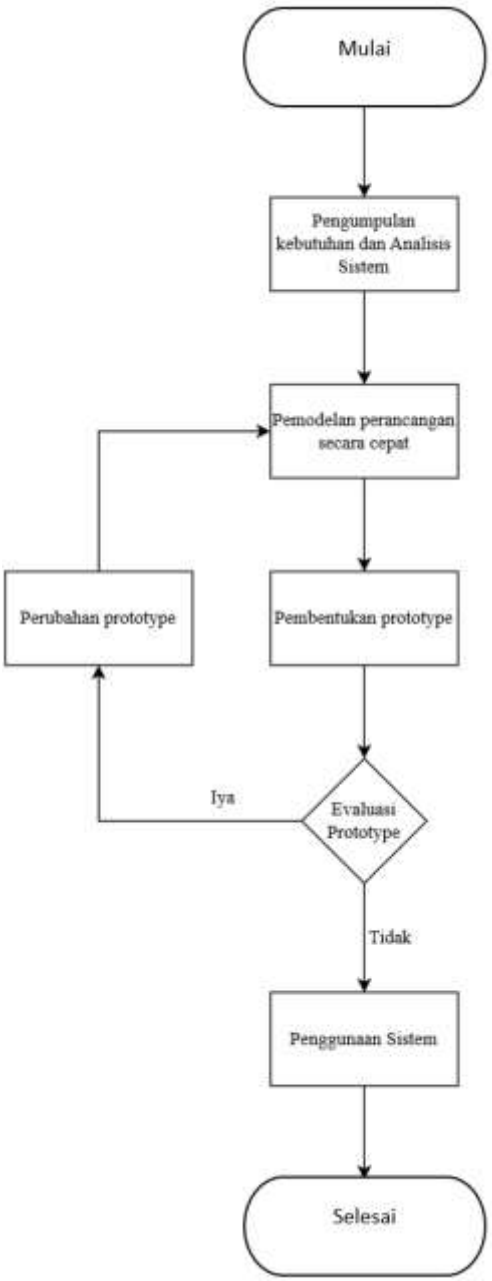



**Figure 2.** Flowchart

### Data Collection and Analysis Techniques

The data obtained in this study were collected through several methods, as follows:

a. Observation, observing how the administrators conducted administration at the Polnes KSR UKM.
b. Interviews, interviewing the administrators of the Polnes KSR UKM regarding their website needs for all administrative matters.
c. Questionnaires, to measure user satisfaction with the Polnes KSR UKM website.

### Requirements Gathering and System Analysis

The requirements gathering stage was conducted through observation and interviews with KSR Polnes administrators. Observation was used to identify how administrative activities were performed, particularly the management of organizational information and administrative data. Interviews were conducted with KSR Polnes administrators to identify their requirements for a website and the administrative functions that needed to be provided by the system. The information obtained from the observation and interviews was then translated into functional system requirements. Based on the identified organizational needs, the system was designed to provide two main user roles: administrator and website visitor. Administrators were provided with functions for managing organizational structure, divisions, organizational profile, vision and mission, correspondence, inventory, and announcements. Website visitors were provided with functions for accessing organizational information, including organizational structure, divisions, profile, vision and mission, correspondence, inventory, announcements, contact information, and social media. These requirements were subsequently represented through the system's use case model.

### Prototype Development

After the requirements had been identified, a rapid design and modeling stage was conducted to represent the structure and functions of the proposed system. The prototype was then developed based on the identified requirements. The system was implemented using Laravel and PHP, with MySQL used as the database technology. Supporting development tools included Visual Studio Code, Figma, Canva, Draw.io, and Laragon. The prototype contained the principal administrative and information dissemination functions required by KSR Polnes. The administrator interface enabled the management of organizational structure and member information, divisions, organizational profile, vision and mission, correspondence, inventory, and announcements. Meanwhile, the public interface provided access to organizational information, inventory, correspondence, announcements, profile information, organizational structure, and division information.

### Prototype Evaluation and Refinement

The prototype was evaluated after the initial system implementation. The evaluation stage was conducted to determine whether the developed functions corresponded to the requirements identified during the requirements gathering stage. When the prototype did not adequately meet the identified requirements, modifications were made and the prototype was refined before proceeding to system use. This iterative process was repeated until the required system functions had been implemented.

### Data Collection

Three data collection techniques were employed: observation, interviews, and questionnaires. Observation was conducted to examine the administrative processes performed by KSR Polnes administrators. Interviews were conducted with KSR Polnes administrators to identify website requirements and administrative needs. A questionnaire was subsequently administered to obtain users' assessments of the developed website.

### Questionnaire Instrument and Respondents

The questionnaire was used to assess users' perceptions of the developed KSR Polnes website. The assessment covered three aspects: Information Quality, User Interface, and System Functionality. These aspects correspond to the dimensions reported in the research findings, with final scores of 89.3%, 88.4%, and 91.1%, respectively.

## 3. Result And Discussion

### Use Case Diagram

Use Case Diagrams are used to describe the interaction between users and the system, as well as explaining the main functions that must be carried out. In the table below, the actors or users involved in the system will be explained.

a. User

**Table 1.** User

| No. | User | Description |
|---|---|---|
| 1 | Admin | The UKM KSR Polnes administrator responsible for managing all system data, including announcements, inventory, correspondence, organizational structure, vision and mission, contact information, divisions, and social media. |
| 2 | User | Visitors who can access information on the UKM KSR Polnes website, including announcements, inventory, correspondence, About Us, vision and mission, organizational structure, divisions, social media, and contact information. |

b. Use cases

**Table 2.** Use Case Diagrams

| Use Case | Description | User |
|---|---|---|
| Login | This process allows the user to log in to the admin page by entering a username and password. | Admin |
| Logout | This process allows the user to log out of the admin page. | Admin |
| Manage Organizational Structure | Describes the process of adding, editing, and deleting the organizational structure image and the list of members. | Admin |
| View Organizational Structure | View the organizational structure image and the list of members. | Admin and User |
| Manage Divisions | Describes the process of adding, editing, and deleting division data. | Admin |
| View Divisions | View information about each division. | Admin and User |
| Manage About Us | Describes the process of managing the About Us information. | Admin |
| View About Us | View the About Us information. | Admin and User |
| Manage Vision and Mission | Describes the process of managing the vision and mission data. | Admin |
| View Vision and Mission | View the vision and mission information. | Admin and User |
| Manage Correspondence | Describes the process of adding, editing, and deleting correspondence names and document links. | Admin |

| Use Case | Description | User |
|---|---|---|
| Submit Correspondence | Describes the process of submitting incoming correspondence. | User |
| Manage Inventory | Describes the process of adding, editing, and deleting inventory item data. | Admin |
| View Inventory | View inventory data and borrow inventory items. | Admin and User |
| Manage Announcements | Describes the process of adding, editing, and deleting announcements. | Admin |
| View Announcements | Describes the process of viewing announcements. | Admin and User |

### Use Case Diagram

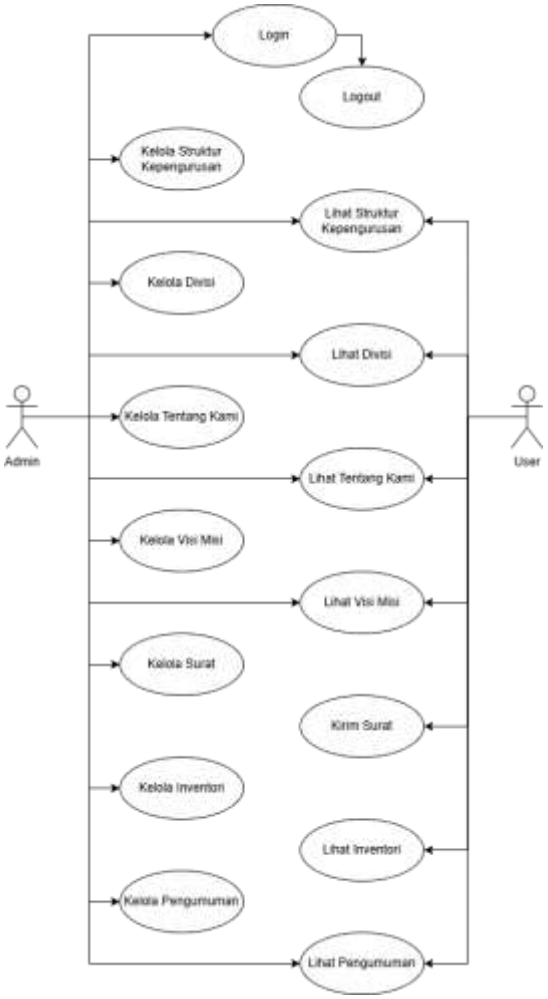



**Figure 3.** Use Case Diagram

### Implementation

1. Login Page
   The Login Page serves as the authentication gateway for administrators who have been granted administrative access to the UKM KSR Polnes website. To access the administration panel, administrators are required to enter their registered email address and password. The login interface is designed to ensure that only authorized users can access the system. After successful authentication, administrators are granted permission to manage website content, including adding, editing, and deleting organizational data.
2. Admin Page

The Admin Page functions as the central management interface for administrators of the UKM KSR Polnes website. This page provides comprehensive data management features that enable administrators to maintain and update organizational information, including inventory data, announcements, organizational profiles, vision and mission statements, management structure, division information, and footer content.

The Management Structure administration page, which allows administrators to manage organizational structure data and member information. Through this interface, administrators can add new records, modify existing data, or remove management structure images and member list information, including member names, ranks, and organizational positions.

The Division Management page, enables administrators to manage information related to each organizational division. This page supports the addition, modification, and deletion of division data while managing information for the five organizational divisions: PSDA, DIKLAT, MEDITIF, SAPRAS, and SOSKESMAS.

The About Us management page, where administrators are responsible for maintaining the organization's profile information. Through this interface, administrators can add, update, or remove photographs and descriptive information that introduce UKM KSR Polnes to website visitors.

The administration pages for the Vision and Mission, provide functionality for managing the organization's vision and mission statements. Administrators are able to create, edit, and delete content to ensure that the information presented on the website accurately reflects the organization's goals and objectives.

The Letters Management page, is designed to manage official correspondence available on the website. This interface allows administrators to add, edit, or delete letter records containing recipient names and links to digital forms or documents, including Delegation Letters, Cooperation Letters, and Item Loan Letters.

The Inventory Management page, which enables administrators to maintain information regarding the organization's inventory items. Through this page, administrators can add new inventory records, update existing information, or remove outdated data, including item names, photographs, and detailed descriptions.

Finally, the Announcements Management page, which provides administrators with the ability to manage organizational announcements. This page supports the creation, modification, and deletion of announcement content, including announcement titles, photographs, and descriptive information, ensuring that website visitors receive accurate and up to date organizational news.

3. User Page

The User Page serves as the main interface displayed when users first access the UKM KSR Polnes website. This page is designed to provide users with easy access to essential information through several main menus, including Homepage, Inventory, Letters, Profile, and Footer.

The Homepage, functions as the primary landing page and presents general information about UKM KSR Polnes. It includes a banner featuring photographs of the organization, quick access buttons directing users to the Vision and Mission, About Us, and Organizational Structure pages, as well as an announcement section that provides the latest organizational information.

The Footer, is located at the bottom of the website and contains contact information under the Contact Us section and links to the organization's social media platforms under the Follow Us section, allowing users to easily communicate with and follow the activities of UKM KSR Polnes.

The Announcements page, displays organizational announcements in a structured format. Each announcement includes an image, the announcement title, and a detailed description, enabling users to obtain the latest information regarding organizational activities and updates.

The Inventory page, provides information about the inventory items owned by UKM KSR Polnes that are available for borrowing. To improve readability and navigation, the inventory list is presented using pagination, with each page displaying five items while maintaining a consistent layout across all pages.

Detailed information for each inventory item is available on the Inventory Detail page. This page displays the item's image, name, loan duration, available quantity, late return penalty, completeness of the equipment, and additional notes, providing users with comprehensive information before submitting a borrowing request.

The Letters page, provides users with access to various official documents addressed to them, including Delegation Letters, Cooperation Letters, and Item Loan Letters. This feature simplifies the process of viewing and managing official correspondence digitally.

The Profile menu, serves as the gateway to organizational information by providing access to several submenus, including About Us, Vision and Mission, Organizational Structure, and Divisions.

The About Us page, introduces UKM KSR Polnes by presenting organizational information, photographs of members, and a brief profile describing the organization's background and objectives.

The Vision and Mission page, presents the organization's vision and mission statements, which serve as the foundation and direction for all organizational activities and programs.

The Organizational Structure page, provides an overview of the management structure of UKM KSR Polnes. It displays an organizational chart along with a member list containing each member's name, rank, and organizational position.

Information regarding each organizational division is presented on separate pages. The PSDA Division page displays photographs of division members, documentation of activities, and a brief description of the division along with its work programs. Similarly, the DIKLAT Division page presents member photographs, activity documentation, and an overview of the division's responsibilities and work programs.

The MEDITIF Division page, provides information about the division through member photographs, documentation of activities, and a description of its roles and work programs. Likewise, the SAPRAS Division page, presents information regarding the division's members, activities, and work programs. Finally, the SOSKESMAS Division page, contains photographs of division members, documentation of activities, and a brief explanation of the division's responsibilities and work programs, allowing users to better understand the contribution of each division within UKM KSR Polnes.

## Black Box Testing

This stage will explain system testing using the Black Box method to ensure each feature works as intended. This method evaluates the system's output based on the input provided without considering the internal components of the program. Testing is performed on all key features to ensure the system responds appropriately and operates as expected.

**Table 3.** Login Testing

| Test Scenario | Input | Expected Result | Result |
|---|---|---|---|
| Leave both login fields empty on the admin login page and click "Sign In". | Username: (Empty)Password: (Empty) | The system denies login access and displays the message "Please fill out this field." | Valid |
| Enter only the username and click "Sign In". | Username: (Provided)Password: (Empty) | The system denies login access and displays the message "Please fill out this field." | Valid |

| Test Scenario | Input | Expected Result | Result |
|---|---|---|---|
| Enter only the password and click "Sign In". | Username: (Empty)Password: (Provided) | The system denies login access and displays the message "Please fill out this field." | Valid |
| Enter a valid username and password, then click "Sign In". | Username: (Provided)Password: (Provided) | The system grants login access and displays the admin dashboard. | Valid |

**Table 3.** Admin Page Testing

| Test Scenario | Input | Expected Result | Result |
|---|---|---|---|
| Admin adds an Organizational Structure record and clicks "Create". | NameImage | a. If the data is valid, the system displays the message "Created".b. If the data is invalid, the system returns to the initial page. | Valid |
| Admin edits an Organizational Structure record and clicks "Save". | NameImage | a. If the data is valid, the system displays the message "Saved".b. If the data is invalid, the system returns to the initial page. | Valid |
| Admin deletes an Organizational Structure record and clicks "Yes, Delete". | Click the Delete button | a. If successful, the system displays the message "Deleted".b. If unsuccessful, the system returns to the initial page. | Valid |
| Admin adds a Member List record and clicks "Create". | NameBatchPosition | a. If the data is valid, the system displays the message "Created".b. If the data is invalid, the system returns to the initial page. | Valid |
| Admin edits a Member List record and clicks "Save". | NameBatchPosition | a. If the data is valid, the system displays the message "Saved".b. If the data is invalid, the system returns to the initial page. | Valid |
| Admin deletes a Member List record and clicks "Save". | Click the Delete button | a. If successful, the system displays the message "Deleted".b. If unsuccessful, the system returns to the initial page. | Valid |
| Admin adds a Division record and clicks "Create". | Division NameAbbreviation DescriptionImage | a. If the data is valid, the system displays the message "Created".b. If the data is invalid, the system returns to the initial page. | Valid |
| Admin edits a Division record and clicks "Save". | Division NameAbbreviation DescriptionImage | a. If the data is valid, the system displays the message "Saved".b. If the data is invalid, the system returns to the initial page. | Valid |
| Admin deletes a Division record and clicks "Yes, Delete". | Click the Delete button | a. If successful, the system displays the message "Deleted".b. If unsuccessful, the system returns to the initial page. | Valid |

| Test Scenario | Input | Expected Result | Result |
|---|---|---|---|
| Admin adds an About Us record and clicks "Create". | DescriptionImage | a. If the data is valid, the system displays the message "Created".b. If the data is invalid, the system returns to the initial page. | Valid |
| Admin edits an About Us record and clicks "Save". | DescriptionImage | a. If the data is valid, the system displays the message "Saved".b. If the data is invalid, the system returns to the initial page. | Valid |
| Admin deletes an About Us record and clicks "Yes, Delete". | Click the Delete button | a. If successful, the system displays the message "Deleted".b. If unsuccessful, the system returns to the initial page. | Valid |
| Admin adds a Vision and Mission record and clicks "Create". | Vision and Mission Content | a. If the data is valid, the system displays the message "Created".b. If the data is invalid, the system returns to the initial page. | Valid |
| Admin edits a Vision and Mission record and clicks "Save". | Vision and Mission Content | a. If the data is valid, the system displays the message "Saved".b. If the data is invalid, the system returns to the initial page. | Valid |
| Admin deletes a Vision and Mission record and clicks "Yes, Delete". | Click the Delete button | a. If successful, the system displays the message "Deleted".b. If unsuccessful, the system returns to the initial page. | Valid |
| Admin adds a Correspondence record and clicks "Create". | Letter NameLetter Link | a. If the data is valid, the system displays the message "Created".b. If the data is invalid, the system returns to the initial page. | Valid |
| Admin edits a Correspondence record and clicks "Save". | Letter NameLetter Link | a. If the data is valid, the system displays the message "Saved".b. If the data is invalid, the system returns to the initial page. | Valid |
| Admin deletes a Correspondence record and clicks "Yes, Delete". | Click the Delete button | a. If successful, the system displays the message "Deleted".b. If unsuccessful, the system returns to the initial page. | Valid |
| Admin adds an Inventory record and clicks "Create". | NameDescriptionImage | a. If the data is valid, the system displays the message "Created".b. If the data is invalid, the system returns to the initial page. | Valid |
| Admin edits an Inventory record and clicks "Save". | NameDescriptionImage | a. If the data is valid, the system displays the message "Saved".b. If the data is invalid, the system returns to the initial page. | Valid |

| Test Scenario | Input | Expected Result | Result |
|---|---|---|---|
| Admin deletes an Inventory record and clicks "Yes, Delete". | Click the Delete button | a. If successful, the system displays the message "Deleted".b. If unsuccessful, the system returns to the initial page. | Valid |
| Admin adds an Announcement record and clicks "Create". | NameDescriptionImage | a. If the data is valid, the system displays the message "Created".b. If the data is invalid, the system returns to the initial page. | Valid |
| Admin edits an Announcement record and clicks "Save". | NameDescriptionImage | a. If the data is valid, the system displays the message "Saved".b. If the data is invalid, the system returns to the initial page. | Valid |
| Admin deletes an Announcement record and clicks "Yes, Delete". | Click the Delete button | a. If successful, the system displays the message "Deleted".b. If unsuccessful, the system returns to the initial page. | Valid |

Based on these requirements, the developed system was divided into two main access roles: administrator and user. The administrator is responsible for managing organizational data, whereas users can access information published through the website. This access structure corresponds to the interview results, which indicated that organizational administrators should have full access while members and the general public should primarily receive access to published information. Rather than treating each page as an independent feature, the implementation can be understood as a response to the main organizational problems identified during the requirements analysis. Table 1 summarizes this relationship.

**Table 4.** Relationship between Identified Problems and System Development

| Identified Problem | System Development Response | Contribution |
|---|---|---|
| Personnel data were managed conventionally and were difficult to access | Organizational structure and member management | Provides structured management of personnel information |
| Correspondence was archived manually and was vulnerable to being misplaced or lost | Digital correspondence management and access to correspondence forms | Provides a more organized medium for correspondence information and submission |
| Information about KSR Polnes was not available through an official centralized medium | Public website containing organizational profile, vision and mission, structure, and divisions | Makes organizational information easier to access |
| Inventory information needed to be presented more systematically | Inventory management and inventory information pages | Provides organized information about available inventory |
| Organizational announcements needed to be disseminated more effectively | Announcement management and public announcement pages | Supports more accessible dissemination of organizational information |

The implementation therefore addresses the two main research objectives: facilitating the management of personnel and administrative information and improving access to KSR Polnes information for the Polnes community. The resulting system integrates these requirements into one website instead of presenting them as separate information services. The administrator interface provides the management functions,

while the user interface provides access to the information that has been published. This structure is consistent with the system objectives stated in the research, particularly the objectives of managing personnel data, correspondence, inventory, and organizational information. The Prototype method also supported this development process because the prototype was evaluated by the administrators and could be modified when it did not correspond to their requirements. The research methodology describes the process as requirements gathering, rapid design, prototype development, prototype evaluation, prototype modification, and system use. Thus, the implementation was not solely based on technical development but was connected to the requirements obtained from the organization's management.

The implementation results consist of an administrator interface and a user interface. The administrator interface functions as the central area for managing organizational information, including organizational structure, member data, divisions, organizational profile, vision and mission, correspondence, inventory, and announcements. The user interface provides access to the information published by the administrator.

### Black Box Testing Results

Black Box Testing was conducted to determine whether the implemented functions produced the expected outputs based on predefined test scenarios. The testing covered three groups: login, administrator functions, and user functions. Instead of presenting all individual scenarios repeatedly, the results are summarized in Table 2.

**Table 5.** Recapitulation of Black Box Testing

| Testing Component | Number of Scenarios | Valid | Invalid | Success Rate |
|---|---|---|---|---|
| Login | 4 | 4 | 0 | 100% |
| Administrator Page | 24 | 24 | 0 | 100% |
| User Page | 12 | 12 | 0 | 100% |
| Total | 40 | 40 | 0 | 100% |

The results show that 40 scenarios were tested and all 40 scenarios were declared valid, resulting in a functional success rate of 100%. The login testing consisted of four scenarios involving empty and completed login fields. The administrator testing covered the main data management operations, including adding, editing, and deleting organizational structure, member data, divisions, organizational information, vision and mission, correspondence, inventory, and announcements. The user testing covered access to the homepage, announcements, inventory, correspondence, profile, organizational structure, and division information. The 100% result indicates that all tested input output combinations produced the expected system responses. More specifically, the result confirms that the core functions developed to address the identified organizational requirements were operational during testing. For example, the successful testing of member and organizational structure management corresponds to the initial need for better personnel data management, while successful correspondence testing corresponds to the need for a more systematic approach to administrative documents.

### Questionnaire Evaluation Results

After functional testing, user evaluation was conducted to measure satisfaction with the developed website. The questionnaire was distributed to 43 respondents from the Polnes community. The instrument consisted of 10 statements, divided into three assessment aspects: Interface Satisfaction, Information Quality Satisfaction, and System Function Satisfaction. Respondents answered using a five point Likert scale consisting of Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly Agree (5). The questionnaire consisted of four interface statements, two information quality statements, and four system function statements. The resulting scores are presented in Table 3.

**Table 6.** Questionnaire Evaluation Results

| Assessment Aspect | Number of Items | Number of Respondents | Total Score | Percentage | Category |
|---|---|---|---|---|---|
| Interface Satisfaction | 4 | 43 | 761 | 88.4% | Very Satisfied |
| Information Quality Satisfaction | 2 | 43 | 384 | 89.3% | Very Satisfied |
| System Function Satisfaction | 4 | 43 | 784 | 91.1% | Very Satisfied |
| Total/Average | 10 | 43 | 1,929 | 89.6% | Very Satisfied |

The maximum score was determined from the number of respondents, number of statements, and the highest Likert score of 5. The percentage was calculated by comparing the obtained score with the maximum possible score. The categorization used in the study places scores of 80.1%–100% in the Very Satisfied category. The calculation can be expressed as:

$$P = \frac{S}{S_{max}} \times 100\%$$

where $P$represents the percentage obtained, $S$represents the total score obtained from respondents, and $S_{max}$represents the maximum possible score.The questionnaire results show that all three aspects fall within the Very Satisfied category. The Interface Satisfaction aspect obtained 88.4%, the Information Quality Satisfaction aspect obtained 89.3%, and the System Function Satisfaction aspect obtained 91.1%. The overall average was 89.6%, which was also categorized as Very Satisfied.

The questionnaire results provide additional evidence regarding how users perceive the developed system. The Information Quality score of 89.3% is relevant to the problem identified during the preliminary investigation, namely the absence of an official information medium through which members and external parties could access information about KSR Polnes. The website provides organizational information through the profile, vision and mission, organizational structure, divisions, announcements, inventory, and correspondence sections. Consequently, the high information quality score indicates that respondents perceived the information presented through the website positively. The Interface Satisfaction score of 88.4% indicates that respondents also perceived the website interface positively. This finding is relevant because the system was designed not only for administrators but also for members and the wider Polnes community. The user interface organizes access to information through menus such as Home, Inventory, Letters, and Profile. Thus, the interface functions as the access layer through which the organizational information managed by administrators can be reached by users.

The highest score was obtained for System Function Satisfaction, at 91.1%. This result is consistent with the Black Box Testing result, in which all 40 tested scenarios were valid. The two results provide complementary evidence: Black Box Testing demonstrates that the predefined functions generated the expected system responses, while the questionnaire indicates that users were highly satisfied with the functionality provided by the system[12]. The relatively high System Function Satisfaction score can also be related to the original organizational requirements. The system provides functions for personnel management, correspondence, inventory, organizational information, and announcements, which were among the needs identified through interviews [13]. The successful operation of these functions therefore indicates that the implementation was aligned with the requirements identified during the initial analysis [14].

The findings are consistent with previous research cited in this study. [15] developed a website based organizational information system using the Waterfall method to support organizational information management. Similarly, the present research applies a website based approach to organize organizational information and administrative activities [16]. However, the present study uses the Prototype method and specifically addresses the administrative and information requirements of KSR Polnes. The Prototype approach enables the system design to be evaluated and refined according to organizational requirements before the system is implemented [17]. The findings are also relevant to the study by [18] which developed a web based blood donation information system for the Student Activity Unit of the Volunteer Corps at Universitas Mulawarman. Both studies demonstrate the use of web based information systems in a KSR organizational context. However, the present system has a broader organizational management scope because it incorporates personnel information, organizational structure, divisions, correspondence, inventory, announcements, and organizational profiles [19]. The comparison therefore suggests that the present website extends the use of web based systems from specific KSR service information toward broader organizational administration and information dissemination. The Burrakhman et al. study is included in the references of the present research[20].

## 4. Conclusion

The KSR Polnes website was developed using the Prototype method to address the need for more organized management of personnel data, correspondence, inventory, and organizational information. The system integrates administrative management functions for administrators with information access functions for users. Black Box Testing showed that all 40 tested scenarios, covering login, administrator, and user functions, produced the expected results, indicating that the implemented functions operated according to the defined system requirements. User evaluation involving 43 respondents further showed that the website achieved 89.3% for Information Quality, 88.4% for User Interface, and 91.1% for System Functionality, with an overall average of 89.6%, categorized as Very Satisfied. These results indicate that users positively evaluated the system in terms of the clarity and accessibility of information, ease of interface use, and operation of the functions provided. Therefore, within the scope of the functional testing and user evaluation conducted in this study, the developed website addresses the identified needs of KSR Polnes for centralized organizational information and web based support for its administrative activities.

The evaluation in this study was limited to functional testing using predefined Black Box scenarios and user satisfaction assessment through a questionnaire; therefore, aspects such as system performance, security, long term usability, and effectiveness under broader usage conditions were not evaluated. Future development should first examine these aspects to provide a more comprehensive assessment of the system. In addition, the current website primarily provides administrative management and information access functions and does not yet provide interactive assistance, individual user accounts, or automated information delivery. Accordingly, future development may consider a chatbot to support user inquiries, user login and registration to enable personalized access, and automatic notifications to improve the delivery of organizational information. Since the current system is implemented as a website, further evaluation of user access patterns across devices is also recommended before developing a dedicated mobile application. These developments should be prioritized based on demonstrated user needs and the results of further system evaluation rather than being treated solely as additional features.

## 5. References

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