

Design and Implementation of a Web-Based Personnel Information System (Sisfopers) At Kogartap II/Bandung

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ABSTRACT

Personnel data management in the military is a crucial component in ensuring the operational readiness and effectiveness of every unit. Accurate, timely, and secure personnel information supports not only administrative processes but also strategic decision-making related to staffing, deployment, and organizational planning. This study aims to design and implement a web-based Personnel Information System (Sisfopers) at Kogartap II/Bandung to improve the efficiency, security, and integration of personnel data management within the existing military information technology infrastructure. The research employs a developmental research (R&D) approach combined with qualitative-descriptive analysis. Data collection techniques include literature review, field observation, structured interviews, and documentation of existing administrative procedures. The system development process follows the SDLC (Waterfall) method, while UML diagrams are used to model system requirements, functional behaviors, and process flows to ensure clarity and accuracy in system design. The findings show that the implemented Sisfopers significantly accelerates various personnel administration workflows, reduces the risk of human error, and strengthens data security through layered access control and user authentication. The system also improves the integrity, availability, and traceability of personnel records, enabling leaders to make faster and more data-driven decisions. Overall, this study demonstrates that a well-designed web-based personnel information system can enhance organizational performance and can serve as a practical reference for the development of similar systems in other military units or government institutions.

INTRODUCTION

Military personnel resources are the core of the operational and strategic strength of a combat unit. At Kogartap II/Bandung, the management of personnel data ranging from soldier identity, career history, training, reassignment, to administrative access is a highly critical process. Without a structured and modern information system, personnel management can become inefficient, prone to errors, and difficult to access quickly when needed by leaders or relevant staff. The development of information technology today affects all fields, including education, industry, economy, health, agriculture, and government. One of the major impacts of information technology is its ability to reduce problems related to production activities, data creation, data processing, and presenting data into information for distribution. As a result of this technological advancement, human labor in many tasks has shifted to machine-based processes, which offer greater accuracy, speed, and consistency in achieving expected outcomes.

In this context, a web-based Personnel Information System (Sisfopers) becomes a strategic solution. The use of a web-based system enables real-time personnel data processing, data synchronization across units, and flexible access for authorized users. However, transitioning to a digital system is not simple and comes with many challenges, especially for a military organization that emphasizes security, reliability, and data integrity.

An important study by Sarwono & Assery (2023) revealed that the implementation of Sisfopers at the Military Academy has not reached its optimal level. Although the system adheres to standard operating procedures and recurring data maintenance, delays in data updates and inconsistencies between system reports and actual field conditions still occur. This situation shows that system implementation alone is insufficient; coordination between administrative personnel and related units is required to ensure the system functions effectively.

Another challenge concerns the legal protection of military personnel data. Research by Wibawa, Rokhmat, & Tulak (2025) emphasized that although information technology is rapidly evolving, existing regulations—such as the Personal Data Protection Law have not fully addressed the unique characteristics of military data, which are highly classified and sensitive. They recommend specific sectoral regulations, modernization of internal cybersecurity, and strict access control mechanisms to maintain the confidentiality and integrity of personnel data.



From a human resource management (HRM) perspective, the adaptation of HRIS systems has also shown significant impact. According to Manunggal, Santoso, & Wicaksana (2023), the use of HRIS combined with artificial intelligence (AI) can improve efficiency and performance in the defense industry. This indicates that a military Sisfopers is not merely a recording tool but can also be optimized for performance analysis and data-driven personnel development.

Equally important, digital transformation within the Indonesian National Armed Forces (TNI) is driven by the presence of Disinfohtad. A study by Mutaqin, Sahary, Mutaqin, & Dharmopadni (2023) showed that Disinfohtad plays a strategic role in managing IT infrastructure, developing applications such as Sisfopers, and maintaining central data security. With strong infrastructure support, a web-based Sisfopers can operate more stably, be better integrated, and remain protected from cyber threats.

Furthermore, from a general system-implementation perspective, research by Zaidan & Isputrawan (2024) designed a web-based HRIS using the Waterfall method for a civilian company. They highlighted that the Waterfall method allows for systematic system planning (requirements analysis, design, implementation, testing, maintenance), which is relevant for adoption in a military personnel system to ensure that key modules (attendance, personnel data, training) are carefully developed.

Based on this background, this study aims to design and implement a web-based Sisfopers at Kogartap II/Bandung by considering key aspects: (1) operational effectiveness of the system, (2) security and protection of personnel data, and (3) integration with the existing military IT infrastructure. With an optimally designed system, it is expected that personnel management processes can be accelerated, administrative errors minimized, and leadership decision-making improved through more accurate and data-driven insights.

LITERATURE REVIEW

A system is defined as a collection of interconnected elements that work together to achieve specific objectives. In the context of the Indonesian National Armed Forces (TNI), a system functions to support personnel administrative processes so that they run in an orderly, efficient, and accountable manner. An information system itself is a combination of technology, human resources, and procedures that process data into valuable information for decision-making. Within the TNI environment, a personnel information system facilitates data collection, monitoring, and management of member information such as rank, position, education, duty history, and performance evaluation.

To support system design and documentation, UML (Unified Modeling Language) is used as a standard modeling language that visually describes, designs, and documents software systems and business processes. UML was developed by Grady Booch, James Rumbaugh, and Ivar Jacobson in 1997 and later standardized by the Object Management Group (OMG).

Various studies provide different definitions regarding the fundamental concepts in information systems. According to Jusuf and Prabowo (2023), "information is a collection of facts that have been processed into data, making it more useful and enabling anyone who needs it to use the data as knowledge or for decision-making". Meanwhile, Septiawati and Maliki (2023) explain that "a context diagram is a diagram consisting of a single process that illustrates the scope of a system and serves as the highest level of a DFD, showing all inputs and outputs of the system".

In the perspective of web-based information systems, Marselius, Elizabeth, and Basri (2021) define hosting as "an internet-based service that provides resources for rent as a place to store data or run applications or websites on a server, allowing organizations to place information on the internet". Furthermore, the concept of a system is described by Putra, Gunawan, Lestari, Krisna, and Maliki (2024), who state that "a system is a collection of subsystems or components, both physical and non-physical, that are interconnected and work together harmoniously to achieve a specific goal". From a development standpoint, Gunawan, Maliki, Lestari, Ismail, and Krisna (2024) emphasize that "design is a process of defining what will be developed using various techniques, involving descriptions of architecture, component details, and constraints in its implementation".

A number of theories from previous researchers strengthen the foundation of this study. Sarwono and Assery (2023) explain that a personnel information system is a digital tool used to manage soldier data in an integrated manner, thereby supporting administrative orderliness and effective decision-making within the Military Academy. Meanwhile, the study by I Putu Arya Wibawa, Rokhmat, and Nani Tulak (2025) emphasizes that a personnel information system requires strong legal protection because it contains strategic data that must remain confidential in the digital era.

Furthermore, Manunggal, Santoso, and Wicaksana (2023) view human resource information systems (HRIS) as technologies capable of supporting automation in HR management processes and improving organizational performance, particularly in the defense sector. In line with this, Mutaqin and colleagues (2023) assert that the TNI information system is part of a digital transformation aimed at accelerating personnel administrative services through modernization of technological infrastructure.

Zaidan and Isputrawan (2024) define a human resource information system as a web-based application designed to simplify the processes of recording, processing, and reporting personnel data. Similar findings were presented by Findri Retno Kapoh and Syam Gunawan (2021), who explain that a performance evaluation information system



functions to document and process employee performance data efficiently, objectively, and in a computerized manner.

According to Sembiring, Gunawan, and Irawan (2025), web-based information systems are capable of automating business processes within an organization, thereby accelerating recording, transactions, and reporting. Maliki and colleagues (2024) also describe web-based information systems as digital platforms that facilitate administrative management, data storage, and service processes in educational or business institutions. Furthermore, Gita Cahyani Lestari (2024) states that the quality of an information system directly influences user convenience, speed, and effectiveness in conducting digital transactions or activities. Lastly, Hanif Jusuf (2024) defines a web-based ordering information system as a system that manages request flows, data recording, and information delivery automatically and in a structured manner.

METHOD

The research began with a literature review by collecting information from books, journals, and official documents related to personnel information systems, military human resource management, and data security. This was followed by field observations conducted directly at Kogartap II/Bandung to examine the workflow, identify obstacles, and determine system requirements in the existing personnel data management process. In addition, interviews were carried out with administrative personnel, IT staff, and relevant leaders to obtain in-depth information regarding current issues, expectations, and suggestions for the development of the Sisfopers system.

The system development in this study employed the System Development Life Cycle (SDLC) method, which consists of several stages. The planning stage involved determining system objectives, user needs, scope, and the development schedule. The analysis stage focused on identifying system requirements based on data collection, interviews, and observations, including both functional and non-functional requirements. In the design stage, a detailed system blueprint was created using Unified Modeling Language (UML), including use case diagrams, class diagrams, activity diagrams, and process flow diagrams to model user interactions with the system.

The implementation stage consisted of developing a web-based system according to the established design, utilizing technologies that support security, integration, and real-time access. This was followed by the testing stage, where the system was evaluated to ensure that all modules functioned properly, were free of bugs, and met data security standards. Finally, the maintenance stage included periodic updates, improvements, and system management to maintain the stability and reliability of the Sisfopers application.

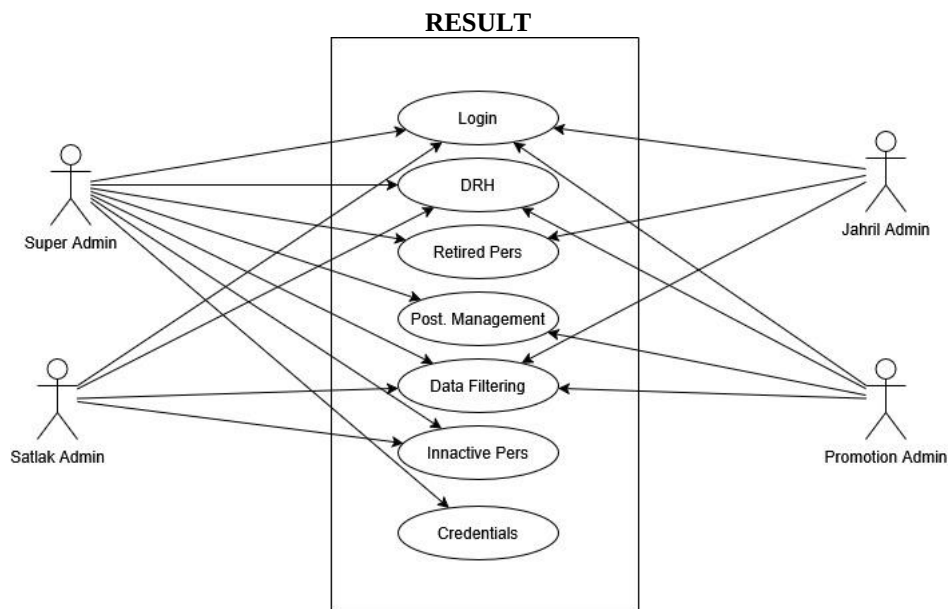


Fig. 1 Usecase Diagram

The UML use case diagram illustrates several interactions between system users and the features provided. The Super Admin holds full access rights, enabling them to use every feature in the system, starting from the login process to the management of credential data. The Satlak Admin has limited authority and is only permitted to use the Filtering Data, Personnel Data, and Credential features to support administrative tasks. The Jahril Admin is granted access to the Login, Curriculum Vitae, Retired Personnel, Position Management, Data Filtering, and Personnel Data features, allowing them to manage member information specifically related to Jahril functions.

The Rank Administration (Kepangkatan) Admin can utilize the Login, Data Filtering, Position Management, Retired Personnel, and Inactive Personnel features to process information related to employee rank classification. The

Login menu serves as the main gateway for all types of administrators before accessing any other system features. The Curriculum Vitae feature stores and manages personal information and career history of personnel, and it is accessible to both the Super Admin and the Jahril Admin.

The Retired Personnel feature is used to manage data of personnel who have entered retirement, with access rights given to the Super Admin, Rank Admin, and Jahril Admin. The Position Management menu allows administrators to organize and update employee position information, and it is accessible by the Super Admin, Rank Admin, and Jahril Admin. The Data Filtering feature enables users to sort and retrieve information according to their respective administrative needs.

The Inactive Personnel feature is designed to manage data of employees whose status is no longer active, accessible only to the Super Admin and Rank Admin. The Personnel Data menu stores essential personnel information and can be accessed by the Super Admin, Jahril Admin, and Satlak Admin. Lastly, the Credential menu is provided for the Super Admin and Satlak Admin to manage user identities and access authorizations within the system.

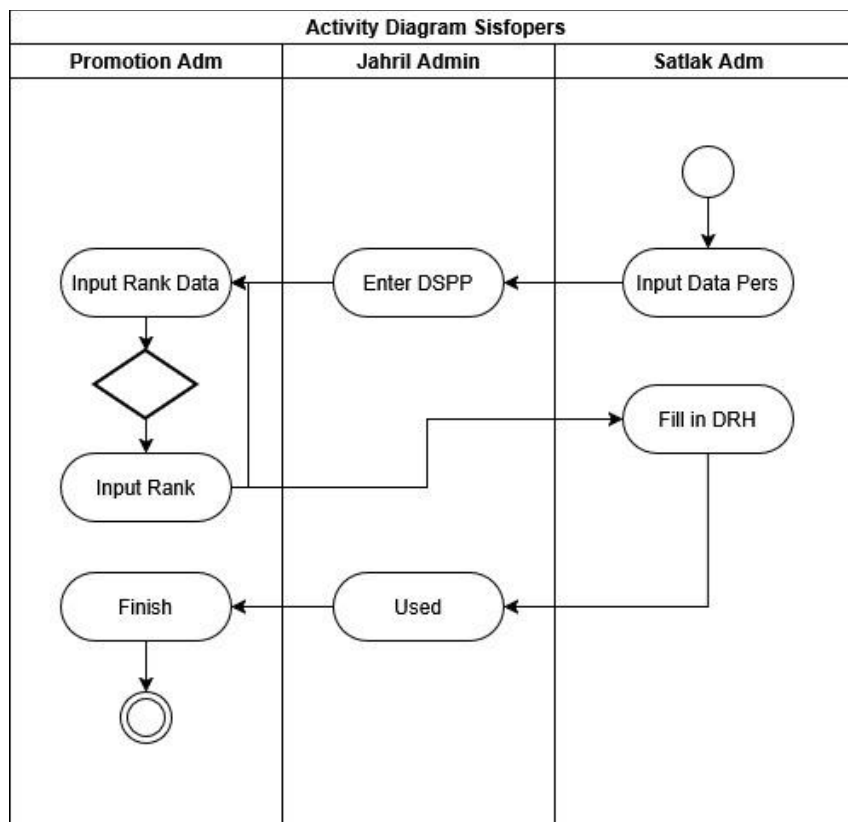


Fig. 2 Activity Diagram

The activity process in the Sisfopers system involves three main actors: the Promotion Administrator, the Jahril Administrator, and the Satlak Administrator. The workflow begins with the Satlak Administrator, who inputs the initial personnel data and subsequently completes the DRH (Curriculum Vitae List). Once this information is submitted, the process continues to the Jahril Administrator, who enters the DSPP data into the system. In parallel, the Promotion Administrator begins by inputting rank data, which passes through a decision point to determine whether additional information is required. If the data is incomplete, the Promotion Administrator proceeds with further rank input until the required information is fulfilled. After the DSPP, DRH, and rank data are fully entered, the system consolidates the information and marks it as used. The process concludes when the Promotion Administrator completes the final activity, indicating that the overall data entry process in Sisfopers has been successfully finalized.

DISCUSSION

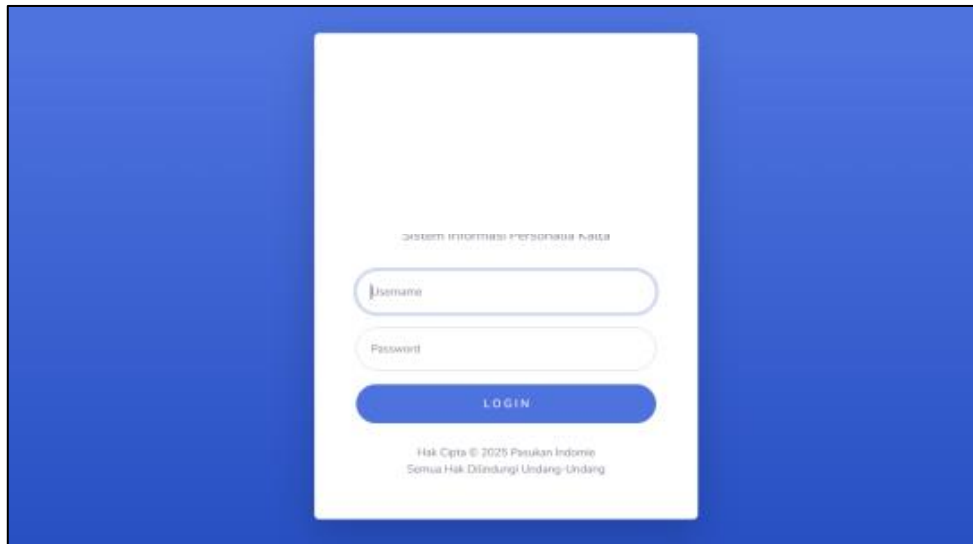


Fig. 3 Login Page

The login feature in Sisfopers ensures that only authorized users can access the system by entering their username and password. The username serves as the user's unique identifier, while the password verifies the user's identity and protects the security of the data. Once the credentials are successfully validated, the user is directed to a dashboard corresponding to their access level; if validation fails, the system displays an error message.

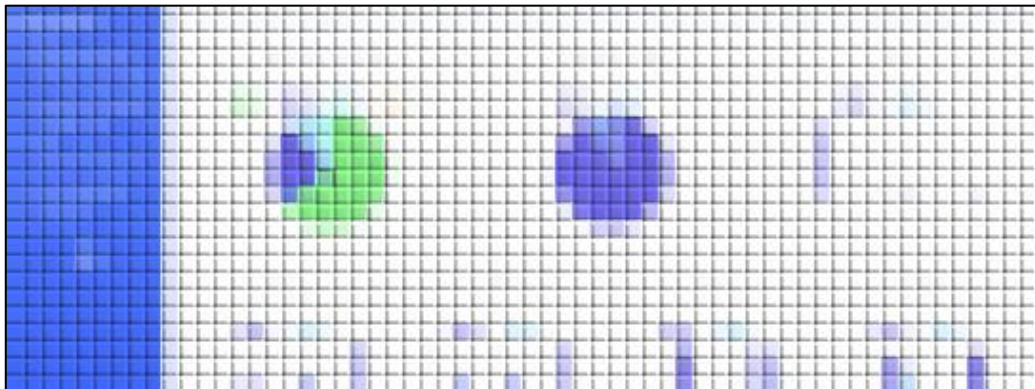


Fig. 4 Dashboard Page (This section has been blurred for confidentiality purposes)

The dashboard serves as the main page that presents a visual and structured summary of personnel information. In the Main Menu section, several key features are available, including Curriculum Vitae (CV) to display the service records of personnel, Retired Personnel Accounts for viewing data of individuals who have completed their service, Position Management for managing assignments and job rotations, and Data Filtering, which allows users to filter personnel information based on specific criteria.

In the Settings section, the dashboard provides Inactive Personnel, which displays information on personnel who are currently non-active, Personnel Data, which contains detailed military personnel information, and Credentials, a menu for managing user accounts, access rights, and login security.

Additionally, the dashboard includes various forms of Data Visualization, such as a pie chart of Strength by Military Branch showing personnel distribution across the Army, Navy, Air Force, and Civil Servants; a pie chart of Total Strength displaying DSP and actual personnel numbers; a bar chart of High-Ranking Officers representing the number of personnel from One-Star to Three-Star ranks; and bar charts of Officers, NCOs, and Enlisted Personnel, which illustrate DSP and actual strength across each rank category.



Fig. 5 Main Menu (This section has been blurred for confidentiality purposes)

The Main Menu in this personnel information system is designed to facilitate users in accessing various personnel data in a structured manner. One of its primary features is the Curriculum Vitae (CV) module, which displays comprehensive information regarding a soldier's career history, education, and experience. Through this feature, users can view detailed and systematic historical data for each personnel member. In addition, the Retired Personnel Account feature is provided to display data of personnel who have completed their service. This feature assists administrative staff in monitoring retirement status, managing archives, and supporting decision-making processes related to historical data and post-service administration. The Position Management and Data Filtering features also play an important role in enhancing operational efficiency. Position Management presents information related to personnel assignments, transfers, and career movements, thereby facilitating human resource management processes. Meanwhile, Data Filtering allows users to filter personnel data based on specific criteria, making information searches faster, more accurate, and aligned with user needs.

This personnel information system provides output features that allow stored data to be accessed and utilized more flexibly. One of the available output formats is PDF, enabling users to export personnel data, curriculum vitae, and position reports into documents that are easy to print and share. This feature is highly beneficial for official administrative purposes as well as digital archiving.

In addition, the system is equipped with data visualization tools using charts and graphs. Information such as personnel data, position distribution, or retirement status can be displayed visually, making analysis and monitoring faster and more efficient. Through these visualizations, patterns and trends within the personnel data can be more easily understood by users. The combination of PDF output and chart-based visualization ensures that the system functions not only as a data storage platform but also as a decision-support tool. Users can generate formal reports in PDF format while simultaneously monitoring personnel conditions in real time through informative and easy-to-understand interactive charts.

CONCLUSION

Based on the results of the research and the implementation of the web-based Personnel Information System (Sisfopers) at Kogartap II/Bandung, several conclusions can be drawn. The system effectively streamlines personnel data management, covering identity information, career history, training records, and assignment movements. With Sisfopers, administrative processes become more efficient, structured, and real-time. The use of a web-based platform also enhances the security and integrity of personnel data through the application of access control mechanisms and user authorization management aligned with military standards. Moreover, the system's integration with existing IT infrastructure facilitates better coordination between units, accelerates leadership decision-making, and reduces administrative errors.

Several recommendations can be proposed based on the findings of this study. First, routine system maintenance and updates should be carried out to ensure Sisfopers remains stable and protected from cyber threats. Second, periodic training for personnel on how to use Sisfopers is essential so that all staff members can utilize the system's features optimally. Third, the system should be expanded with additional features, such as performance analysis modules and automated reporting, to enhance its strategic role in military personnel management. Lastly, internal regulations and policies regarding personnel data security need to be strengthened to ensure the system remains compliant with legal standards and meets the sensitive requirements of military operations.

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