

# Information System for Personnel at the South Sorong District Regional Personnel Agency Office

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## Abstract

Due to the increasing complexity of globalization and technological advancements, the adoption of HRIS (Human Resource Information System) has become a key priority for government bodies and similar organizations. HRIS plays a vital role in effectively managing the workforce, particularly in the public sector. This research aims to enhance the efficiency of personnel data management processes in South Sorong Regency. The primary focus is on ensuring the security of employee data storage. Extreme Programming is utilized as the system development method, encompassing design, development, coding, and testing stages. PHP is chosen as the programming language, with a MySQL database for data storage. The black box testing technique is employed to guarantee system functionality and reliability. The implementation of this application demonstrates smooth operation, with testing yielding a high satisfaction rate among respondents at 93%. Consequently, the system is deemed functionally sound in delivering the intended outcomes.

**Keywords:** BKD Personnel System; Website Based; Structured Query Language; MySQL

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## Introduction

In this modern era, with the complex demands of globalization and advances in information technology, the implementation of CIS has become a top priority for many government agencies and similar organizations (Saputro & others, 2021), (Nurwan & Marliady, 2019). Personnel Information Systems (SIK) are very important in managing the workforce in various organizations, especially in the public sector (Noviandi, 2019; Nurwan & Marliady, 2019; Kaoje et al., 2020; Thipmontha & Nuankaew, 2022). The success of SIK lies not only in improving operational efficiency but also in its ability to provide accurate and reliable data (Haqqe et al., 2021), helps make the right decisions, and promotes transparency and accountability in managing the workforce (Widiastuti et al., 2023; Coda, 2023; Gasparovich et al., 2021; Uzoh, 2020). A good understanding of how to implement and manage SIK is increasingly important for public organizations to be able to optimize their workforce management effectively and efficiently (Suseno et al., 2023), (Libriantono, 2024).

According to BKD data for South Sorong Regency, the number of civil servants in South Sorong is around 2,058 people in various sub-districts in South Sorong district, while there are 489 civil servants who will retire in South Sorong district (BPS, 2017). The management of personnel administration at the BKD office in the South Sorong district is still not effective and efficient (BKPSDM, 2019), where there is no use of an information system to find personnel data in several sub-districts in the South Sorong district, as well as BKD benchmarks for knowing employee promotions and employee pension data.

The solution that has been implemented by the South Sorong district government to overcome personnel problems is to use the social media Facebook to find out registrations for employee promotions and find out the number of employees who have retired (Bororing et al., 2016; Rohma & Nuryana, 2022; Ogunode & Garba, 2024; Folorunso & Simeon, 2021). Based on the personnel problems faced by South Sorong Regency, it is necessary to use a personnel application to input personnel data in South Sorong Regency (Sikumbang et al., 2020), (Handayani & Suprpto, 2019), can make

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routine and periodic reports that will be done quickly and easily, find out the number of existing employees and know the number of employees who will retire (Sunarsi et al., 2019), (Princess, 2023). Various methods that have been proposed by previous researchers include the Unified System Development Process (USDP), which is a methodology for developing software, especially object-oriented software (Nugroho, 2010). A continuous system development process, where each part is carried out iteratively (Prabowo, 2020), (Effendy & Mardiani, 2022), (Hermawan et al., 2019). Prototype is a software development method that is widely used (Widiyanto, 2018). With this prototyping method, developers and customers can interact with each other during the system creation process (Saad, 2020).

Prototyping can be interpreted as a process used to assist software developers in forming a model of the software that must be created. Descriptive research method with a qualitative approach, where data collection techniques used in this research are observation, interviews, and documentation (Prehanto et al., 2020; Purnamasari et al., 2019; Sari et al., 2023; Mappasere & Suyuti, 2019). The waterfall method is often also called the classic life cycle (Pratama & Marjun, 2022), (Friansyah et al., 2021), (Ula, 2021). This method was also developed to create software development, by analyzing the requirements needed to build software by identifying problems, feasibility, efficiency, and economics (Pricillia & others, 2021). On researchSufi & Herlinda, (2017) to find out how to analyze e-government-based personnel services at the Pekanbaru City Regional Personnel Agency office using the Descriptive Analysis Method, namely an analysis that attempts to provide a detailed picture.

Based on the proposed research, there is a solution to the problems that have been described, so it is very necessary to have a Personnel Information System at the District Regional Personnel Agency Office. South Sorong to overcome the problems faced by employees who want to process promotion documents. The resulting system is a web-based system that implements Extreme Programming (XP) in designing an effective and efficient system.

## Method

This research uses the PIECES method for system analysis and the Extreme Programming (XP) method for system design (Oktaviani & Sumarlinda, 2021; Priandika & Riswanda, 2023; Rismayadi et al., 2023). The personnel information system requires appropriate analysis to get solutions to problems at the South Sorong BKD. The methods that can be used include the PIECES Method (Performance, Information, Economic, Control, Efficiency, and Service) (Indonesiawan et al., 2023).

Table 1. PIECES analysis

Analysis	Running System	Proposed System
Performance	The process of processing employee data is carried out conventionally, so it takes quite a long time. This was done by collecting employee data in each sub-district of South Sorong district.	The proposed system is a web-based system, so that collecting employee data can be more effective and efficient.
Information	BKD knows information regarding employee data in all sub-districts in South Sorong Regency and also knows the information needed for employee recruitment and retired employees of South Sorong Regency only through reports made in Excel.	The proposed system can provide information regarding personnel data online via the website, such as information on the number of employees in each sub-district, data on employees who will retire, and data on promotions for each employee in each sub-district.
Economy	The costs required in the short term may be relatively cheaper, but in the long term, it requires a lot of costs for inputting personnel data.	The costs incurred to create this system are relatively expensive. However, the system created can be used in the long term, saves time, and is efficient in inputting personnel data in South Sorong Regency.
Controls	Limited time for processing personnel data. Where data must be collected manually in each sub-district and apart from security, employee	Every person who wants to access the system must enter a Username and Password so that employee data is guaranteed to be secure.

Analysis	Running System	Proposed System
Efficient	data is guaranteed not to be stored or organized. To find out employee data, each sub-district must report the data to the South Sorong BKD head office by sending a report in Excel form via email.	The system created can be accessed by every sub-district in South Sorong Regency to input personnel data in each sub-district.
Service	Information presentation services regarding personnel data for South Sorong Regency are still carried out via social media, namely Facebook and email.	Information is presented online and the system can link personnel data, both employees who are still actively working and employees who are about to retire without sending data via social media or email.

According to Barahona Rojas et al., (2020) Extreme Programming (XP) is a software engineering process that tends to use an object-oriented approach, and the target of this method is teams formed on a small to medium scale. This method is also suitable if the team is faced with unclear requirements or changes, which is very fast.

There are four stages that must be carried out in the extreme programming (XP) method, namely:

1. Planning (Planning). This stage is the first step in system development, where in this stage several planning activities are carried out, namely, identifying problems, analyzing needs, and determining a schedule for implementing system development (Bolung & Tampangela, 2017).
2. Design (Design). The next stage is design where at this stage modeling activities are carried out starting from system modeling, and architectural modeling to database modeling. System and architecture modeling using Unified Modeling Language (UML) diagrams (Akil, 2016).
3. Coding (Coding). This stage is an activity to apply modeling that has been made into a user interface using a programming language (Sherley et al., 2021).
4. Testing (Testing). After the coding stage is complete, the system testing stage is then carried out to find out what errors arise when the application is running and to find out whether the system built is in accordance with the user's needs (Mustaqbal et al., 2015).

## Results and Discussion

### Results

Results of research on the personnel information system at the district civil service agency office. Sorong Selatan from the implementation of the method used is as follows:



Figure 1. Administrator login page

In Figure 1, the administrator login page is the access that an admin must access to manage personnel data(Hendrastuty & others, 2022). Username and password validation are required to access the administrator login. In this process, the system can display the login page.

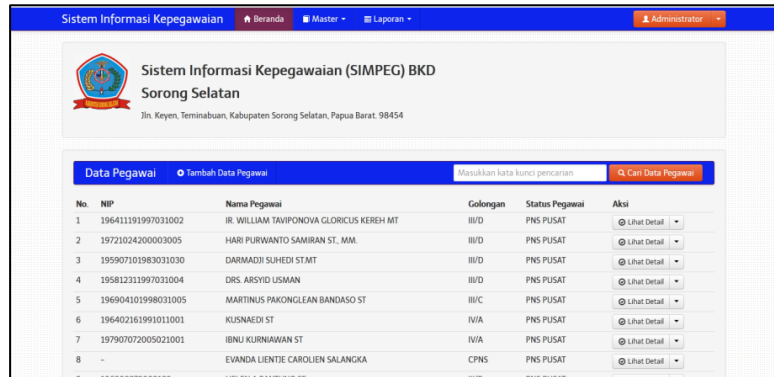


Figure 2. Home page

In Figure 2, the home page is the first page that appears when the admin opens the Personnel Information system and displays employee data. In this process the system can display the main page.

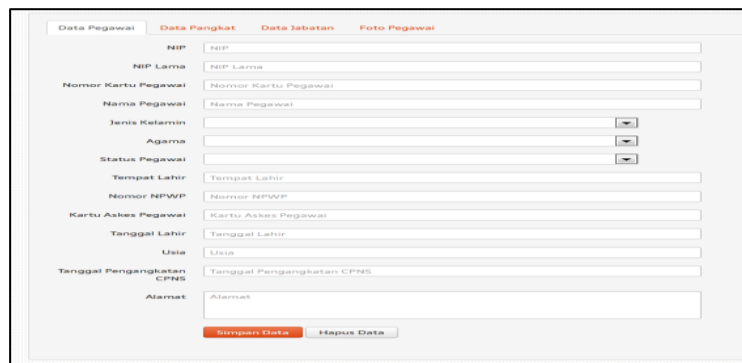


Figure 3. Page for adding employee data

In Figure 3, adding employee data is the process of entering data carried out by the admin such as employee ID, old ID, employee card number, employee name, gender, religion, employee status, place of birth, NPWP number, employee access card, date of birth, age, CPNS Appointment Date and Employee Address. In this process the system can input employee data.

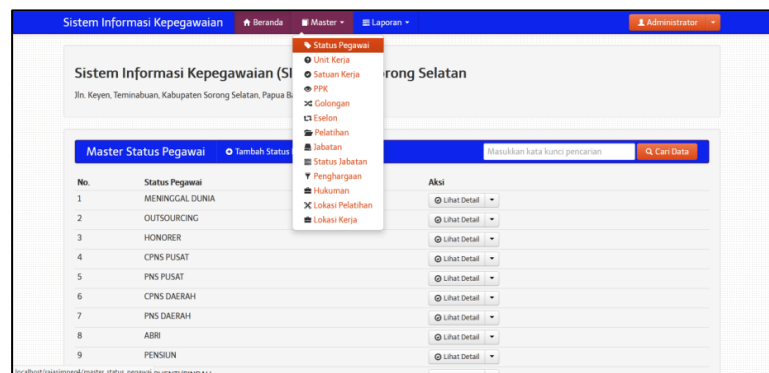


Figure 4. Master menu

In Figure 4, the master menu contains a list box. In the list box there are several menus to display employee status pages, work units, work units, PPK, class, echelon, training, position, position status, rewards, punishments, training locations, and locations. Work(Teguh & Elizabeth, 2020). For each menu selected in the list box, data can be added.

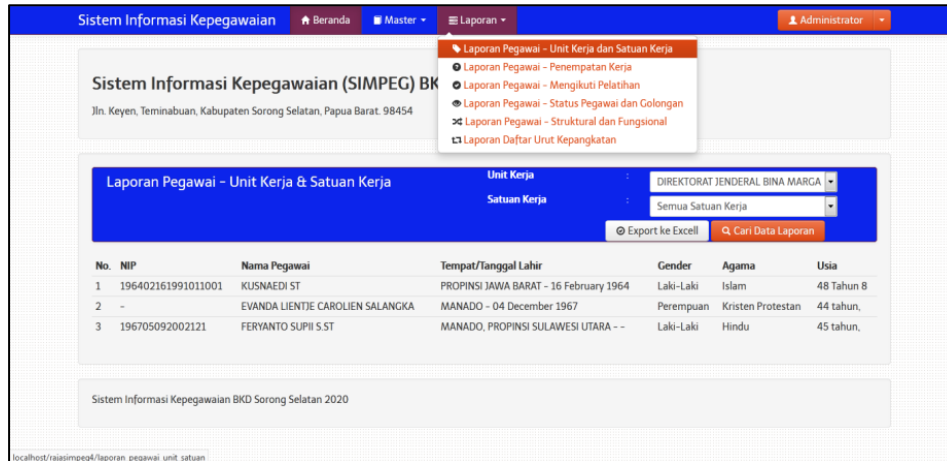


Figure 5. Report menu

In Figure 5, the report menu contains a list box. In the list box, there are several menus to display reports on employees of work units and work units, work placements, following training, employee status and class, structural and functional, and reports on the rank list.

## Discussion

Testing of the personnel information system at the district civil service agency office. Sorong Selatan was carried out using the black box method(Mustaqbal et al., 2015),(Patria, 2023)as follows:

Table 2. Admin Testing Scenarios

Test Features	Testing Details
Login	Fill in the login form
Home Admin	Displays the Employee Data Page
<b>Masters</b>	
Employee Status Master	Displays a list of employee statuses
Work Unit Master	Displays a list of work units
Work Unit Master	Displays a list of work units
MastersPPK	Displays the PPK list
Master Group	Displays a list of employee classes
Master Echelon	Displays a list of employee echelons
Training Master	Displays a list of employee training
Department Master	Displays a list of employee positions
Master Position Status	Displays a list of job statuses
Awards Master	Display the list of awards
Punishment Master	Displays a list of penalties
Training Location Master	Displays a list of training locations
Job Location Master	Displays a list of work locations
<b>Report</b>	
Work Units and Work Units	Displays work unit and work unit reports
Job Placement	Displays the job placement report
Attend Training	Displays reports following training
Employee Status and Class	Displays employee and class status reports
Structural and Functional	Features structural and functional
List by rank	Displays a ranking list report

The following are the results of functional testing of the employee information system:

Table 3. Admin Login Testing

Correct Test Cases and Results (Correct Data)			
Scenario	Expected results	Observation	Note
Fill in login data, Username: admin Password: admin	If the login data is valid, the admin will enter the employee information system	Valid Login Data	Succeed
Incorrect Test Cases and Results (Incorrect Data)			
Scenario	Expected results	Observation	Note
Incorrect username and password	Leave the username and password forms blank	Form is empty	Succeed

The admin login functionality test results in Table 4.3 show that when the admin enters the username and password correctly, the system will display the main admin page.

Table 4. Admin Feature Testing

Correct Test Cases and Results (Correct Data)			
Scenario	Expected results	Observation	Note
Opens the admin home page	Displays the employee data page	Displays the employee list page	Succeed
Open the Employee Status Master	The data displayed is a list of employee status	Displays a list of employee statuses	Succeed
Open the Masterwork unit	The data displayed is a list of work units	Displays a list of work units	Succeed
Open the work unit master	The data displayed is a list of work units	Displays a list of work units	Succeed
Opening PKK Master	The data displayed is a list of PKK	Displays the PKK list	Succeed
Unlocks the Master Group	The data displayed is a list of groups	Displays a list of groups	Succeed
Opening the Master echelon	The data displayed is a list of echelons	Displays the echelon list	Succeed
Unlocks Master training	The data displayed is the training list	Displays the training list	Succeed
Open Master position	The data displayed is a list of positions	Displays a list of positions	Succeed
Opens Master position status	The data displayed lists job status	Displays a list of job statuses	Succeed
Unlock Master awards	The data displayed is a list of awards	Displays a list of awards	Succeed
Unlocks Punishment Master	The data displayed is a list of penalties	Displays a list of penalties	Succeed
Open the Job Location Master	The data displayed is a list of work locations	Displays a list of work locations	Succeed
Open work unit and work unit reports	Data displayed in work unit and work unit reports	Displays a list of work units and work units	Succeed
Open the job placement report	Data displayed in the job placement report	Displays job placement reports	Succeed
Open a report following training	The data displayed in the report follows the training	Displays reports following training	Succeed
Open employee and class status reports	The data displayed is the employee status report and class	Displays employee and class status reports	Succeed
Opens structural and functional reports	The data displayed in structural and functional reports	Displays structural and functional reports	Succeed
Open the ranking report	The data displayed is in rank order	Displays a rank order report	Succeed

## Conclusions and Suggestions

### Conclusions

Based on the results of the research and discussion that have been described, a conclusion can be drawn, namely that analysis of problem-solving in the South Sorong Regency Regional Personnel Agency Office requires a system that can help manage employee data. This Personnel Information System application was created using Xampp and Sublime Text software. Xampp is used as a local server or localhost and creates a MySQL database with the phpMyAdmin feature. Sublime Text is used for programming, coding or as a place to write scripts in terms of designing and managing websites on localhost. Based on the system test results, it can be concluded that the web browsers that can access the application via a computer are Google Chrome, Mozilla Firefox, and Opera Mini.

## Suggestions

This application can still be developed along with the development of user requirements specifications, especially in terms of appearance, it would be better to make the appearance more attractive and develop it further. There are still many other facilities that can be developed in this application, these developments can certainly improve the quality of the software and be in line with the requirements and needs that can be met by a government agency.

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