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PPH 21 Tax Calculation Application for Permanent Employees at The Bandung Regency Fire Service

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ABSTRACT

This study aims to create a software application that can accurately compute PPh 21 (income tax) for full-time employees at the Bandung Regency Fire Department. The development process will utilize an Object-Oriented Analysis and Design (OOAD) System Development approach. The primary aim of this study is to mechanize the computation of PPh 21 in compliance with relevant tax statutes while streamlining tax and payroll administration at the organization.

The development methodology comprises five primary phases: requirements analysis, system design, implementation, testing, and assessment. During the requirements analysis phase, data is gathered through interviews, observations, and literature research to comprehend the system's functional and non-functional requirements. The system design step entails developing a system architectural design that includes class, use case, and interaction diagrams to guarantee that the system fulfills the given requirements. Implementation involves creating program code based on the design and integrating system components.

The testing phase encompasses unit, integration, system, and acceptance testing to verify that the system operates as intended and is error-free. The evaluation phase incorporates the participation of end users to gather input on the system's usability, efficiency, and precision and introduce enhancements prior to its complete implementation.

The research findings demonstrate that using this internet-based application can enhance the effectiveness and precision of tax computations, mitigate the likelihood of data loss, and facilitate heightened job efficiency at the Bandung Regency Fire Department. This application is anticipated to favorably impact tax and payroll management at the agency while also enhancing the quality of public services through digitalization and technological innovation.

Keywords: PPh 21 Calculation, Tax, PPh 21, OOAD

INTRODUCTION

The internet enables innovative technological advancements, greatly enhancing information access. Advancements in technology have eliminated the barriers of distance and time when it comes to receiving information, which is now considered a crucial necessity for people.

Presently, the Bandung Regency Fire Department is utilizing Microsoft Excel to perform calculations for PPh 21 to fulfill its internal requirements. Nevertheless, this manual approach poses numerous barriers and difficulties, particularly when entering data into the system. The computation procedure is intricate and time-consuming due to its reliance on numerous processes and human data processing. (Rachman, 2023; Ginting & Muhtarudin, 2023; Fadila, Wisna & Fahrudin, 2023)

Introducing the new integrated system is anticipated to enhance the efficiency of the internal data input procedure at the Bandung Regency Fire Department. This solution will enhance the efficiency and precision of personnel in performing tax calculations. Streamlining the PPh 21 calculation procedure is anticipated to enhance labor efficiency and reduce human errors in data entry. (Sitorus, & Simanjuntak, 2023; Bukidz, 2022; Azzahra, Fauziyah & Srikalimah, 2023)

In addition, this system update is anticipated to positively influence the public services offered by the Bandung Regency Fire Department to the general population. Hence, implementing an automated PPh 21 calculation method is crucial for streamlining internal operations at the Bandung Regency Fire Department while enhancing efficiency and precision in computing taxes for permanent employees.

The advent of information technology has significantly impacted diverse facets of human existence, encompassing the realm of government administration. Incorporating information technology in the government sector has become imperative to enhance efficiency, efficacy, and transparency in diverse administrative procedures. Information technology dramatically enhances calculating and managing taxes, notably Income Tax Article 21 (PPh 21). (Tinggogoy, Manaroinsong & Kambey, 2020; Langkedeng, 2022; Winarsih, 2022; Kismawati & Sulastri, 2024)

PPh 21 is a tax levied on the earnings of domestic individual taxpayers, specifically on their income from salaries, honorariums, allowances, and other payments received about particular employment, services, or activities. Accurate administration and computation of PPh 21 is crucial to guarantee compliance with relevant legislation and prevent financial repercussions and damage to the credibility of the involved entities.

As a governmental entity, the Bandung Regency Fire Department is responsible for ensuring accurate and timely calculations of PPH 21. Nevertheless, the existing manual calculation approach utilizing Microsoft Excel poses numerous difficulties. This manual procedure entails numerous stages, commencing with data gathering, inputting the data, performing tax computations, and concluding with reporting. Every stage of this procedure is vulnerable to human fallibility, which can lead to imprecise and laborious tax computations.

Developing a comprehensive PPh 21 calculating application can be a viable way to address current challenges. This application is specifically developed to streamline the tax calculation process by incorporating features that facilitate the automation of several phases involved in the process. This program enables expedited and precise data collection and input, automatic tax computations in compliance with relevant legislation, and enhanced efficiency in tax reporting.

This PPh 21 calculation program not only automates the process of calculating taxes but also offers a range of supplementary features that facilitate tax data management. The functionalities encompass managing employee data, handling income and tax deduction data, and creating tax reports in compliance with the tax authority's specified format. The Bandung Regency Fire Department can utilize these capabilities to effectively handle employee tax data, thereby minimizing the likelihood of errors and enhancing the precision of tax calculations. (Djong, Situmorang & Indria, 2023; Lestari & Aisyah, 2023 ;Karyadi, Yoga & Rashidah, 2021)

In addition, this PPh 21 computation program offers other notable advantages. Firstly, this application can enhance employee work efficiency by reducing the time needed to perform tax calculations manually. By delegating work, employees can allocate their attention to more crucial and strategic responsibilities, thus enhancing the overall productivity of the agency. Furthermore, this program can enhance transparency in tax management by allowing for the tracking and thorough documentation of every stage in the tax calculation process. Ensuring the accountability and credibility of the agency is of utmost importance in fulfilling its obligations and responsibilities.

In addition, implementing the PPh 21 calculating application can positively enhance the public services the Bandung Regency Fire Department offers. By implementing a more streamlined and precise system, this agency may enhance its services to the community. By utilizing faster and more precise tax computations, the Fire Department can enhance its ability to allocate resources effectively toward its primary responsibilities, such as fire management and rescue operations. (Putri, Wisna & Hariman, 2023; Baradja, Yuanita, & Budi, 2020)

Furthermore, using information technology in tax calculations aligns with the government's endeavor to enhance the caliber of public services using digitization and technological innovation. The government has implemented diverse measures to foster the adoption of information technology in the public sector to enhance the efficiency, efficacy, and transparency of public services. Adopting the PPh 21 calculating application by the Bandung Regency Fire Department is a tangible measure of endorsing this endeavor. It demonstrates the agency's dedication to ongoing innovation and enhancement of the services rendered to the community. (Anisa, 2022; Fresilina, Kusuma & Kusumaningarti, 2023; Asnia, Wisna & Fahrudin, 2023)

In order to implement the PPh 21 calculating application, it is necessary to follow a series of procedures. Initially, a comprehensive needs study is conducted to comprehend the current business processes and ascertain the essential functionalities required in the application. This analysis encompasses multiple stakeholders, such as personnel engaged in the tax computation process, management, and other pertinent parties. Furthermore, the application development process is conducted using the needs analysis findings while considering the necessary technical and functional elements. The Fire Department's IT team can internally construct this application or collaborate with third-party experts in tax application development. (Puapadang, Elim, & Pangerapan, 2021; Islamy & Ervina, 2021; Rochendi, 2020)

Furthermore, application testing is conducted to verify the functional functioning of the application and its compliance with the defined requirements. This testing encompasses a range of usage scenarios to verify the application's ability to handle diverse conditions that may arise throughout the tax calculation process. Furthermore, personnel undergo training to ensure proficient application utilization and comprehension of its offered capabilities. This training is crucial to enable the program's effective utilization and maximum benefits.

Additionally, the program is executed sequentially to guarantee a seamless transition from human to automated approaches. By implementing this staged approach, the Fire Department can detect and resolve potential issues during the changeover, reducing interruptions to everyday operations.

By executing these procedures, deploying the PPh 21 calculating application at the Bandung Regency Fire Department can be accomplished effectively and yield substantial advantages. This application will enhance the efficiency and accuracy of tax calculations while benefitting the quality of public services these authorities offer. In addition, implementing this application will contribute to the government's initiatives to promote digitalization and technological innovation in the public sector. It will also serve as a testament to the Bandung Regency Fire Department's dedication to ongoing innovation and enhancing the quality of services offered to the community.

METHOD

This study employs an object-oriented approach (Object-Oriented Analysis and Design/OOAD) to create a software application that calculates PPh 21 for full-time personnel at the Bandung Regency Fire Department. The OOAD technique was selected because it can address common challenges encountered in traditional software development methodologies, such as the complexities associated with transitioning outcomes from one development phase to another. Furthermore, this approach is adaptable to various applications and platforms, encompassing corporate, real-time, and utility applications.

The initial phase of this approach involves conducting a needs analysis. During this phase, data was gathered from multiple sources, encompassing interviews with Fire Department personnel, directly observing the existing tax calculation procedure, and doing book reviews on PPh 21 calculations and pertinent technology. The objective is to comprehend the functional and non-functional prerequisites of the system to be created. The outcome of this research is a paper outlining the system requirements, which will serve as the foundation for the design phase.

Subsequently, the system design phase is executed, utilizing the created requirements documents as a foundation. During this phase, a system architecture design is developed, encompassing class, use case, and interaction diagrams. This design will illustrate the interplay between system components and data movement inside the system. This design aims to guarantee that the built system can fulfill all the requirements defined in the previous stage.

The implementation stage involves translating the developed design into program code. During this phase, developers utilize suitable programming languages and software development tools that facilitate object-oriented methodologies. The process of writing code is executed according to the previously planned design, and the developed components are integrated.

After implementation, the testing phase is conducted to verify that the system operates according to expectations. Testing encompasses several types, such as unit testing, integration testing, system testing, and acceptance testing. The purpose of this testing is to identify and rectify any flaws or problems that may be present in the system and verify that the system fulfills all the predetermined requirements.

The last phase is assessment. At this step, the system that has been developed and tested undergoes a comprehensive evaluation to determine its performance. The assessment was conducted by engaging end users, specifically workers of the Fire Department, to gather input on the system's usability, efficiency, and precision. The outcomes of this assessment are

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utilized to enhance and refine the system prior to its ultimate and complete implementation. By adhering to these processes, the built PPh 21 calculating program would effectively and efficiently fulfill the requirements of the Bandung Regency Fire Department.

RESULTS AND DISCUSSION

System Analysis

1. Running System Analysis

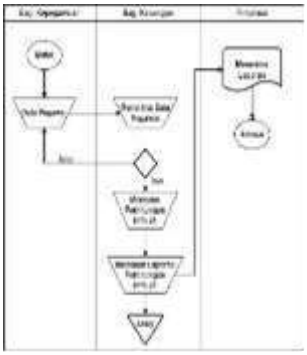

Figure 1. Current System Analysis Flowmap

2. Usecase Diagrams

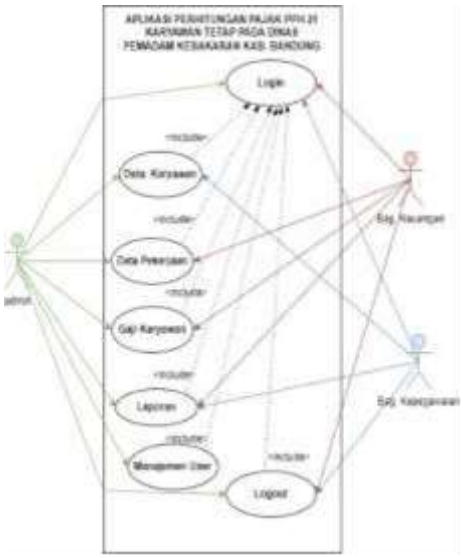

Figure 2. Use case diagram

3. Activity Diagram Managing Employee Salaries

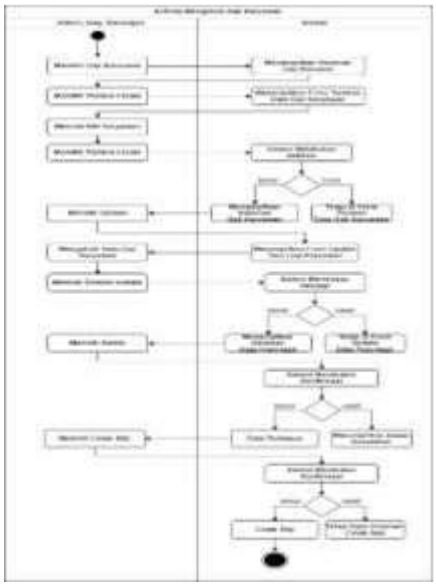

Figure 3. Activity Diagram for Managing Employee Salaries

System Planning

1. Sequence Diagrams

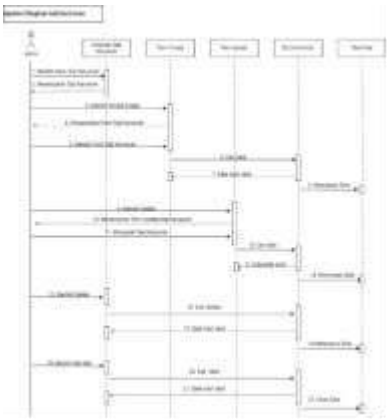

Figure 4. Salary Sequence Diagram

2. Class Diagrams

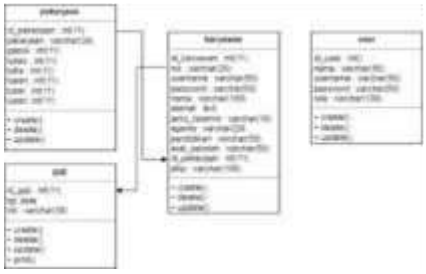

Figure 5. Class Diagram

3. Database Design

Table 1. Employees

Field	Type Data	Size
employee_id	int	11

Nick	varchar	20
username	varchar	50
passwords	varchar	50
Name	varchar	100
address	text	
gender	varchar	10
religion	varchar	20
education	varchar	50
school	varchar	100
job_id	int	11
ptkp	varchar	100

Table 2. Occupation

Field	Type Data	Size
job_id	int	11
work	varchar	30
nope	int	11
Tukes	int	11
tutra	int	11
tupen	int	11
Tukel	int	11
iupen	int	11

Table 3. Salaries

Field	Type Data	Size
salary_id	int	11
date	date	
Nick	varchar	30

Table 4. Users

Field	Type Data	Size
user_id	int	11
Name	varchar	30
username	varchar	50
password	varchar	50
roles	varchar	100

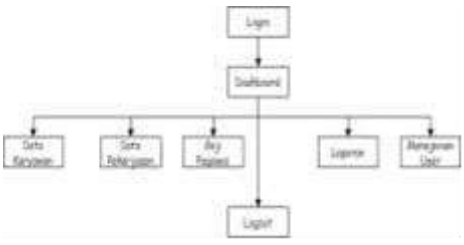

Figure 6. Menu Structure

4. Menu Structure

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Figure 7. Login Form Design

Figure 8. Dashboard Display Design

Design Implementation

The system implementation step involves describing an application system in a manner that prepares it for operation. At this point, the design is converted into code that can be executed. This process encompasses coding, integrating components, and conducting tests to verify that the system operates in accordance with predetermined standards. Effective execution will guarantee the seamless operation of the application and the efficient fulfillment of user requirements.

Figure 5.1 Implementation of the Login Form Interface

Figure 5.2 Implementation of the Dashboard Interface

CONCLUSION AND RECOMMENDATION

The research findings indicate that using a payroll application and the PPh 21 calculation program at the Bandung Regency Fire Department will significantly facilitate the management and streamlining of the employee income tax calculation process. This program aims to address the challenges commonly encountered when using manual calculation methods in Microsoft Excel using the object-oriented analysis and design (OOAD) approach. The manual procedure frequently necessitates numerous sequential actions and is susceptible to human fallibility, resulting in prolonged duration and inefficiency.

Utilizing a web-based application is the optimal choice for the Bandung Regency Fire Department as it mitigates the potential for data loss by securely storing information in a database. Web-based solutions facilitate convenient and adaptable user access, enabling employees to perform tax calculations from anywhere and anytime, provided they have an internet connection. In addition, this application is specifically intended to guarantee the precision of tax computations by relevant legislation, which is crucial for upholding compliance with tax laws.

The deployment of this program is expected to enhance efficiency and precision in tax calculations while bolstering the work productivity of staff in the Bandung Regency Fire Department. By implementing automation in tax calculations, personnel can free up additional time and resources to focus on other strategic responsibilities, such as managing fire and rescue operations. Furthermore, this is anticipated to enhance the caliber of public services rendered by the Fire Department to the community.

An idea that could be considered for future application development is incorporating a tariff function into tax calculations. This functionality will be highly beneficial in ensuring that the program can promptly and accurately adapt to regulatory changes, particularly in tax rates, as mandated by the government. By including this functionality, the program will enhance its flexibility and adaptability to policy modifications, ensuring its continued relevance and utility over an extended period.

This research demonstrates that introducing a web-based PPh 21 calculating tool at the Bandung Regency Fire Department is a very suitable and valuable measure. This program not only streamlines the tax computation process and enhances job productivity but also offers a secure and dependable solution for tax data management. By persistently enhancing and refining its functionalities, such as incorporating tax rate capabilities, this program aims to consistently fulfill the requirements of the Bandung Regency Fire Department in effectively and efficiently handling employee income taxes. This collaboration will benefit the government's endeavors to enhance the caliber of public services by using digitization and technological innovation in the governmental domain.

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