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Designing Payroll Information System: Case Study on CV. Bandung ID card

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Abstract. This study aims to build an information system that will help the business processes of an organization or a company that has implemented payroll and presence but the presence process is still using a lot of manual processes and has not been integrated with payroll. The methods used in this study are the object-oriented system approach method and the prototype system development method. Object-oriented approach is a new way of thinking seeing problems through real-world observations where each object is a single entity that has a combination of certain data structures and functions. The results of this study are the design and construction of a desktop-based payroll information system can more efficiently time and errors that often occur and processes that are still manually changed to be computerized for example in the presence process using RFID, recording and input data attendance is already automated finance payroll.

1. Introduction

The development of information technology is influenced by the high demand for accurate, effective and efficient technology and information systems. Information system is a system created by humans that consists of components in the organization to achieve a goal that is presenting information [1]. The use of information systems is very important to support the task of making decisions in controlling operational activities in the company. Effectiveness of using Information systems depends on the perception of the usefulness of information produced by the system. using information systems can lead to better leadership decisions effectively in the transaction process and internal control, improve report quality and increase performance measures [2]. Therefore, the use of computers is very important, especially for the data processing. To minimize the level of errors in entering data, recording data and making reports. Companies need information systems that can help in processing data [3]. There are several important activities in a company, ranging from recruitment, training, assignment, compensation (payroll), and performance between companies and employees [4]. One part of the information system that wanted to be developed in order to handle the problems that often occur in the company is the payroll system and its presence. The payroll system is a series of business activities related to continuous data processing. The payroll information system is able to carry out the automatic payroll calculation process where the salary components such as basic salary, overtime, leave, and attendance data are very important things in an organization, because it is one of the considerations in wages [5]. In the implementation of the payroll information system the implementation of the system that is running now is using a semi-computerized system. The presence system still uses paper, and the payroll system is in the form of an application. In the application that is still semi-computerized it will certainly make it difficult for companies in the process of recording data attendance. In its implementation, both of these things are inseparable from the manual process and procedures in recording and inputting data presence

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into the payroll system. This manual process raises several obstacles including the process of recording the presence of old data, susceptible to errors in inputting the presence to the payroll system and the ineffectiveness of paper media as a data storage media presence. The use of Radio Frequency Identification (RFID) as a paper substitute media in the presence process is a solution that can be used to streamline the preservation of data presence.

Several previous studies in making payroll information systems, such as research conducted by Suryanto about the design of payroll information systems resulted in a system design that still manually became computerized [6]. In Sulis Sandiwarno's research on the design of payroll information systems produced a payroll application to shorten the processing time of payroll data and reduce the problem of human errors in employee salary calculation [3]. While in the study of Pavitra R. G., Sugadev R and Y.K. Sharma's Payroll Management System produces a database design that is capable of storing large data of employees and users to access, update, and delete data flexibly [7]. As in Mohd Helmy et al's research on the design and development of attendance systems using RFID resulted in integration between cellular software and computer software to tap students' attendance data. So as to facilitate users in terms of time, energy, and cost [8]. while in B Kurniawan's research on integrated academic information systems using RFID produces an integrated information system based on RFID so that management can monitor data on one system only [9]. Radio Frequency Identification (RFID) is a wave-based identification technology. The identification method uses a tool called an RFID label or transponder to store and retrieve data remotely. [10].

The purpose of this study is to determine the development of payroll information systems using descriptive methods to collect primary and secondary data, and system development methods using object-oriented methods and prototype methods, which will produce an integrated system between payroll and presence. making this payroll system can be used to save data to the database automatically using RFID, and at the time of payroll, the system will automatically recap the data stored in the database.

2. Method

To collect the data methods, namely descriptive methods and actions, produce two data, namely primary data and secondary data. Primary data generated in the form of direct observation and interviews (interviews), while secondary data generated in the form of documents that contain payroll and presence. To discuss and develop systems using methods related to objects and methods of developing prototypes.

3. Results and Discussion

3.1 Analysis of Current System

A. use case diagram

To determine the details about what the system will do to build, before designing a system, the first step is to producing a good information system is to analyze how the system is being implemented.

A. use case diagram

The description of the system applied can be seen in Figure 1.

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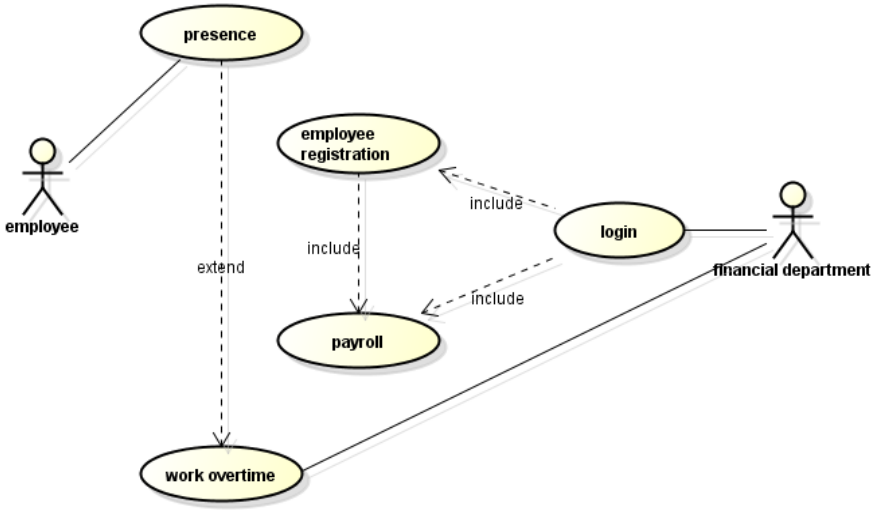

Figure 1. Use Case Current System

The use case diagram of the payroll and presence system applied, there are 5 use cases, namely presence, work overtime, login, employee registration, payroll and 2 actors, namely employee and financial department.

B. Evaluate the current system

From the results of observations was found several weaknesses and shortcomings in the system that is currently running, the weakness and shortcoming and solutions can be seen in Table 1 [11].

Table 1. Current Evaluation System

NO	Problem	department	Solution
1	The process of attendance carried out still uses paper proceed a lack of effectiveness in the presence and calculation of overtime hours	Employees & finance department	Make a computerized presence that can recap presence.
2	The attendance process and payroll are still done separately.	Finance department	Creating a system and integrate attendance and payroll.
3	Lack of variable input process in payroll, where inputting payroll variables is still done manually.	Finance department	Creating a system that has been automatically inputted.

3.2 System Development

To design a system method is needed to describe the system from a user perspective, useful to help understand needs. Describe the system design using use case diagrams after making a scenario, and creating a system interface, then use the prototype modeling method. The prototype method is a method used to develop software designed to accept changes and improve software in order to meet user needs [12].

3.3 System Design

This desktop-based payroll information system is an information system designed to change processes that are still manual and integrate it between payroll and presence can be seen in Figure 2.

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It can be seen that activities related to the object of research, procedures and process of data processing presence, employee registration, payroll, overtime calculation which includes the making of documents, data recapitulation, which parts are involved. The design system proposed is seen from the use case diagram, there are 4 use cases and 2 actors. 4 use cases consist of login, employee registration, attendance, and payroll. While for the 2 actors, it consists of employees and the finance department. The proposed system design can be seen from Figure 2.

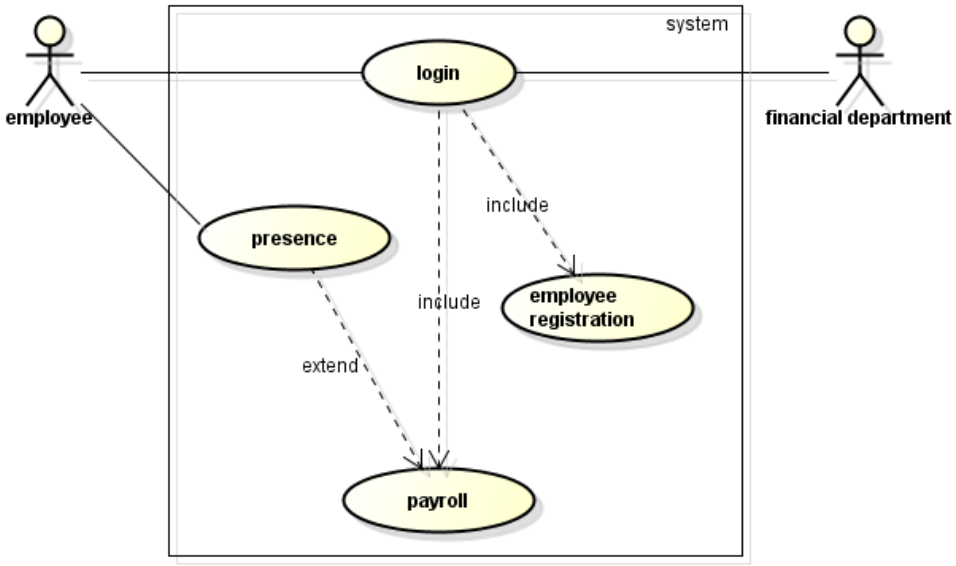

Figure 2. Use Case Design System

To be able to find out a detail about the stages of system design that is designed on a desktop-based payroll information system. It will be explained using a use case scenario. Can be seen in Tables 2-5. Table 2 describes the use case presence in detail about the steps that the user is doing and the reactions that arise.

Table 2. Scenario Use Case Presence

Identification	
No	1
Use case name	presence
purpose	Do attendance
Actor	employee
Description	This Use Case describes the results of attendance
Main scenario	
Initial conditions	**Presence paper has not been filled**
Employee	**paper**
1. Do attendance by using RFID when coming to the office	
	1. Save a coming presence
2. Do attendance by using RFID when coming to the office	
	2. Save home attendance
Final condition	Presence data is stored in the database

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Table 3 describes the use case login in detail about the steps that the employee performs and the financial department of the system and the system reaction.

Table 3. Scenario Use Case Login

Identification	
number	2
Use case name	Login
purpose	Log in to the system
actor	Employee & Financial department
description	This Use Case describes to enter the system
Main scenario	
Initial conditions	The system cannot be accessed
Employee & Financial department	**System reaction**
1. Open the system	
	2. Display the login menu
3. Input your username and password	
	4. Reading username and password
Final condition	Employees and finance can access the system

Table 4 describes the use case of employee registration in detail about the steps taken by the financial department of the system and system reactions

Table 4. Employee Registration Use Case Scenario

identification	
number	3
Use case name	Employee registration
purpose	Add new employees
actor	Financial department
description	This Use Case describes the registration of new employees
Main scenario	
Initial conditions	The Finance Section provides the form
Financial department	**System reaction**
1. Enter the Employee Registration menu	
	2. Display the registration form
3. Enter employee data	
	4. Save employee data to the database
Final condition	A new employee has been registered to the system

Table 5 explains the use case of payroll in detail about the steps performed by the financial department on the system and system reactions.

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Table 5. Payroll Use Case Scenario

Indefication	
Number	4
Use Case Name	payroll
Purpose	pay salary
Actor	Financial department
Description	Use Case describes the payroll results of employees
Main Scenario	
Initial Condition	Open the payroll form
Financial Department	**System Reaction**
1. Choose an employee NIK	
	2. Showing employee salary data
3. Save salary	
	4. Save salary payments
5. Print a paycheck	
	6. Display the pay slip
Final condition	The finance department submits a pay slip to employees

3.4 System Interface

As explained before, the payroll information system interface can be seen in Figure 3:

Figure 3. Login Display

Login display menu Figure 3 is the first App view opened. in order to be able to access the application, the user must log in first by selecting access rights and then entering the username and password that have been stored in the database.The appearance can be seen in Figure 4.

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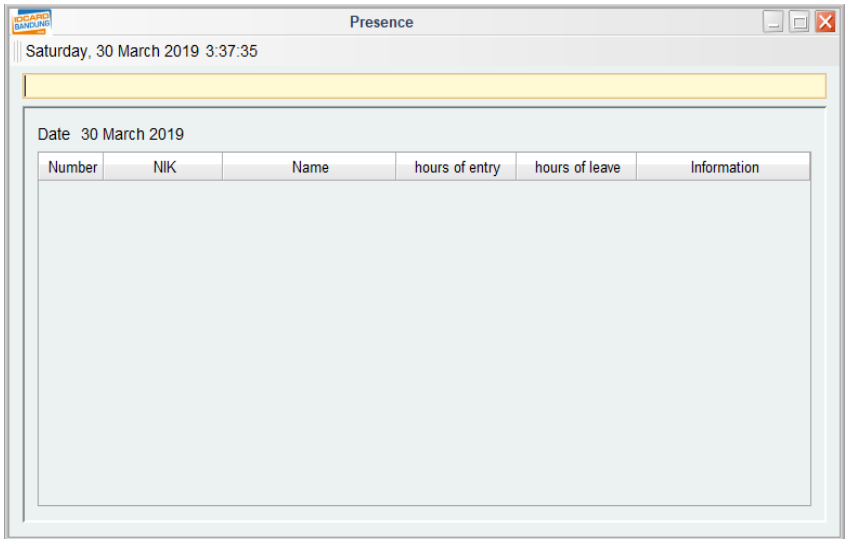

Figure 4. Presence Display

the appearance of Figure 4 is to display data on employees who attend when they come and will go home. This presence display can also automatically notify attendance information that is late and return home prematurely. Payroll Display can be seen from Figure 5.

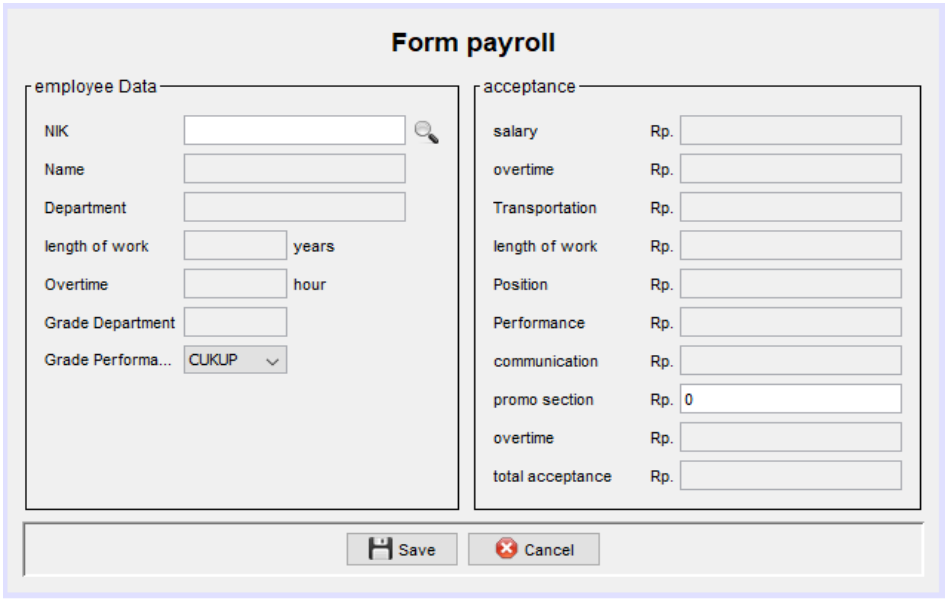

Figure 5. Payroll Display

payroll display on Figure 5 used in the financial section to make payment of salaries that will be received by each employee just by inputting the NIK data, the finance department can already find out the salary to be paid.

4. Conclusion

Based on the results of the design and construction of a desktop-based payroll information system can more efficiently discover time and errors that often occur and processes that are still manually changed to be computerized for example in the presence process using RFID, recording, and input data attendance is already automated finance payroll.

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