223-IMEIS-TURNITIN-REV

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EMPLOYEE PAYMENT DATA APPLICATION DESIGN (CASE STUDY IN CV. TWINS19)

ABSTRACT

At first, employees collect attendance support letters containing attendance sheets and permits if not working as well as overtime certificates to the financial administration section, after which the financial administration will calculate salaries first to be submitted to the accounting department. Because employee payroll is still done manually, errors often occur in absenteeism and in calculating salaries given to employees. Then the frequent occurrence of errors in recording reports is also because the payroll is still done manually.

This system is analyzed and designed using descriptive research methods and development techniques using the waterfall method. The programming language used by this system is PHP with XAMPP web server and PHPMyAdmin database. This employee payroll application that has been created can help companies make it easier to record payroll transactions, and archive payroll and attendance reports.

Keywords: Financial Report, Waterfall, PHPMyAdmin

INTRODUCTION

Salary refers to the remuneration granted to those who have rendered services to a particular organization or establishment. Each employee employed by a company is eligible to get remuneration by the policies and guidelines established by the organization. Similar to the case of CV. Twins19, this particular organization can be classified as a manufacturing firm. Salary distribution holds excellent importance since it substantially impacts employee motivation.

At the outset, employees would furnish attendance support letters to the financial administration department, encompassing attendance sheets and leave permits in cases of absence, along with overtime authorization letters. Subsequently, the financial administration would proceed with the computation of salaries prior to their transfer to the accounting department.

Due to the continued reliance on manual employee payroll processing, errors frequently arise in attendance record maintenance and salary computation for employees. Additionally, errors in the documentation of reports often occur due to the manual processing of payroll.

As technological advancements progress at a quick pace, it becomes increasingly evident that there is a growing need for various aspects of everyday living. In the present study, the manual handling of employee payroll transactions does not present a significant challenge. However, complications arise when the manual recording method exhibits a multitude of mistakes. Hence, it is advisable to employ a web-based system for managing employee payroll.

The chosen title for analysis is "Analysis of the Design of the 'EMPLOYEE PAYROLL DATA APPLICATION AT CV. TWINS19'". This application is developed on a web platform and utilizes a MySQL database that can create and store a large number of data tables.

RESEARCH METHOD

The study utilizes the Descriptive Research method, which comprehensively describes a current phenomenon, event, or incident. About this matter, the study employs the subsequent methods for data collection:

a) A literature review involves systematically collecting and analyzing material from guidebooks or references essential for conducting research. It entails examining and assessing existing literature's content to address the specific topic at hand.
b) Field study is a research methodology that involves the direct collection of data on the subject of study. This method entails gathering data by various means, such as observations, interviews, and surveys.
    1. The interview method is a commonly employed approach for data collection, involving posing questions to pertinent individuals or groups.
    2. Observation is a method of gathering data that entails the direct study, evaluation, and analysis of procedures within the data processing system.
C) Documentation is a method of gathering data that includes the systematic collection and examination of many types of Documentation, such as textual materials, visual representations, and electronic records. Documentation encompasses more than the mere compilation and citation of quotes from diverse sources; it necessitates a thorough analysis of the substantive information contained within those documents.

The topic of interest is the methodology employed in system development.

The research technique refers to the systematic procedure employed to gather diverse data, which is subsequently processed to generate more precise and reliable information, aligning with the specific problems under investigation. The utilization of research methodology serves as a framework for researching to ensure that the attained outcomes remain aligned with the predetermined objectives. The software analysis and design process commonly employs the Waterfall Model, widely recognized as the traditional life cycle approach. The software development model under consideration is characterized by a sequential and systematic approach, wherein various phases are followed in a defined order. These phases commence with the customer requirements specification and proceed through planning, modeling, construction, and deployment.

The ultimate objective of this model is to provide continuous support for creating a comprehensive software system.

This particular model can be utilized when there is a clear understanding of the problem's needs, and the workflow can go linearly from communication to deployment. This scenario arises when modifying or expanding an established system is specified. Furthermore, this model can be effectively employed in scenarios with minimal need for extensive software development efforts. However, the software requirements are specified and tend towards stability. Nevertheless, within the realm of software development, this model tends towards reduced iteration and flexibility, as the progression of the process follows a unidirectional flow akin to that of a waterfall. The Royce waterfall paradigm entails the consecutive execution of the following phases:

1. The system and software requirements are documented in the product requirements document.
2. Analysis: This phase generates models, schemas, and business rules.
3. The design phase is responsible for generating the software architecture.
4. The Field of Coding: Exploring Software Development, Validation, and Integration.
5. Testing: The methodical process of identifying and resolving defects in a system.
6. The system's operations encompass several activities, including installation, migration, support, and comprehensive system maintenance.

Hence, according to the waterfall model, the project team must go to the subsequent phase upon completing a comprehensive review and verifying the preceding phase. Nevertheless, other adapted versions of the waterfall model, such as the Royce model, can include minor deviations in this procedure. These variants encompass the possibility of reverting to a prior cycle if problems are detected downstream or returning to the design phase if it is determined that the downstream phase is inadequate. The book "Software Engineering: A Practitioner's Approach" outlines the phases of the waterfall paradigm as Communication, Planning, Modeling, Construction, and Deployment.

The methodical execution of this method begins with the phase of system requirements and proceeds through analysis, design, coding, testing/verification, and maintenance. The execution of each stage must be carried out consecutively, without the option to bypass subsequent phases, thus justifying the term "waterfall."

According to Ian Sommerville, the Waterfall Method consists of five distinct stages: Requirements Analysis and Definition, System and Software Design, Implementation and Unit Testing, Integration and System Testing, and Operational and Maintenance.

Contrarily, as posited by Pressman (year), the sequential phases of the Waterfall Method commence with Requirement, Design, Implementation, Verification, and Maintenance.

RESULT AND DISCUSSION

A sequence diagram is a type of UML (Unified et al.) diagram that illustrates the interactions between objects or components in a system.

A sequence diagram is an interaction diagram that visually represents the chronological order of events and their interactions inside a system. Moreover, the Sequence Diagram is classified as one of the interaction diagrams, which elucidates the process by which an operation is executed. Every sequence diagram will illustrate the various interactions and message exchanges inside a particular use case.
The Sequence Diagram illustrates the sequential steps in the login process for accessing the Web-Based Employee Payroll Application at CV. Twins19.

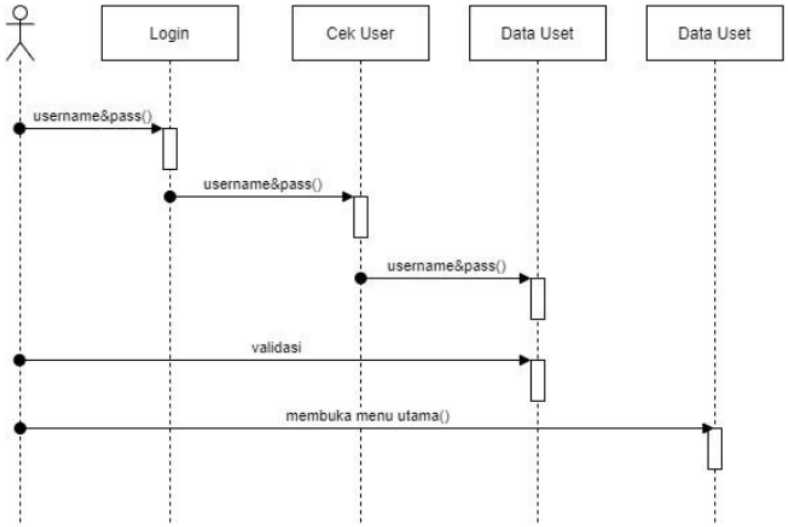


Figure 1. Login Sequence Diagram

Master Data Sequence Diagrams

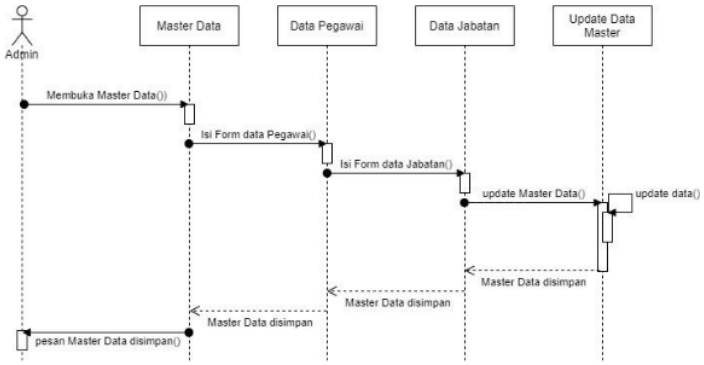


Figure 2. Master Data Sequence Diagram

Transaction Sequence Diagrams

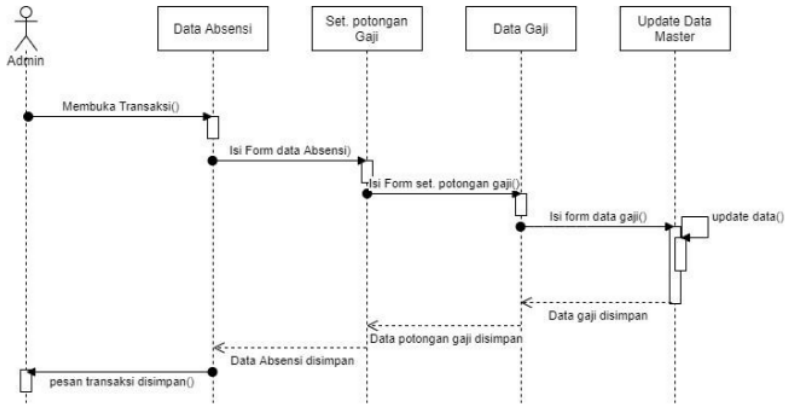


Figure 3. Transaction Sequence Diagram

Sequence Diagram Report

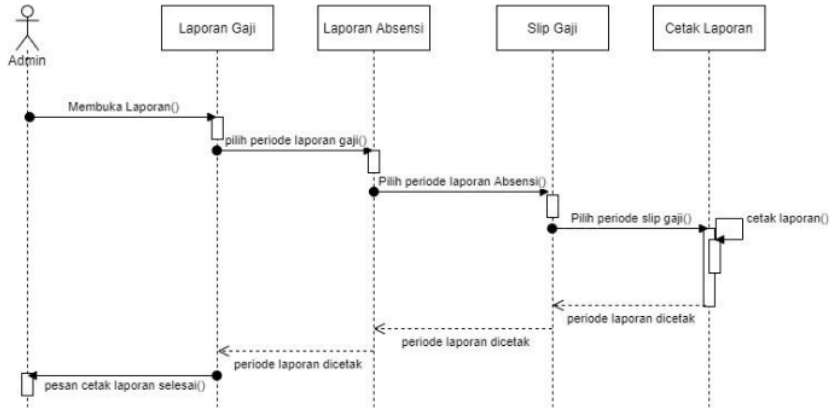


Figure 4. Report Sequence Diagram

Sequence Diagram Change Password

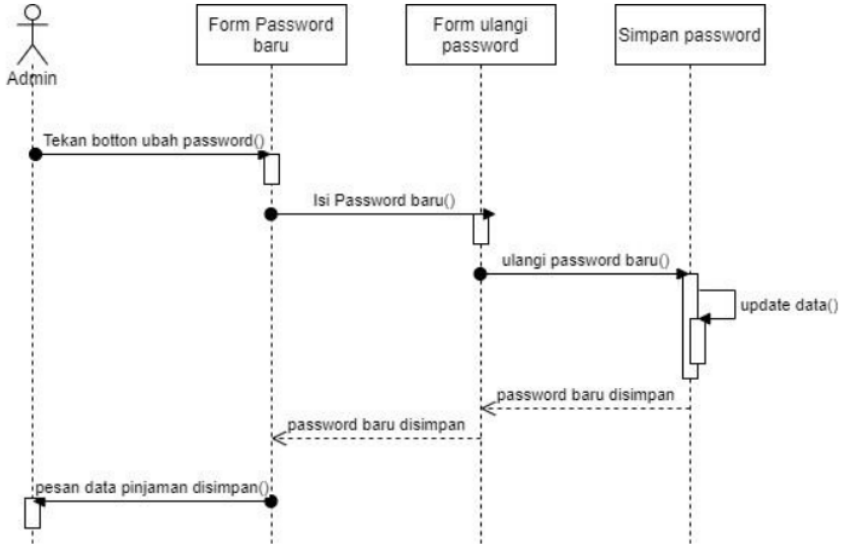


Figure 5. Sequence Diagram for Change Password

Logout Sequence Diagram

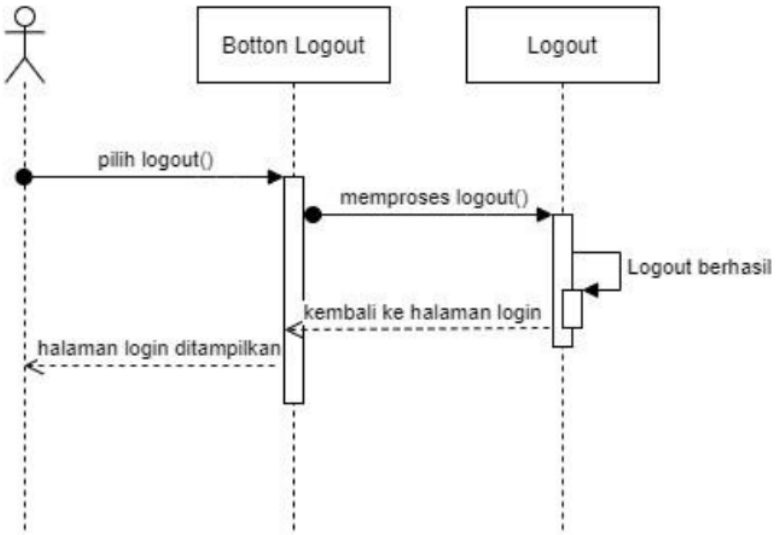


Figure 6. Sequence Diagram Report

Database Design

Class Diagrams

4

Class diagrams describe the structure and description of classes, packages and objects along with their relationships with each other such as containment, inheritance, associations, etc.

The following is a Class Diagram for the S Web-Based Employee Payroll Application

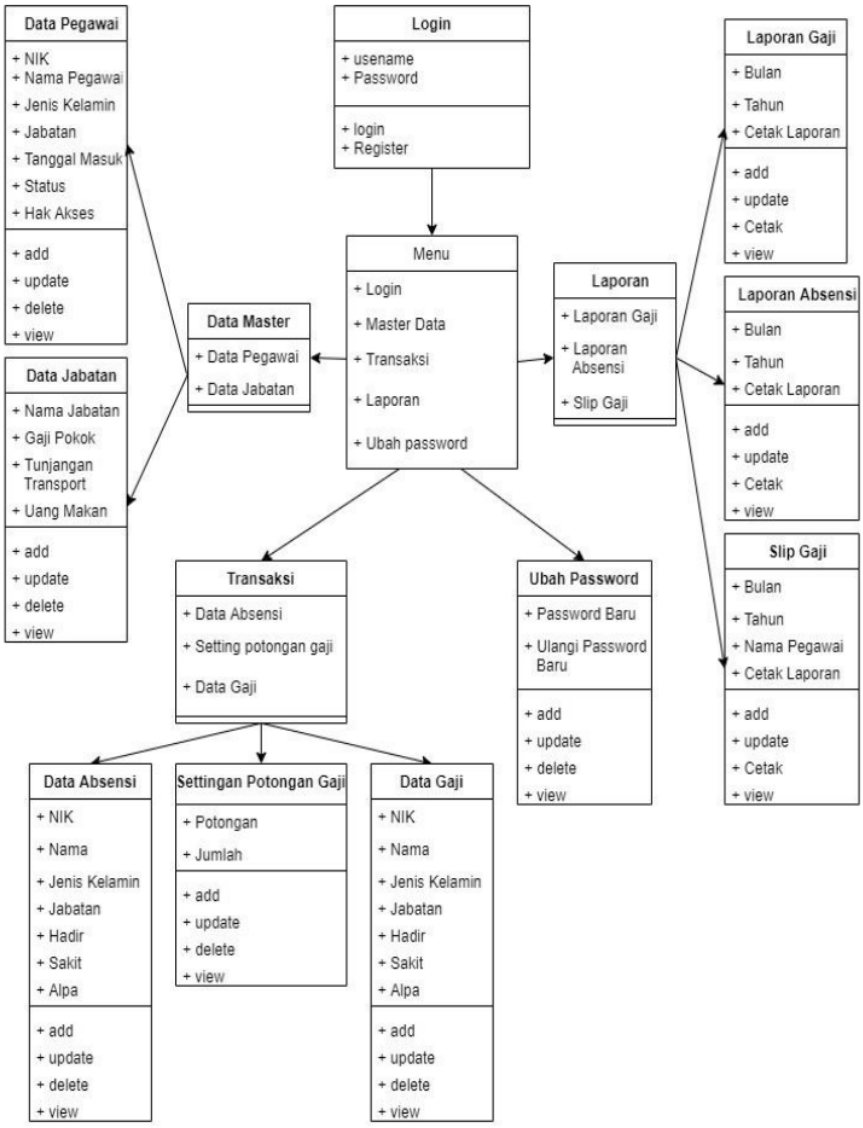


Figure 7. Class Diagram

Database Design

Table 1. Job Database Design

Field	Type	Size	*Primary*
Id_jabatan	int	11	*Key*
Nama_jabatan	Varchar	120	
Gaji_pokok	Varchar	50	
Tj_transport	Varchar	50	
Uang_makan	Varchar	50	

Table 2. Attendance Data Database Design

Field	Type	Size	*Primary*
Id_Kehadiran	int	11	*Key*
Bulan	Varchar	15	
NIK	Varchar	16	
Nama_pegawai	Varchar	100	
Jenis_kelamin	Varchar	20	
Nama_jabatan	Varchar	50	
Hadir	int	11	
Sakit	int	11	
Alpha	int	11	

Table 3. Employee Data Database Design

Field	Type	Size	*Primary*
Id_Pegawai	Int	11	*Key*
NIK	Varchar	16	
Nama_pegawai	Varchar	100	
Username	Varchar	120	
Password	Varchar	32	
Jenis_kelamin	Varchar	15	
Jabatan	Varchar	50	
Tanggal_masuk	Date		
Status	Varchar	50	
Photo	Varchar	100	
Hak_akses	Int	11	

Table 4. Access Rights Database Design

Field	Type	Size	*Primary*
Id	int	11	*Key*
Keterangan	Varchar	50	
Hak_akses	int	11	

Table 5. Design of Salary Deductions Database

Field	Type	Size	*Primary*
Id	Int	11	*Key*
Potongan	Varchar	120	
Jml_potongan	int	11	

System Implementation

System implementation is the stage of implementing software that has been implemented, implemented and designed/designed to then be fully implemented. This stage is the stage where the system is ready to be operated by people who need this application.

Hardware System Implementation

The following is the implementation of the hardware used in carrying out application development:

Table 6. Hardware Implementation

No	Name	Spesifikasi
1	Prosesor	Intel® Celeron® CPU N3050 @1.60GHz
2	RAM	4 Gigabyte
3	Harddisk	500 Gigabyte
4	Other Devices	Internet connection

Software Implementation

The following is the software implementation used in application development:

Table 7. Software Implementation

No	Name	Specification
1	Operating system	Windows 10 Home

2	Web Browser	Google Chrome, Microsoft Edge
3	Other Software	Xampp, StarUML

Database Implementation

Table 8. Database Implementation

No.	Table Name	Script SQL
1.	Position_data	CREATE TABLE `id_ Position ` int(11) NOT NULL, `name_ Position ` varchar(120) NOT NULL, ` basic salary ` varchar(50) NOT NULL, `tj_transport` varchar(50) NOT NULL, ` meal allowance ` varchar(50) NOT NULL) ENGINE=InnoDB DEFAULT CHARSET=utfmb4;
2.	Attendance_Data	CREATE TABLE ` Attendance Data `id_ Attendance ` int(11) NOT NULL, ` month ` varchar(15) NOT NULL, `nik` varchar(16) NOT NULL, ` employee_name ` varchar(100) NOT NULL, ` gender ` varchar(20) NOT NULL, `position_name ` varchar(50) NOT NULL
3.	Employee_Data	CREATE TABLE ` Attendance Data `id_ Attendance ` int(11) NOT NULL, ` month ` varchar(15) NOT NULL, `nik` varchar(16) NOT NULL, ` employee_name ` varchar(100) NOT NULL, ` gender ` varchar(20) NOT NULL, `position_name ` varchar(50) NOT NULL,
4.	Access rights	CREATE TABLE `hak_akses` (`id` int(11) NOT NULL, ` information ` varchar(50) NOT NULL, ` access rights ` int(11) NOT NULL
5.	Salary_cuts	CREATE TABLE ` Salary cuts ` (`id` int(11) NOT NULL,

		`cuts` varchar(120) NOT NULL, `jml_cut` int(11) NOT NULL) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;

Brainware Implementation

Table 9. Users in the System

No.	User	Description	Access rights
1.	Admin	Users whose role is to manage the process of running the system,	Namely logging in, inputting master data consisting of employee data and position data, inputting transactions consisting of attendance data, setting salary deductions and salary data, then managing report data consisting of salary reports, attendance reports and payslips. can make changes password and logout.
2.	Employee	The user whose function is to check and print a payslip report whether it is in accordance with employee absences or not.	

Interface Implementation

Login Interface

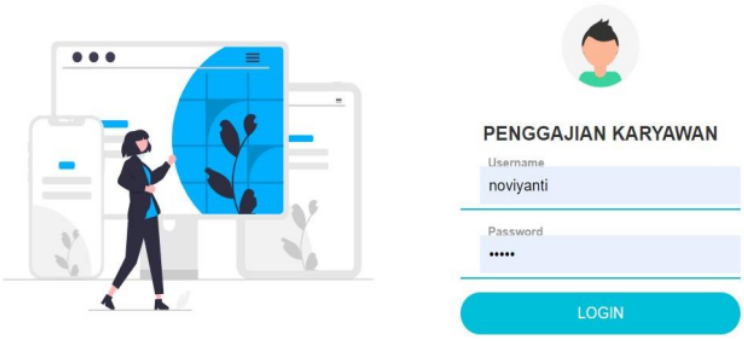


Figure 8. Login Interface

Dashboard Interface

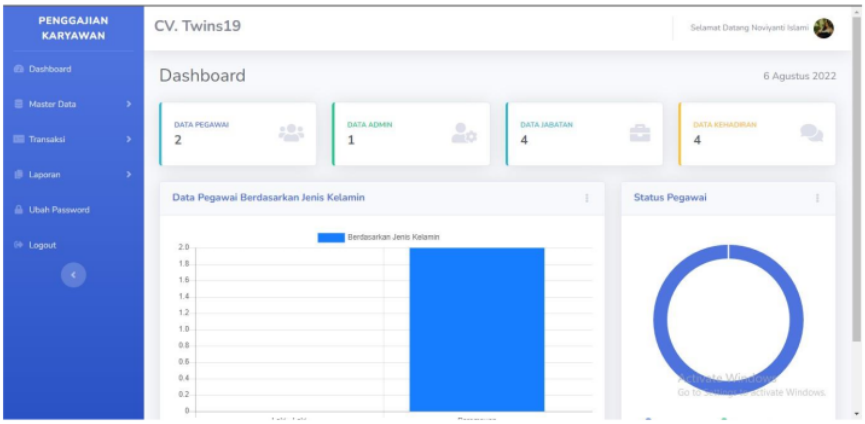


Figure 9. Dashboard Interface

Master Data Interface

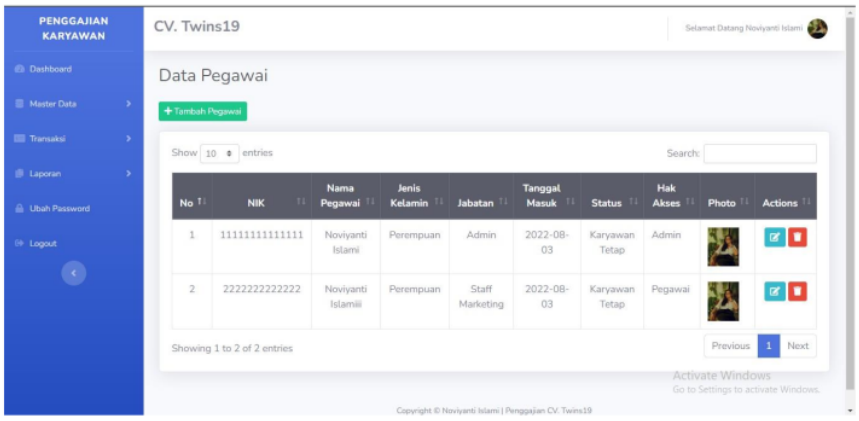
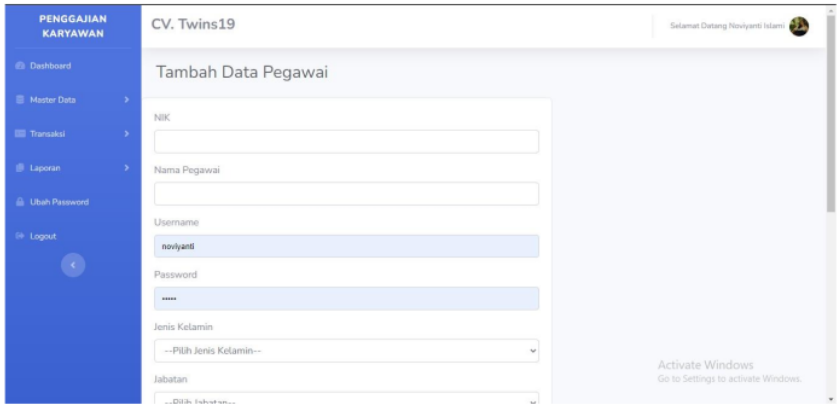
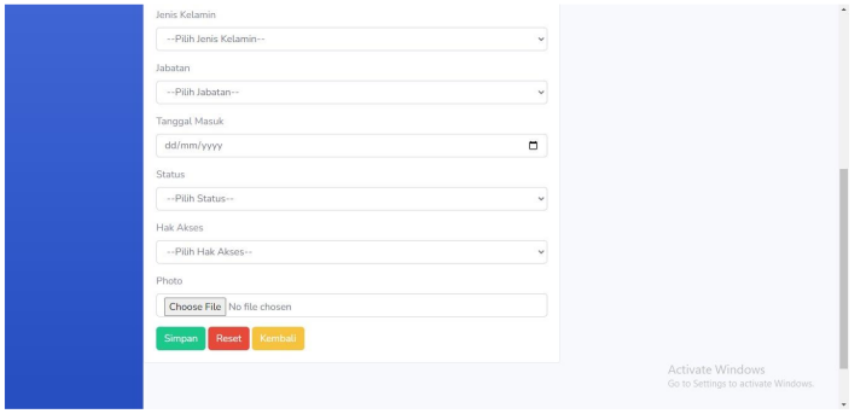
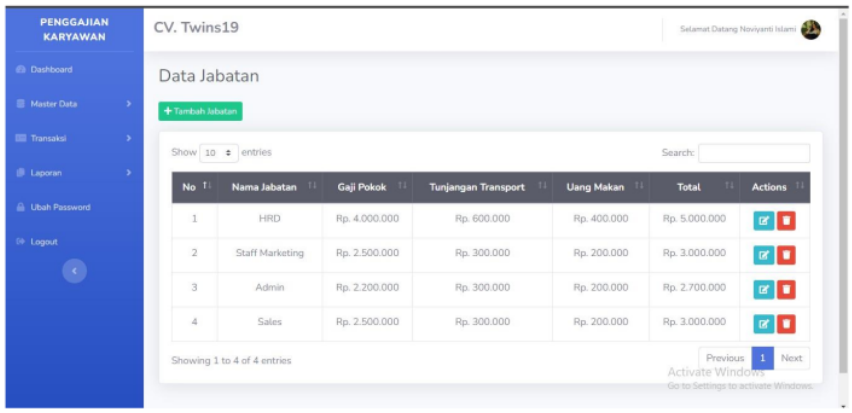


Figure 10. Master Data Interface (Employee Data)


PENGGAJIAN KARYAWAN
Dashboard
Master Data
Transaksi
Laporan
Ubah Password
Logout
CV. Twins19
Selamat Datang Noviyanti Islami
Tambah Data Pegawai
NIK
Nama Pegawai
Username
noviyanti
Password
Jenis Kelamin
--Pilih Jenis Kelamin--
Jabatan
Activate Windows
Go to Settings to activate Windows.


Jenis Kelamin
--Pilih Jenis Kelamin--
Jabatan
--Pilih Jabatan--
Tanggal Masuk
dd/mm/yyyy
Status
--Pilih Status--
Hak Akses
--Pilih Hak Akses--
Photo
Choose File
No file chosen
Simpan
Reset
Kembali
Activate Windows
Go to Settings to activate Windows.


PENGGAJIAN KARYAWAN
Dashboard
Master Data
Transaksi
Laporan
Ubah Password
Logout
CV. Twins19
Selamat Datang Noviyanti Islami
Data Jabatan
+ Tambah Jabatan
Show 10 entries
Search:
No
Nama Jabatan
Gaji Pokok
Tunjangan Transport
Uang Makan
Total
Actions
1 HRD Rp. 4.000.000 Rp. 600.000 Rp. 400.000 Rp. 5.000.000
2 Staff Marketing Rp. 2.500.000 Rp. 300.000 Rp. 200.000 Rp. 3.000.000
3 Admin Rp. 2.200.000 Rp. 300.000 Rp. 200.000 Rp. 2.700.000
4 Sales Rp. 2.500.000 Rp. 300.000 Rp. 200.000 Rp. 3.000.000
Showing 1 to 4 of 4 entries
Previous
1
Next
Activate Windows
Go to Settings to activate Windows.

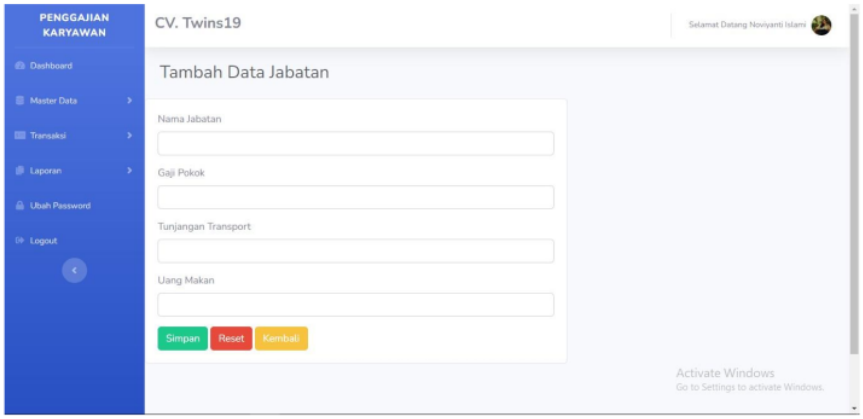


Figure 11. Master Data Interface (Occupational Data)

Transaction Interface

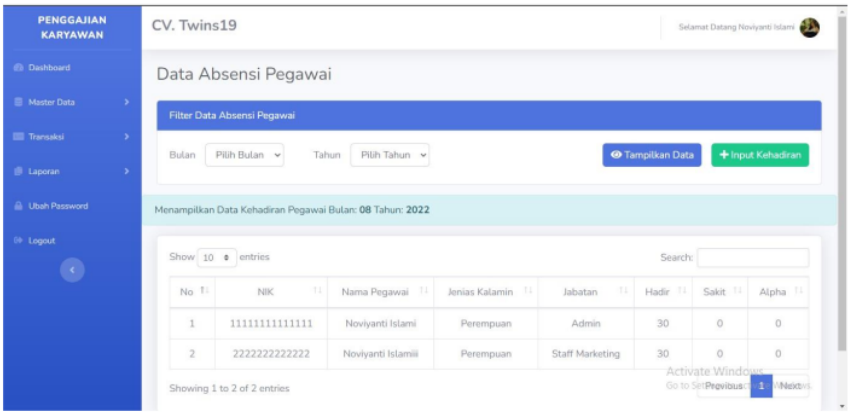


Figure 12. Transaction interface (Attendance Data)

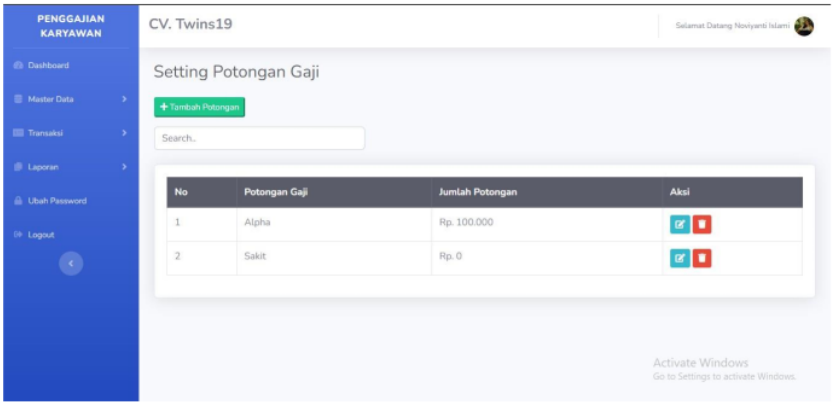
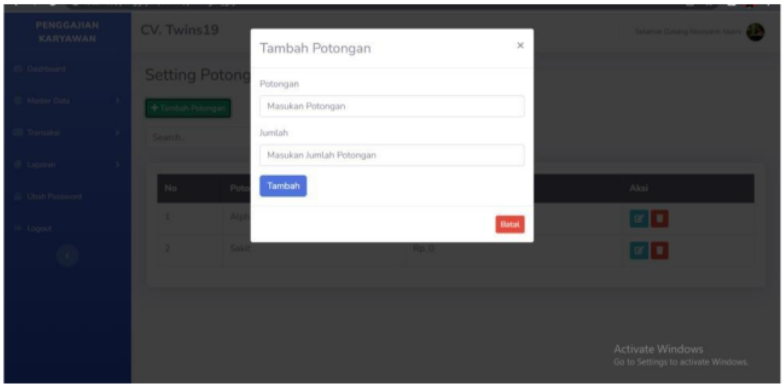


Figure 13. Transaction Interface (Salary Deduction Settings)



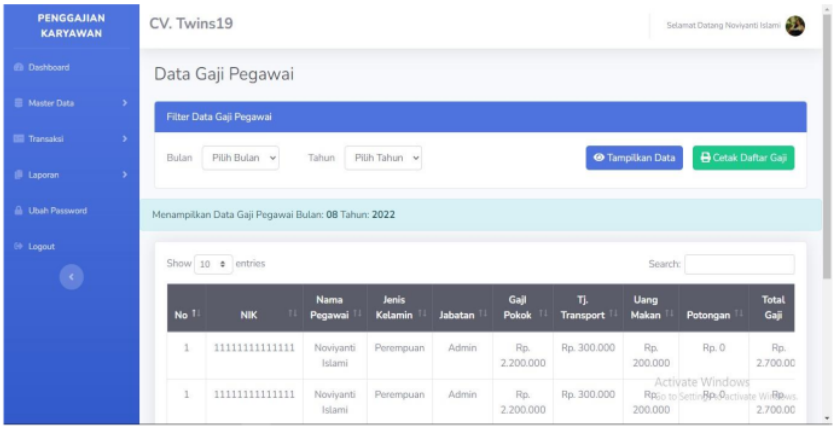


Figure 14. Transaction Interface (Salary Data)

Report Interface

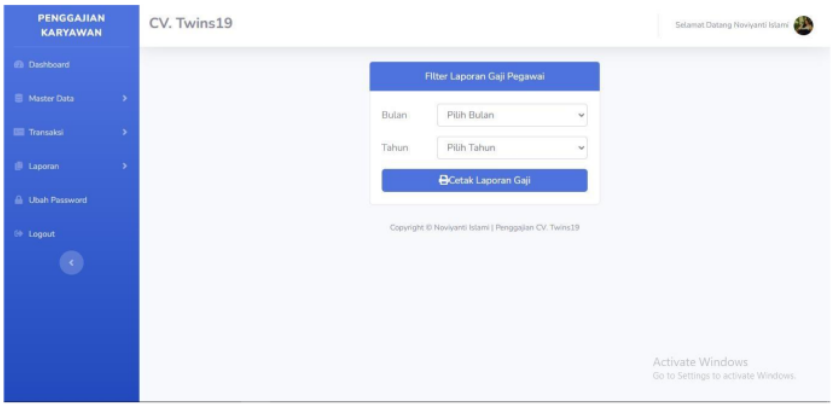


Figure 15. Report Interface (Salary Report)

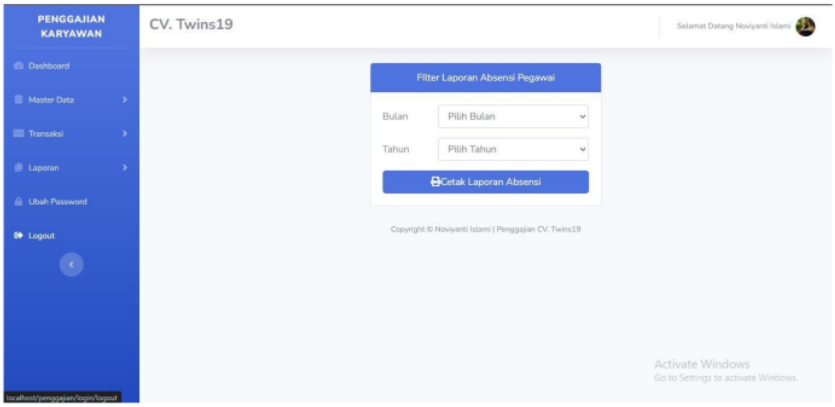


Figure 16. Report Interface (Absence Report)

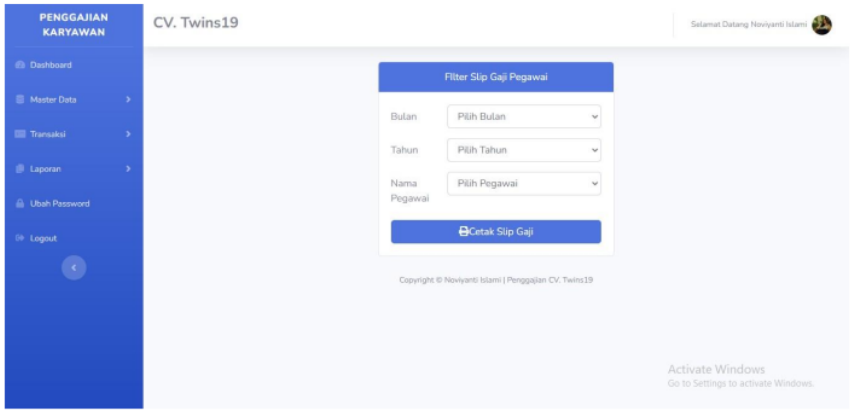


Figure 17. Report Interface (Salary Slip)

Change Password Interface

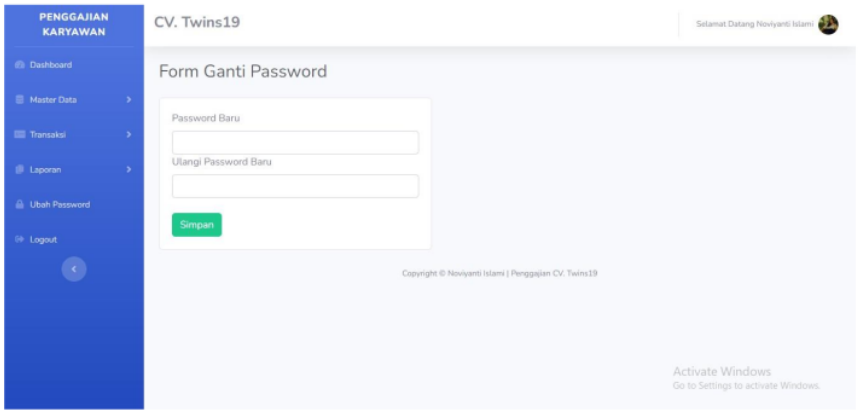


Figure 18. Change Password Interface

CONCLUSION

A sequence diagram is a type of UML (Unified et al.) diagram that illustrates the interactions between objects or components in a system.

A sequence diagram is an interaction diagram that visually represents the chronological order of events and their interactions inside a system. Moreover, the Sequence Diagram is classified as one of the interaction diagrams, which elucidates the process by which an operation is executed. Every sequence diagram will illustrate the various interactions and message exchanges inside a particular use case.

The Sequence Diagram illustrates the sequential steps in the login process for accessing the Web-Based Employee Payroll Application at CV. Twins19.

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