

Employee Performance Monitoring System Based on Assignment Data at PT. Tribintang Emas Mulia

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Keywords

Employee Performance; Laravel; Monitoring System; Performance Evaluation; Task Management; Web Application

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Abstract

Employee performance monitoring is an important process in improving work effectiveness and evaluating employee productivity within a company. However, conventional monitoring methods are often ineffective because task recording and reporting are still carried out manually, causing difficulties in supervision, evaluation, and performance reporting. This study aims to design and implement a web-based Employee Performance Monitoring System to assist companies in managing employee assignments and monitoring performance more efficiently. The research method used is the Waterfall method, which consists of requirement analysis, system design, implementation, testing, and maintenance stages. The system was developed using Laravel Framework, Filament, PHP, and MySQL database. The system provides features such as employee data management, division management, task assignment, task evidence upload, performance monitoring dashboards, and graphical reports of employee performance. System testing was conducted using Black Box Testing, and the results showed that all system functions operated properly according to user requirements. The implementation results indicate that the system can help companies monitor the number of assigned tasks, completed tasks, and task completion punctuality effectively. In addition, the system also provides performance visualization through charts and statistics, making it easier for management to evaluate employee performance and support decision-making processes within the company.

1. Introduction

Monitoring is the process of tracking the implementation of a planned activity to ensure that the process proceeds as intended, identify obstacles, and determine solutions to ensure compliance with applicable regulations [1]. In this context, monitoring serves to track and evaluate the progress resulting from a specific action, to determine whether the implementation of that action aligns with the established plan and whether the action has led to improvements [2].

At PT. Tribintang Emas Mulia, a software development company, performance monitoring is conducted to track employee assignments in software development projects, including task completion progress, timeliness, and work output. Currently, task tracking and progress reporting are still done manually using

spreadsheets or direct communication, resulting in performance data that is often scattered and difficult to monitor consistently. One common issue is that employee task tracking is still done manually, which leads to delays, a lack of clarity, and complicates the performance evaluation process [3]. Performance appraisal is a critical component of organizational performance management, aimed at systematically assessing and reviewing employee achievements, work behavior, and effectiveness based on established criteria. In both business and public sectors, performance appraisal serves as the basis for determining employee effectiveness, supporting compensation decisions, and formulating strategies to improve overall performance. Accurate and integrated task data is therefore essential to ensure that performance appraisal is conducted objectively and reflects the actual contribution of each employee [4]. The use of web-based technology is seen as a suitable option due to its ability to present information in an organized manner and provide real-time data that is essential for business operations [5].

However, the current performance monitoring process is still conducted manually. To address this challenge, this system was developed to provide real-time access to human resources data reporting and monitoring [6]. An information system that manages employee performance monitoring to help managers oversee employee performance and enable employees to report their work results in a structured and well-documented manner [7]. By implementing a computerized information system, users can obtain accurate information more effectively and efficiently [1].

The system developed is a web-based platform that allows employees to report their work progress directly, and enables HR and management to monitor performance in real time more effectively, objectively, and with minimal errors [8]. This web-based employee performance tracking system allows employees to see how many tasks they have completed, so they can monitor their progress [9]. However, most systems focus only on attendance or task logging and have not yet integrated project assignment data, task completion, and timeliness into a single unified system. Therefore, a system is needed that specifically consolidates all these aspects into a single platform, so that performance evaluations become more comprehensive, objective, and aligned with the characteristics of software development work.

2. Research Methods

This study employs the Waterfall system development method, which is one of the most commonly used models in the System Development Life Cycle and is often referred to as the conventional or classic life cycle model. This approach is structured and sequential, beginning with the system requirements identification phase, followed by the analysis, design, coding, testing or verification, and maintenance phases [10]. The stages of the Waterfall method used in this study are shown in Figure 1.

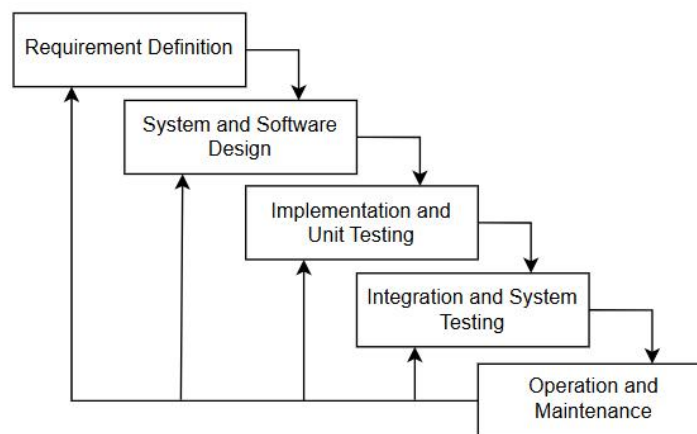


Fig. 1 Waterfall Method [11]

Based on Figure 1, the research stages were as follows:

- a) **Requirement Definition**
At this stage, information is gathered through interviews and direct observation of the assignment process within the company. The data collected is then processed and analyzed to gain a comprehensive understanding of user needs [12]. Next, the functional and non-functional requirements necessary for the system are identified.
- b) **System and Software Design**
Once the system requirements have been successfully identified, the next step is to design the system and outline the key concepts of the software to be developed [13]. At this stage, the system design is developed, including the creation of use cases, activity diagrams, class diagrams, database design, and the user interface design to be used in the system development process.
- c) **Implementation and Unit Testing**
At this stage, the system begins to be built according to the previously designed specifications [14]. The development process is carried out using the Laravel framework and a MySQL database.
- d) **Integration and System Testing**
Conduct testing on each feature to ensure that the system functions as required.
- e) **Operation and Maintenance**
This phase involves fixing any issues detected in the features, as well as compiling the final documentation, which includes reports and the results of the system development

3. Result and Discussion

This section discusses the results of the research, including the system design, implementation, and a discussion of the findings based on business process analysis and a comparison with relevant studies.

3.1 Requirement Definition

At this stage, information is gathered through interviews and direct observation regarding how employee performance is monitored within the company. The purpose of this process is to understand the workflow involved in task assignment and reporting, as well as common issues that arise in employee performance monitoring. The collected data is then analyzed to better understand the system users' needs.

Based on the analysis results, system requirements are identified, which are divided into functional and non-functional requirements. Functional requirements in the system include user data management, employee data, division data, task data, task scheduling, task evidence uploads, task completion monitoring, as well as employee performance reports and graphs. The system is also equipped with a dashboard to display the number of tasks, completed tasks, and task completion timeliness.

Meanwhile, non-functional requirements include a web-based system that can be accessed online, secure login, a user-friendly interface, and integrated data storage using a MySQL database. This system was developed using the Laravel and Filament frameworks to facilitate data management and employee performance monitoring.

3.2 System and Software Design

3.2.1 Use Case

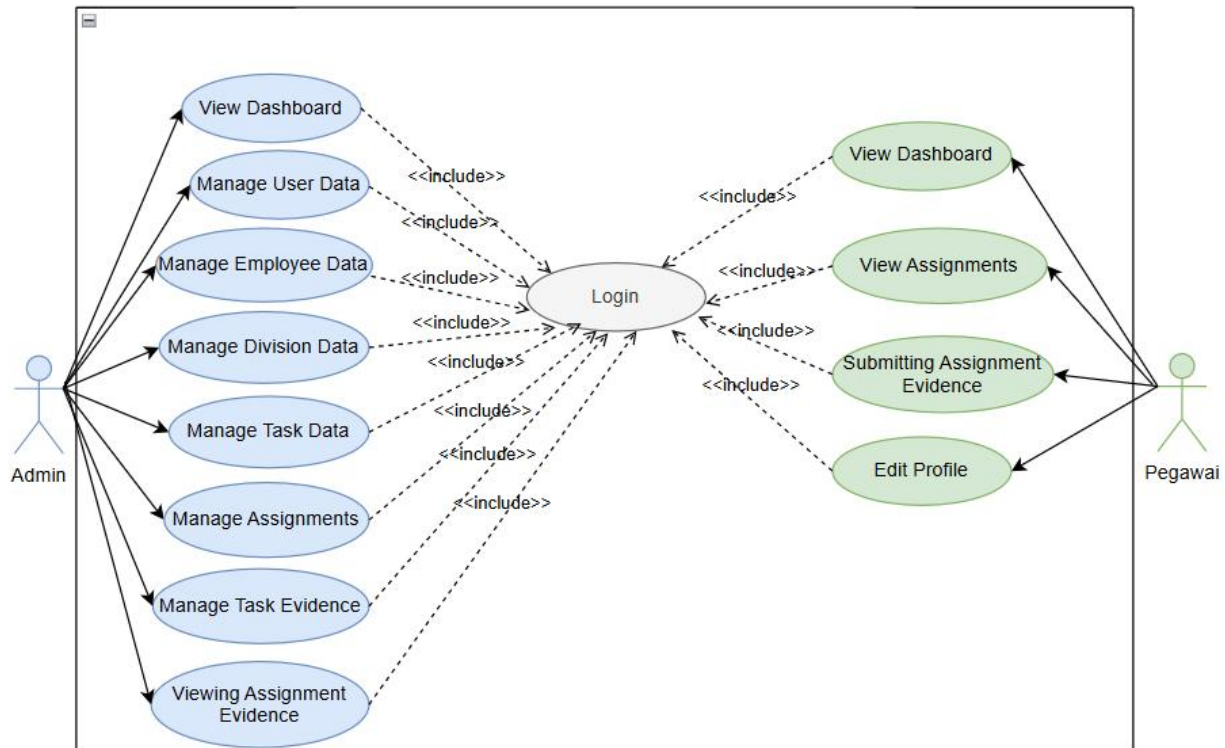


Fig. 2 Use Case Diagram

Use case diagrams play an essential role in software modeling as they visually represent how users interact with systems. Use cases are used to identify which features are available in the information system and who has the right to use those features [15]. This type of diagram highlights all the capabilities that the system offers from the users viewpoint [16]. It also aids individuals who are not part of the system in grasping how the system operates and what actions are anticipated from users [17].

Within the Employee Performance Monitoring System, the use case diagram illustrates the connection between the two primary users, the administrator and the employee. The administrator has complete authority to handle employee, division, and task information, in addition to tracking performance. They can access reports and statistics about performance via a dashboard that features charts showing the total number of tasks, completed tasks, punctuality in task completion and individual employee performance based on the successfully finished tasks. On the other hand, employees are able to see their assigned tasks, submit evidence of task completion, update their profiles, and check the status of ongoing or finished tasks.

In summary, the diagram indicates that the system is designed to make it easier to monitor and assess employee performance, enabling companies to manage and supervise performance more efficiently.

3.2.2 Class Diagram

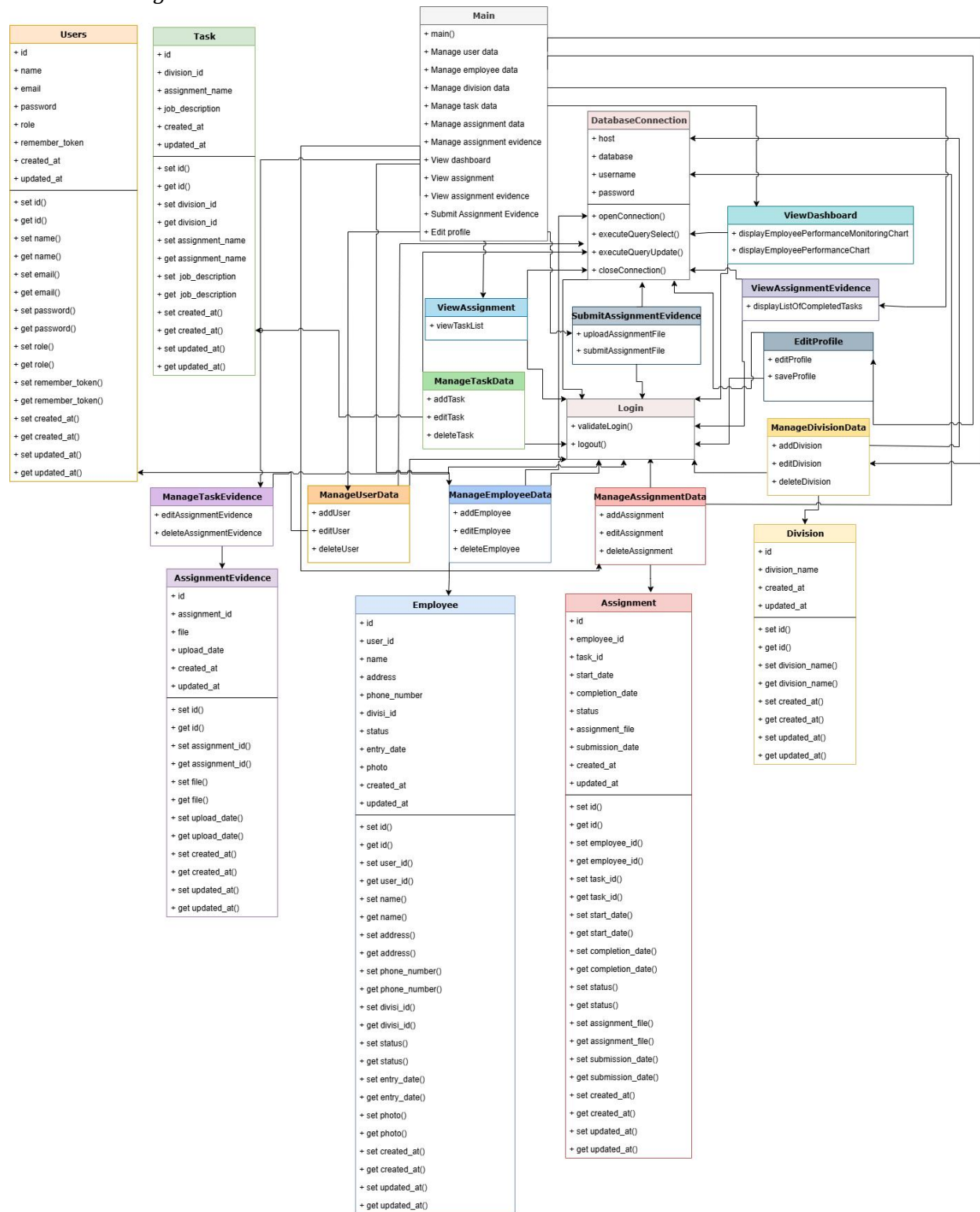


Fig. 3 Class Diagram

A class diagram is a visual representation that shows the classes and packages in a system or software program [18]. It displays the characteristics and function of each class, along with how the classes are related to each other [19].

The class diagram in this system illustrates the application's main structure, which includes several key classes, such as the Employee, Job, Unit, and Assignment classes. Each class has attributes and methods corresponding to its function. This diagram also explains the relationships between these classes, including the one-to-many relationship between Employees and Jobs, as well as the relationship between Jobs and Assignments in performance monitoring activities. From this class diagram, it is clear how data flows and how objects interact within the system, making it easier to understand how each component works and how these components are interconnected to support employee performance monitoring. This diagram serves as the foundation for the implementation process, as it depicts the logical framework that will guide the development of features within the system.

3.3 Implementation and Unit Testing

Implementation is the first step before the program is developed [20]. During the implementation phase, an employee performance monitoring system was developed using Laravel. At this stage, the application was built based on the existing design. To ensure the desired results during the implementation phase, it is crucial to develop an implementation plan in advance. Implementation is the first step before the program is developed.

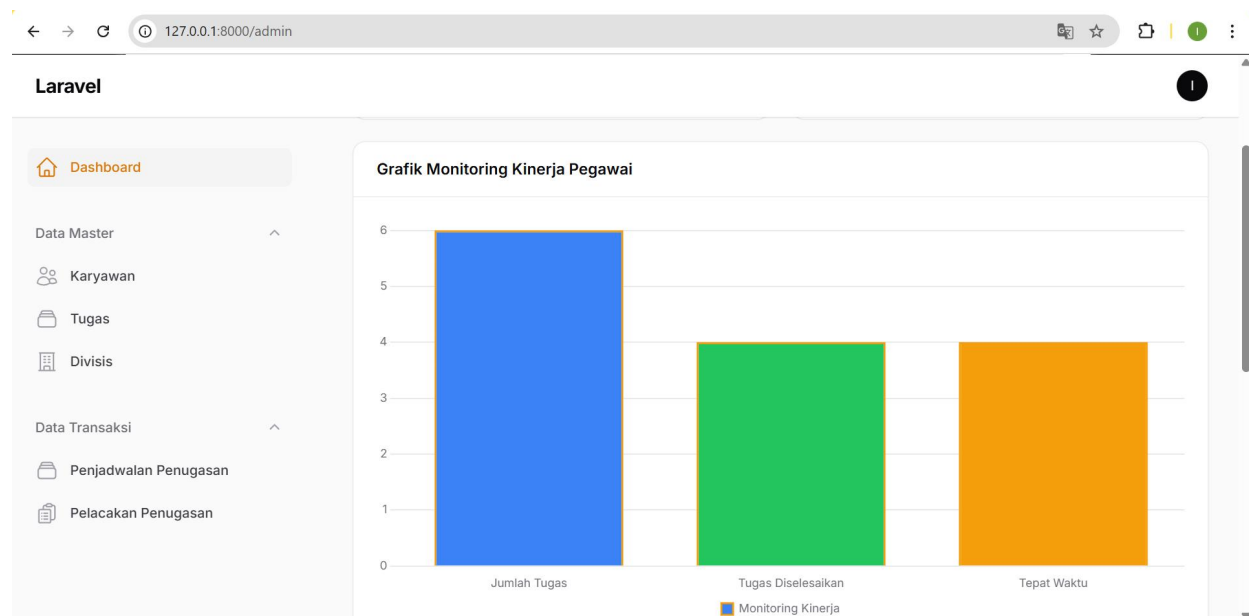


Fig. 4 Dashboard Page

The screen above shows the admin dashboard page of the Employee Performance Monitoring System. This page displays monitoring charts showing the number of tasks, completed tasks, and on-time completion rates. Additionally, there are performance charts for each employee; for example, Employee A successfully completed five tasks. These graphs make it easy for admins to quickly view employee performance and assist in the evaluation process. The menu on the left provides access to key data such as employees, tasks, and departments, as well as menus for task scheduling and monitoring.

Penjadwalan Penugasan

Form Input Penjadwalan Penugasan

Nama Karyawan*

Judul Tugas*

Tanggal mulai*

Tanggal selesai*

Deskripsi

Divisi

Simpan

Fig. 5 Assignment Scheduling Page

The screen above shows the Task Schedule Settings page in the system. On this page, administrators can fill out a form to create a new task, including selecting the employee's name, the job title, setting the start and end dates, adding a description of the task, and selecting the relevant department. This feature makes it easier for administrators to organize and assign work more efficiently, allowing them to easily monitor employee performance.

Pelacakan Penugasan

Search

Nama Karyawan	Judul Tugas	Divisi	Tanggal Mulai	Tanggal Selesai	Tanggal Submit	File	Status
ali muttaqin	Buat dashboard	Front End	2026-05-05	2026-05-09	05-05-2026		selesai
ali muttaqin	Input modular	Back End	2026-05-06	2026-05-13	07-05-2026		selesai
ali muttaqin	Buat menu tugas	Front End	2026-05-07	2026-05-09	07-05-2026		selesai
dwi	Buat dashboard	Front End	2026-05-07	2026-05-11	07-05-2026		selesai

Per page 10

Fig. 6 Task Tracking Page

The Task Monitoring Page is used by administrators to view tasks that have been assigned to employees. This page displays information such as the employee's name, task title, department, start date, due date, submission date, task files, and assignment status. Through this page, administrators can monitor task

progress, review files uploaded by employees, and determine whether a task has been completed or not. This page supports the employee performance monitoring process, making it simpler and more organized.

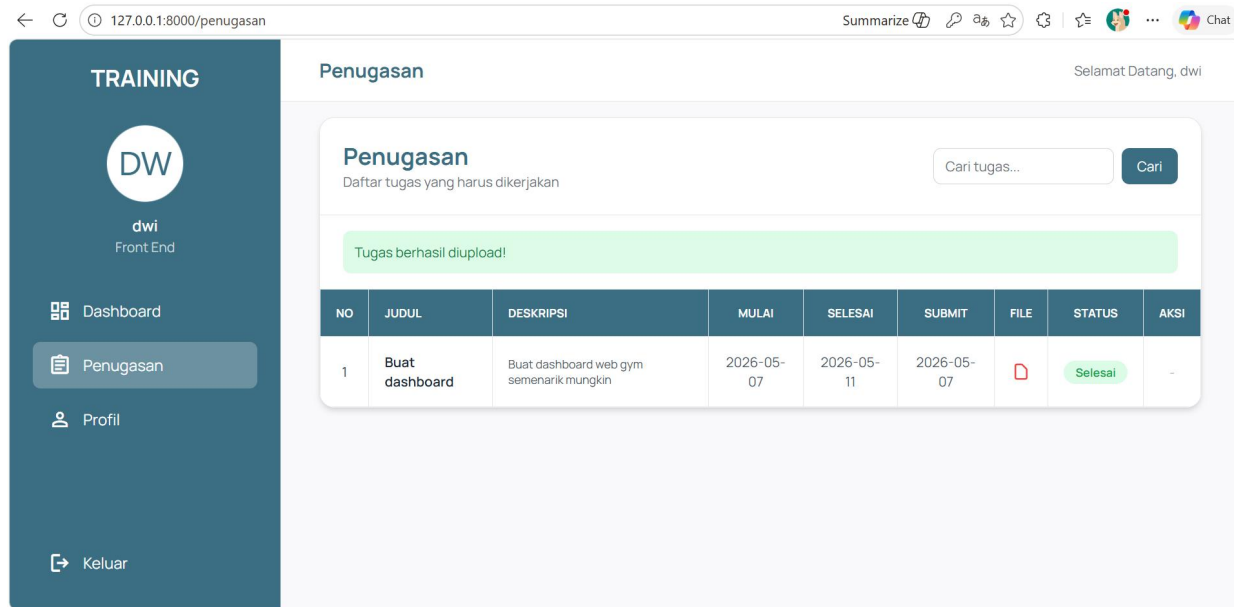


Fig. 7 Assignment page

The Tasks page is designed to allow employees to view a list of tasks assigned by the administrator. This page displays information such as task name, description, start date, due date, submission date, task files, and task status. Employees can upload their work files to indicate that a task has been completed. Additionally, there is a search feature that makes it easy for employees to find specific tasks. This page helps employees track the tasks they need to complete and their completion status.

3.4 Integration and System Testing

This phase was conducted to ensure that all functions within the system are operating optimally and are properly interconnected as required. The testing method used was Blackbox Testing.

All test scenarios including the login process, CRUD operations, file uploads, and the monitoring dashboard received a “Pass” status, indicating that each function is operating properly and as expected.

Table 1. Blackbox Testing

No	Feature Tested	Test Scenario	Expected Result	Result	Status
1	Login	The user enters the correct email and password	The system successfully logs in to the dashboard	Successfully logged in to the dashboard	Valid
2	Login	The user enters an incorrect email address or password	The system displays an error message	The error message appears	Valid
3	Add Employee Data	The admin adds employee data	Employee data saved	Data successfully saved	Valid
4	Edit Employee Data	The admin is updating employee data	Data successfully updated	Data successfully updated	Valid
5	Delete Employee Data	The admin is deleting employee data	Data successfully deleted	Data successfully deleted	Valid

6	Add Division	The admin is adding division data	Division data saved	Data successfully saved	Valid
7	Add Assignment Data	The admin adds assignment data	Assignment data saved	Data successfully saved	Valid
8	Edit Data Tugas	Admin mengubah data tugas	Data tugas diperbarui	Data berhasil diperbarui	Valid
9	Edit Assignment Data	The admin is editing the assignment data	Assignment data has been updated	Data has been successfully updated	Valid
10	Add Assignment	Admin creates assignment	Assignment saved successfully	Data saved successfully	Valid
11	Upload Assignment Proof	Employee uploads assignment file	File saved successfully	File uploaded successfully	Valid
12	Performance Monitoring	The admin views the monitoring graph	The monitoring graph is displayed	The graph is displayed correctly	Valid
13	Employee Performance Chart	The admin views the employee performance chart	The performance chart appears	The chart displays properly	Valid
14	Edit Profile	Employee edits profile	Profile successfully updated	Profile successfully updated	Valid
15	Upload Profile Photo	Employees upload profile photos	Photo successfully saved	Photo successfully displayed	Valid
16	Logout	The user clicks the logout button	The system logs out of the account	Logout successful	Valid

3.5 Operation and Maintenance

At this stage, various issues that arose during testing were addressed, such as errors in input validation, application display, and incorrect process sequences. Once all issues were resolved, the system was put into use to support employee performance monitoring. This stage concluded with the preparation of a final report as one of the research outcomes.

4. Conclusions

Based on studies conducted, the Employee Performance Monitoring System has been successfully developed and implemented as an online platform to help companies monitor employee performance more efficiently and effectively. This system manages employee details, departments, tasks, work assignments, task reports, and performance monitoring all within a single platform. Additionally, the system provides visual performance metrics presented through graphs and statistics, including the number of tasks assigned and completed, as well as the timeliness of task completion. The implementation results show that this system simplifies management processes in monitoring and evaluating performance.

The use of the Waterfall method ensures that the development process proceeds systematically, from requirements analysis to system testing. Based on Black Box testing, all system features function correctly in accordance with user needs. This indicates that the developed system is suitable for supporting employee performance monitoring efforts within the organization.

This research contributes to the advancement of information systems, particularly in the areas of employee performance monitoring and task management. In practical terms, this system can help companies improve work efficiency, supervision, and decision-making related to employee performance evaluations. For future research, this system could be enhanced by incorporating features such as automated performance evaluations

5. References

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