



Web-Based Employee Payroll Application on Minimarket

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ABSTRACT

Payroll management is an important component in human resource management that has a great influence on operational efficiency and employee satisfaction. Many small and medium-sized businesses still use manual systems that are prone to miscalculations, slow administrative processes, and difficulties in systematically documenting payment history. The research aims to design and develop a web-based payroll application for Hafy Mart, a growing retail company, to overcome these constraints and improve payroll efficiency. The waterfall method was used in this study, including needs analysis, system design, development, testing, and operational implementation. This research fills a gap in the application of web-based systems to small businesses, with a focus on automating payroll, simplifying administration, and increasing transparency. The application developed includes the integration of attendance data, salary calculation based on position, issuance of digital payslips, and monthly financial reports. The results of the study show a significant improvement in the efficiency, accuracy, and transparency of administration.

INTRODUCTION

Employee payroll management is one of the vital elements in human resource management (HRM), which not only affects the company's operational efficiency but also employee satisfaction and motivation. Manual payroll systems, which are still widely used in small to medium-sized companies, often face various obstacles, such as inaccuracies in salary calculations, slow administrative processes, and difficulties in systematically documenting payment history data (Mathis et al., 2017). This shows that companies need technology solutions to manage payroll efficiently, especially in this fast-paced digital era (Pratama, 2017).

As technology develops, the use of web-based applications is becoming an increasingly popular solution because of its advantages in terms of accessibility, efficiency, and data security. Web-based payroll systems allow companies to automate administrative processes, such as payroll calculations, tax deductions, and employee benefits, thereby reducing the possibility of manual errors (Caldas, 2003). In addition, the system also offers easy access for administrators and employees, who can check salary data in real-time through internet-connected devices.

According to previous research, a web-based system in payroll management is able to increase company productivity by up to 30% because it reduces time spent on manual processes (Sukron & Abdurrazak, 2021). In addition, data storage using cloud technology in this system also provides advantages in terms of data security and backup, thereby minimizing the risk of losing crucial information (Pratama, 2017).

Hafy Mart, as one of the growing retail companies, faces challenges in payroll management due to the increase in the number of employees. With the manual system currently in use, there are frequent recording errors and delays in salary distribution, which can affect employee job satisfaction levels (Sanjay et al., 2023). Therefore, the implementation of a web-based payroll application at Hafy Mart is a strategic step to improve the efficiency of the payroll process and support the company's business growth.

This research aims to design and develop a web-based employee payroll application that can automate payroll calculations, simplify administrative processes, and ensure transparency in payroll management. With this application, it is hoped that Hafy Mart can create a more professional work environment and increase the company's overall productivity (Ala-Uddin, 2019). In addition, these applications can also be a model for other companies looking to adopt similar technologies to improve their operational efficiency (Hao et al., 2024).

IMPLEMENTATION AND METHODS

In this study, the implementation of the web-based payroll application system at Hafy Mart is carried out through several systematic stages using the waterfall method to ensure the success of the implementation of the system.

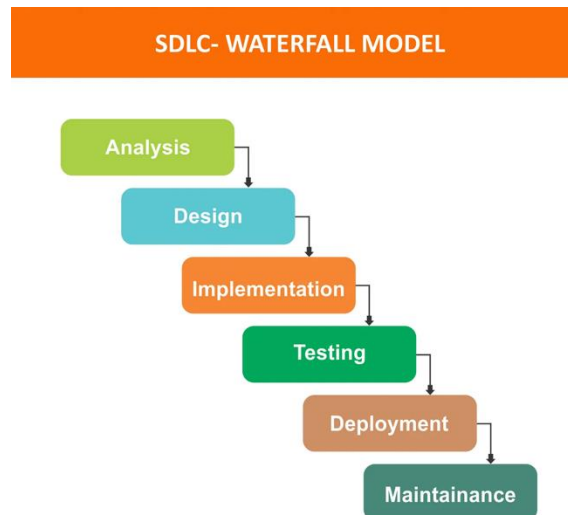


Figure 1. Waterfall Method

The following are the implementation stages carried out with the waterfall method, explained in more depth and at length:

1. Needs Analysis

At this stage, the first step is to identify the needs of the system thoroughly based on an understanding of the problems that exist at Hafy Mart. This system involves various processes, such as manual salary calculation, employee attendance recording using physical sheets or simple applications, to giving salaries in cash. All of these processes are considered to have potential shortcomings, such as the risk of miscalculations, delays in payments, and lack of transparency.

System needs data are collected through various methods, such as direct interviews with Hafy Mart owners to understand the problems that often arise and the expectations of the system to be developed. In addition, direct observation was made of the payroll process that has been implemented. Documentation such as employee attendance reports, payslips, and payroll-related financial statements are also sources of data analyzed. From this analysis, the main needs of the new system were formulated, including the need for efficiency, accuracy, and security.

2. System Planning

Once the system needs are clearly identified, the next stage is to design the system to be developed. In this stage, attention is paid to the aspects of system reliability, data security, and ease of use by the end user, namely the owner and financial staff of Hafy Mart.

Database Design: To support structured data management, relevant tables are designed, such as employee data tables (including names, job titles, and contacts), job title tables (containing information such as basic salary and benefits), attendance tables (recording daily attendance), and salary tables (summarizing the final salary calculation). The database design follows a normalization approach so that data is stored efficiently without unnecessary duplication.

Data Flow Diagram (DFD): This stage involves creating a Level 0 DFD, which provides an overview of the data flow from the input process to payslip disbursement. DFD Level 1 is then created to visualize the details of the data flow in each subsystem, such as attendance recording or monthly report generation.

User Interface (UI) Design: The interface design is designed to be user-friendly, including a login page for secure access, an easy-to-navigate main menu, an employee data entry form, an attendance form, and features to generate payslips and monthly financial statements (Akbar & Irianto Tjendrowaseno, n.d.).

1. Application Development

Application development is carried out using technology that suits the needs and available resources. The backend of the system is built with the PHP programming language to manage the business logic, while the frontend is developed using HTML and CSS to make the interface look attractive and easy to use.

The system database is managed with MySQL for reliable and efficiently accessible data storage. Testing and development was conducted in a local server environment using XAMPP to simplify the debugging process before the system was fully implemented. The main features developed include:

- Input employee data, including personal information, job title, and other necessary details.
- Daily attendance logging, with the option to manually correct input errors if needed.
- Automatic salary calculation based on employee position and attendance data.
- Issuance of payslips for each employee and preparation of monthly reports for evaluation purposes.

2. System Testing

The testing stage is essential to ensure that all the features that have been developed are working according to the specification of the requirements. The test was carried out using simulation data to assess the accuracy of salary calculations, the validity of attendance records, and the security of access to the system. One type of testing carried out is User Acceptance Testing (UAT), where Hafy Mart owners and financial staff try the system directly to provide feedback. This process ensures that the application can be easily used by the end user and meets operational needs.

3. Operational Implementation

After the system is declared to have passed the test, the operational implementation stage is carried out. Pre-existing employee data is entered into the system's database. The payroll process starts directly through the app, replacing the manual method previously used. Owners and financial staff are intensively trained to operate the system, from how to record employee attendance, generate payslips, to create monthly financial reports. This implementation is closely monitored to ensure a smooth transition from a manual system to a new system.

4. Monitoring and Evaluation

The final stage is the monitoring of the system that has been implemented to ensure its stability, efficiency, and effectiveness in supporting Hafy Mart's operations. The evaluation was conducted to assess the extent to which the new system has a positive impact on the efficiency of the payroll process and data accuracy (Heldalina et al., 2023).

Research Methods

This study uses a case study approach with the following steps:

1. Type of Research

This research is a qualitative research with a case study approach that aims to analyze payroll problems at Hafy Mart and design technology-based solutions.

2. Data Collection Methods

To obtain relevant data, the authors use several data collection methods:

- Interview: Conducted with Hafy Mart owners to understand the manual payroll flow and the problems faced.
- Observation: The author makes direct observations on the payroll process to note efficiency constraints and gaps.
- Documentation: The author collects relevant documents, such as employee attendance data, previous payroll data, and Hafy Mart's organizational structure.

3. Data Sources

- Primary Data: Data obtained directly from Hafy Mart, such as employee data, attendance, and interviews with owners.
- Secondary Data: Previous literature, journals, and research relevant to payroll information systems.

4. Data Analysis Techniques

The data obtained was analyzed to understand the problems of the manual system and determine the specific needs for the web-based system. Descriptive analysis techniques are used to describe the findings and formulate recommendations for appropriate solutions.

RESULTS AND DISCUSSION

This research resulted in a web-based employee payroll application system designed to improve the efficiency and effectiveness of the payroll process at Hafy Mart. Here are the main features of the application:

1. Employee Data Recording

This system allows systematic recording of employee data, including personal information, job title, and date of joining the employee. This data is the basis for the payroll and reporting process.

2. Attendance System

The app provides a feature to record employee attendance on a daily basis. The system automatically manages monthly attendance data and provides recapitulation that can be accessed at any time.

3. Automatic Salary Calculation

Employee salaries are calculated automatically based on attendance data that is integrated with job titles and basic salary settings. This process reduces the calculation errors that are common in manual systems.

4. Issuance of Payslips

The app generates digital payslips that can be printed or saved in PDF format. This slip includes details such as the number of attendance, base salary, and total received.

5. Payroll Report

The system generates monthly reports on payroll expenses, which are designed to help management monitor and manage labor costs in a more transparent and efficient manner.

DISCUSSION

1. Increased Efficiency

This application system has been proven to be able to improve Hafy Mart's operational efficiency, especially in the process of recording and calculating salaries. Before the implementation of the application, the payroll process was carried out manually without special record-keeping, which often led to delays and miscalculations. With this app, all payroll-related data is integrated in one easy-to-access system. This is in line with the findings in the study which stated that payroll system automation can increase efficiency by up to 30% in small and medium-sized businesses (Kaur et al., 2023).

2. Transparency and Accountability

One of the advantages of this application is the transparency it produces. The system-generated payslips and payroll reports provide employees with clear information about their salary components. Hafy Mart owners also get detailed monthly financial reports, making it easier to conduct internal audits and budget planning. This supports a view that emphasizes the importance of an organized record-keeping system to increase trust between management and employees (Priceadi, 2016).

3. Ease of Use

The design of the application interface is designed to be user-friendly, allowing users with minimal technical background to easily operate the system. Features such as login forms, admin dashboards, and data entry menus are designed to make it easier for users to navigate. Previous research has stated that intuitive interface design is one of the key factors for successful web-based application implementation (Rahmadani & Nugroho, 2023).

4. Limitations and Challenges

This system still has limitations, especially in terms of managing benefits, bonuses, and other deductions that are not included in the application. This limitation can be overcome by adding additional modules to the system in the future. In addition, Hafy Mart needed to improve employee training to ensure that all users of the system could make optimal use of the app.

5. Influence on Company Operations

This application has a significant impact on Hafy Mart's operations. With an integrated system, management can focus more on business development rather than being burdened by administrative work. In addition, the existence of monthly financial reports makes it easier for owners to evaluate labor cost efficiency. This is in line with research (Amalia, 2022), which states that a web-

based system can increase business productivity by reducing manual administrative work.

6. Further Development Suggestions

Based on the results of the evaluation, this application has the potential to be further developed by adding additional modules such as benefits management, bonus management, and integration with the tax system. In addition, Hafy Mart is advised to add staff in the finance department to ensure the smooth operation of the system. According to Mulyadi (Priceadi, 2016), the addition of competent personnel in the financial administration department can increase the effectiveness of the implementation of technology-based systems.

CONCLUSIONS AND RECOMMENDATIONS

This study concludes that the implementation of web-based payroll applications in Hafy Mart brings significant changes to human resource management, especially in the payroll process. Previously, the manual system used often faced obstacles in the form of miscalculations, delays in salary distribution, and a lack of transparency that could affect employee job satisfaction. With this application, the payroll process becomes more efficient, accurate, and transparent.

This application successfully integrates employee data recording, automatic salary calculation based on attendance and position, and issuance of digital payslips that can be accessed easily. In addition, the monthly report feature provides a useful tool for management to evaluate and plan labor budgets. This increase in efficiency supports the company's overall productivity, allowing Hafy Mart to focus on developing its business.

However, this system still has limitations that need to be overcome, such as not including the management of benefits, bonuses, and other specific deductions. Additionally, further development may include integration with tax systems and a more comprehensive reporting module to support the evolving needs of companies. With periodic evaluations and system adjustments, this application has the potential to continue to make a positive contribution to Hafy Mart's operations.

Overall, the study shows that the use of web-based technology in payroll management not only improves efficiency and accuracy but also helps to create a more professional and organized work environment. This can be a relevant model for other small and medium-sized companies looking to improve operational efficiency through technological innovation.

However, there are some limitations in this application that need to be considered, such as the lack of features to manage benefits, bonuses, deductions, and integration with the tax system. Therefore, further development is needed to overcome these limitations so that the application can provide a more

comprehensive solution and support the increasingly complex needs of companies.

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