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Ultimate Southern Fiber Management System

Muhammad Faris Nor Fauzi[1], Nur Liyana Sulaiman[1*]

[1] *Fakulti Sains Komputer dan Teknologi Maklumat,*
Universiti Tun Hussein Onn Malaysia, Parit Raja, Batu Pahat, 86400, MALAYSIA

*Corresponding Author: nrliyana@uthm.edu.my
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Management system, web-based system, waterfall methodology, management processes.

Abstract

The Ultimate Southern Fiber Management System (MS) aims to solve the staff management challenges faced by Ultimate Southern Fiber in the boat industry. The company's current methods for payroll, attendance, and employee data management are manual, leading to errors and delays. To address this, the project designs a web-based system using an object-oriented approach and undergoes both alpha and beta testing. The system development will follow the Waterfall methodology, which includes requirements analysis, design, implementation, testing, deployment, and maintenance. The Ultimate Southern Fiber Management System (MS) likely uses a client-server architecture for administrators and staff to interact with the system. Technologies used include PHP, Visual Studio Code, Apache, and MySQL via XAMPP. The result of user acceptance testing (UAT) confirmed the system's functionality, with 90% success in alpha testing and 61.2% in beta testing. The significance of MS is helping the company stay competitive in the boat industry.

1. Introduction

The Ultimate Southern Fiber Management System (MS) is software designed to help organizations manage staff data and work. The name comes from its founder, Nor Shahrul Shazan Bin Shahmat, who started the company in 2018. Based in Kg Belantik, Majidee, the company operated legally for two years before expanding its reach across Malaysia. Over nearly four years, it has gained recognition, particularly in Johor, where it focuses on meeting clients' needs in the southern region. Starting small, Ultimate Southern Fiber has grown into a significant player in the boat industry.

1.1 Problem Statement

Ultimate Southern Fiber faces challenges in managing employees due to outdated manual processes and no proper system for storing staff data. Important information is hard to access, leading to errors and delays. Attendance is tracked on paper, which takes time, costs money, and can result in lost or inaccurate records. The company also doesn't clearly separate full-time and part-time employees, making payroll, benefits, and compliance with labor laws more complicated and inefficient. The absence of clarity causes unpredictability and inefficiencies, making it more difficult for Ultimate Southern Fiber to run and efficiently manage its employees.

1.2 Objectives

The objective of developing the Ultimate Southern Fiber Management System (MS) are as follows:

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I. To design the MS using an object-oriented approach.
II. To develop a web-based management system
III. To test the MS using alpha and beta testing.

1.3 Scope Project

The Management System (MS) helps Ultimate Southern Fiber work more efficiently. With 7 staff members, the company sees the need for a modern system to streamline tasks and boost productivity. Two types of users, administrators and staff, will use this system. It will cover all company activities, including managing employee data, tracking attendance, handling leave, processing payroll, and managing benefits. The system will have eight modules designed to meet different needs of the company's operations, as shown in Table 1.

Table 1 *Modules system of Ultimate Southern Fiber Management System*

Modules	Description
1. Login and Register	Admin can login using username and password Register an account for staff
2. Manage Staff	Admin can manage Staff details
3. Manage User Profile	Staff can access account, edit, and update details
4. Manage Leave	Admin can approve or reject the leave that have been applied
5. Manage Payroll	Admin will calculate full time and part time staff's payroll Staff can view the payroll
6. Report	Admin can view attendance report and payroll report
7. Manage Attendance	Staff can clock in and clock out Staff can apply for leave
8. Manage Project	Admin can assign the task to the staff Task can be updated by staff Admin also can track the task progress

1.4 Report Organization

This report outlines the sections to discuss on related work in Section 2, methodology used in Section 3, results and discussion in Section 4 which illustrates the system analysis, system design, system architecture, and system implementation.

2. Related Work

This section looks at the current understanding of computerized systems and compares them to the proposed system using a literature review. The review gathers information, identifies issues, and serves as a key resource for the project. It examines three similar systems: Employee Management System, Employee Self-Service (ESS) Based System, and Employee Automation System. These systems are compared to the proposed Ultimate Southern Fiber Management System to identify their similarities, differences, strengths, and weaknesses.

2.1 Employee Management System (EMS) for Jazan university

This project aims to develop an Employee Management System (EMS) for Jazan University to address the challenges of managing employee information manually [5]. The system will make it easier to access employee data, view work schedules and assignments, and manage leave digitally instead of using paper records. It will include features like project management, leave applications, employee profiles, and report generation. Designed

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to be user-friendly and efficient, the system will use Microsoft SQL Server for the database and Java for the interface. The goal is to improve staff management at Jazan University through a web-based EMS. For an example, see Appendix B, Fig. B.1, showing worker Omima using the interface.

2.2 Employee Self Service (ESS) System

The purpose of this project is to develop an online platform known as Employee Self Service (ESS) to facilitate work for managers and staff at BCP Indonesia [6]. Employees may check their work schedule, request time off, and update personal information using ESS without having to contact the HR department. Time is saved, and productivity is increased. Additionally, the approach reduces errors and raises worker satisfaction. It verified that the system functions properly by testing it, and it does. In general, ESS improves staff satisfaction and improves BCP operations. For a visual presentation of the ESS System please refer to Appendix B Fig. B.2, shows the admin main display.

2.3 EA System

This project aims to create an online platform called Employee Self-Service (ESS) to help managers and staff at BCP Indonesia work more efficiently [7]. ESS allows employees to check work schedules, request leave, and update personal details without needing to contact HR, saving time and boosting productivity. It also reduces errors and increases employee satisfaction. Testing confirmed that the system works well. Overall, ESS enhances employee satisfaction and improves BCP's operations. For a visual example, see Appendix B, Fig. B.2, showing the admin's main display.

2.4 Comparison between related system

There are three equivalence systems which are Employee Management System, Employee Self Service (ESS) Based System Development, and Employee Automation System. This equivalence system will be compared with the proposed system which is Ultimate Southern Fiber Management System to find out the similarities and differences between these systems and to find out pros and cons of each system. Table 2 compares Ultimate Southern Fiber Management System (MS) with existing systems.

Table 2 *Comparison between the MS and the existing systems*

Features	Employee Management System	Employee Self Service (ESS) Based System	Employee Automation System	MS
1. Login and Register	Yes	No	Yes	Yes
2. Manage Staff	Yes	Yes	Yes	Yes
3. Manage User Profile	Yes	Yes	Yes	Yes
4. Manage Leave	No	Yes	Yes	Yes
5. Manage Payroll	No	Yes	Yes	Yes
6. Generate Report	Yes	Yes	Yes	Yes
7. Manage Attendance	No	No	Yes	Yes
8. Manage project	Yes	Yes	No	Yes

3. Methodology

Table 3 shows that the tasks completed in each step utilizing the Waterfall model methodologies are explained. The requirement and analysis phase, design phase, implementation phase, and testing phase are the four stages of this process. For a visual representation of the waterfall methodology process, please refer to Appendix C Fig C.1. This diagram functions as an essential road map, showing the intended flow of tasks from requirements study to testing. Its appendix placement helps staff and stakeholders comprehend the organized nature of the project's execution by providing a clear, concise summary of task dependencies, durations, and the overall project timeline.

Table 3 *Software development activities task*

Phases	Task/Activities	Deliverables

Requirement & Analysis	I. Gather user requirement from stakeholder. II. Research and find articles based on the study scope	I. User Requirements II. System Requirements
Design	I. Discuss the function in application. II. Design and discuss the functions of proposed system. III. Discuss the design of the system.	I. Use Case Diagram II. SequenceDiagram III. ActivityDiagram IV. ClassDiagram V. Schema table VI. Interface VII. Modules in proposed system
Implementation	Develop Ultimate Southern Fiber Management System by writing the code and designing the documentation into actual software development.	A functional Ultimate Southern Fiber Management System
Testing	Conduct testing to identify the theory applied to the system.	I. Functionality and usability testing results. II. Tested system to improve the functionality based on the feedback from the user

4. Result and Discussion

This section will discuss the analysis and design phases of the system, covering system requirement analysis, which includes both functional and non-functional requirements, database design, and implementation. The design phase involves detailing the components and interfaces to address these requirements and constraints.

4.1 System Requirement Analysis

The process of identifying the needs that a constructed system needs to meet and the expectations of users for the suggested system is known as requirement analysis. Ultimate Southern Fiber management System determines user expectations outcome from this proposed system. There contains of functional requirements and non-functional requirements. The functional needs and the proposed system's description are shown in Table 4, while the non-functional requirements and their descriptions are shown in Table 5.

Table 4 *Functional Requirements*

Modules	Description
Login and Register	I. The system allows users to securely log in using their username and password. II. The system enables administrators to create and register new staff accounts, providing them with access to the system.

Manage Staff	I.	The system allows administrators to add new staff members by entering their details into the system.
	II.	The system enables administrators to edit the details of existing staff members to keep their information up to date.
	III.	The system allows administrators to delete staff profiles when they are no longer needed.
Manage User Profile	I.	The system allows users to update their personal profile information, such as contact details and job information.
	II.	The system provides users with the option to set security questions for password reset if they forget it.
Manage Leave	I.	The system enables administrators to review and either approve or reject leave requests submitted by staff members.
	II.	The system allows staff members to apply for leave by submitting their leave requests through the system.
Manage Payroll	I.	The system calculates payroll for both full-time and part-time staff members based on their work hours and other relevant factors.
	II.	The system allows staff members to view their payroll details, so they can see their earnings and deductions.
Report	I.	The system generates detailed attendance reports that administrators can view to monitor staff attendance.
	II.	The system generates payroll reports that administrators can use to review payroll information and ensure accuracy in payment processing.
Manage Attendance	I.	The system allows staff members to clock in when they start their workday and clock out when they finish, tracking their work hours.
Manage Project	I.	The system enables administrators to assign specific tasks to staff members, ensuring that all necessary work is allocated.
	II.	The system allows staff members to update the progress of their assigned tasks, enabling administrators to track the status and completion of each task.

Table 5 *Non-Functional Requirements*

Modules		Description
Performance	I.	Each page in the system must load within 3 seconds
	II.	The interaction between the staff and the system should not be more than 10 minutes
Operational	I.	The system should be easily updated and maintained
	II.	The system should be user-friendly
	III.	The system should be work on web based

Security	I.	The system should allow staff access their account with user ID and password
	II.	The system allow staff to edit their profile
	III.	Only admin can register the new staff and view the staff members

4.2 System Analysis

The system's architecture, interface, and database designs are all covered in the specification. While the design of the system and a schema table comprise the interface and database designs, respectively, the architectural design is represented by an architecture diagram.

4.3 Uce Case Diagram

By using UML, Ultimate Southern Fiber can easily communicate complex ideas between developers, stakeholders, and non-technical staff, ensuring everyone understands the system's requirements and design. In this project, it will apply, use case diagram, use case specification, activity diagram, and class diagram. Fig.4 illustrates the Use Case Diagram for the proposed system.

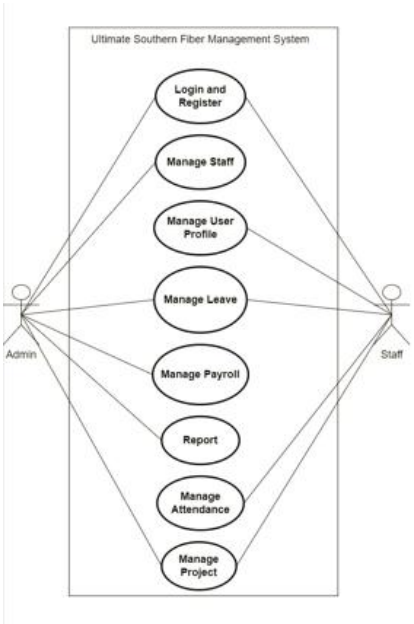

Fig. 4 ***Use Case Diagram***

4.4 Class Diagram

Fig. 5 shows there are 11 classes in the class diagram. There are Staff, Manage Profile, Manage Staff, Manage Leave, Manage Payroll, Full-time Staff, Part-time Staff, Manage Attendance, Manage Project, Manage Report and Admin. Each class holds its attribute value and method. Each class also can be linked to another class.

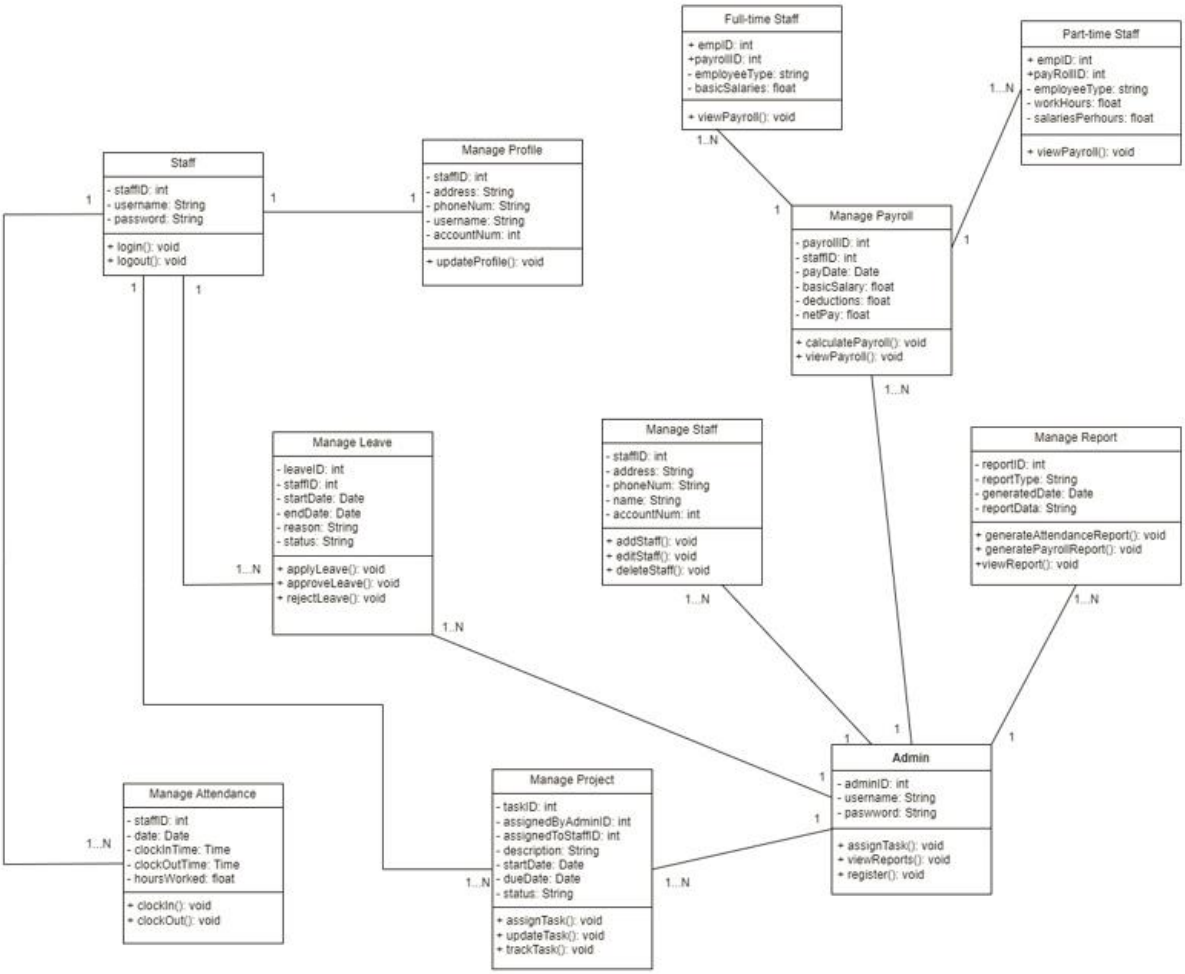

Fig. 5 ***Class Diagram***

4.5 Use Case Specification

Use case specification is the documentation that describes each use case in the use case diagram with specific details, which are the normal flow, related requirement, activity diagram and sequence diagram. For further visualization of the interaction flow, reference can be made to Appendix A, which contains the sequence specification, sequence diagram and activity diagram illustrating the sequential steps and activities involved in the use case scenario.

4.6 System Architecture

The Ultimate Southern Fiber Management System (USFMS) likely uses a client-server architecture. In this system, the client is the app or website that administrators and staff use to interact with the system. They send requests to the server, which processes these requests, stores data like employee records and attendance, and ensures everything is secure and up to date. The server manages everything behind the scenes, while the client makes it easy for users to access the system from different devices. This setup helps keep the system organized and easy to maintain.

4.7 Interface Design

In the context Ultimate Southern Fiber Management System (MS), interface design entails carefully crafting the visual aspects and interactive elements of the web-based system. The goal is to provide an intuitive and user-friendly interaction that allows staff and admin to navigate effortlessly through processes such as Login and Register, Manage Leave, and Manage Payroll. This involves design principles, incorporating clear layouts, intuitive elements, and responsive features to ensure a pleasant and effective user experience when utilizing the Ultimate Southern Fiber Management System (MS).

4.7.1 Login and Register

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Fig. 6 shows the process where admin needs to log into the system and then add staff in registration form with the details needed in and then submit. The system will then validate the successful registration of the staff. If both username and password are correct, the system will redirect to the homepage. After that, staff must fill up the username and password that have been registered by admin.

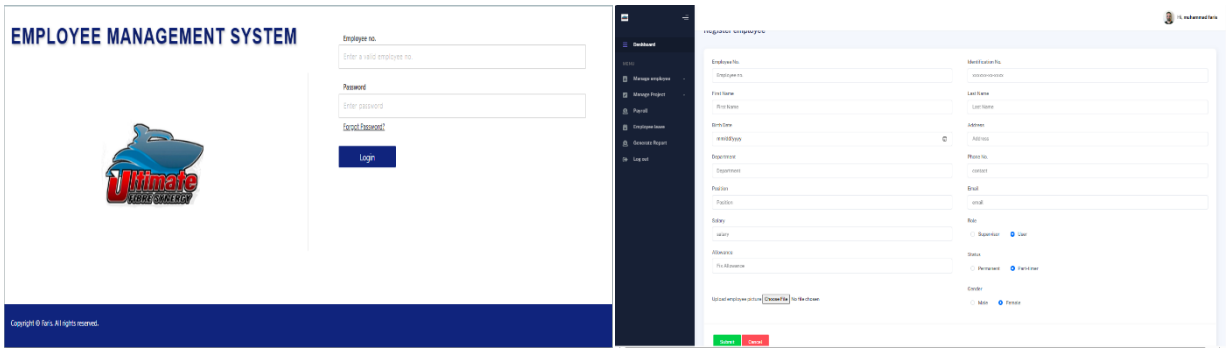

Fig. 6 *Login and Registration interface*

4.7.2 Manage Staff

Fig. 7 shows the process where admin can manage employee details which it can be view and update information details of the employee.

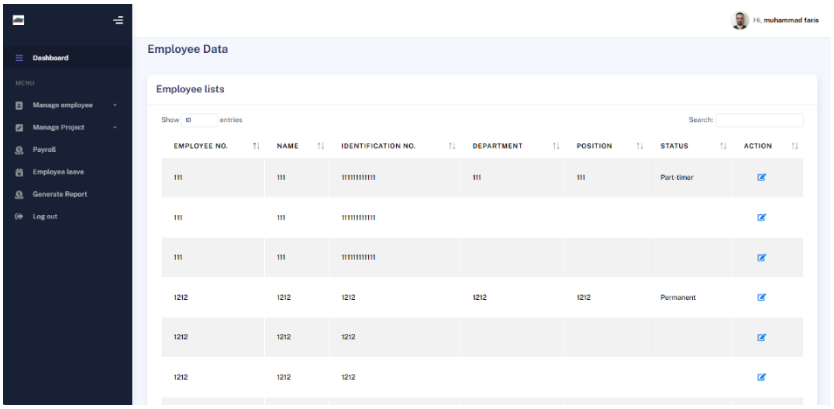

Fig. 7 *Manage Staff interface*

4.7.3 Manage User Profile

Fig. 8 shows the process where employee can update their information details.

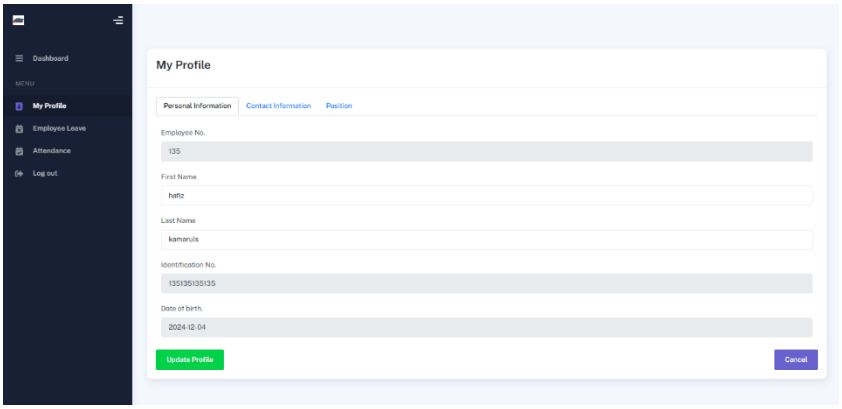

Fig. 8 *Manage User Profile interface*

4.7.4 Manage Leave

Fig 9 shows an interface where admin can approve or reject the request leave from the employee while employees can apply a leave with the needed information

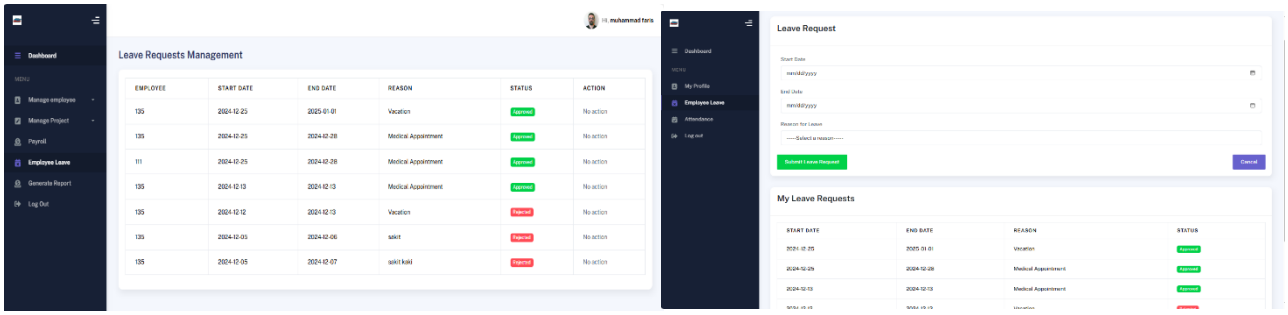

Fig. 9 *Manage Leave interface*

4.7.5 Manage Payroll

Fig. 10 shows the interface where admin can manage the payroll for the full-time and part-time staff and calculate the salary for the staff.

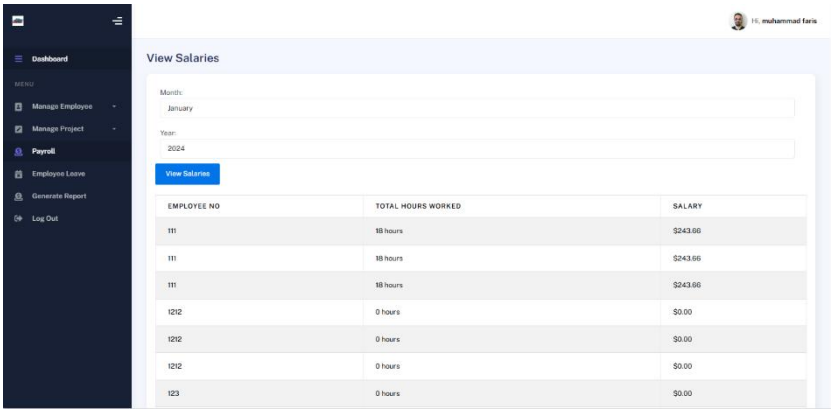

Fig. 10 *Manage Payroll interface*

4.7.6 Generate report

Fig. 11 shows the interface where admin can manage the payroll for the full-time and part-time staff and calculate the salary for the staff.

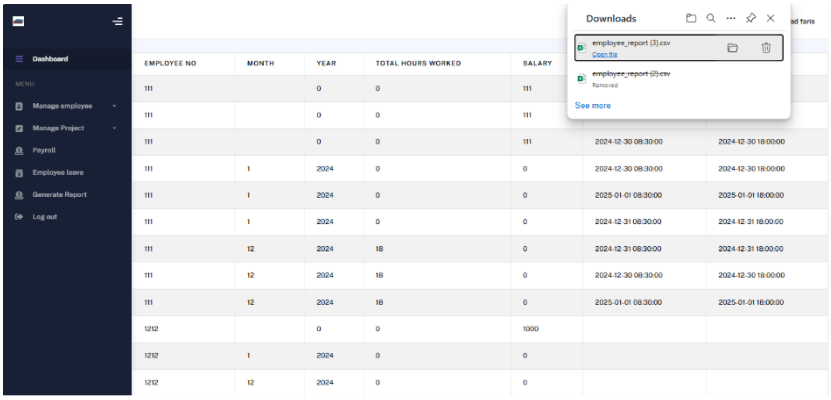

Fig. 11 *Generate Report interface*

4.7.7 Manage Project

Fig. 12 shows the interface where admin can assign project to the employee and view the project task while the employee can view, update and completely done the task.

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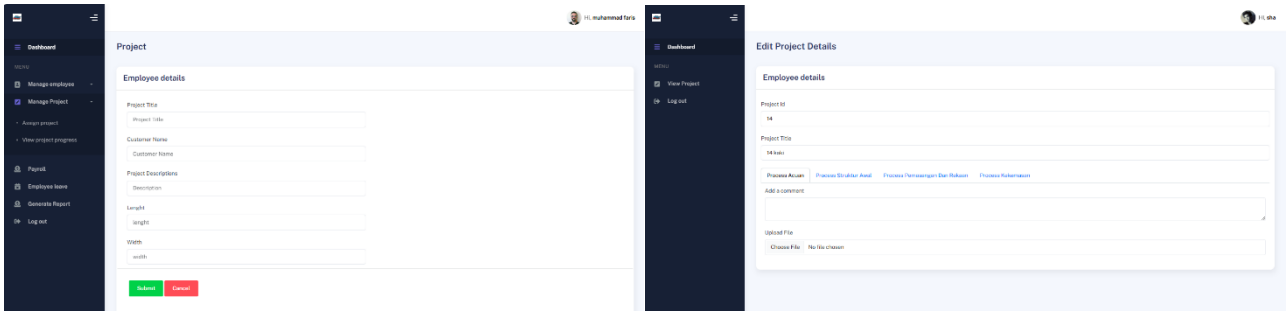

Fig. 12 *Manage Project interface*

4.8 Implementation

The Ultimate Southern Fiber Management System is developed by using PHP languages, Visual Studio Code and MySQL are used to develop the web-based system. MySQL plays an important part in storing all the data information.

4.8.1 Database Connection

Figure 13 shows the script used to connect the Ultimate Southern Fiber Management System to a MySQL database. It defines the database credentials, including the server's name ("localhost"), username ("root"), password (empty), and database name ("emsdb"). It then creates a connection using the MySQL class. If the connection fails, it displays an error message and stops the script. This connection is essential for accessing and managing data, such as user accounts or fiber records, in the system.

```php
<?php
$servername = "localhost";
$username = "root";
$password = "";
$dbname = "emsdb";

// Create connection
$conn = new mysqli(hostname: $servername, username: $username, password: $password, database: $dbname);

// Check connection
if ($conn->connect_error) {
    die("Connection failed: " . $conn->connect_error);
}
?>
```

Fig. 13 *Connection to database*

4.8.2 Code Segment

In this section the code segment for all module which Figure 14 for Login and Register, Figure 15 for Manage Staff, Figure 16 for Manage User Profile, Figure 17 for Manage Leave, Figure 18 for Manage Payroll, Figure 19 for Generate Report, Figure 20 for Manage Attendance, and Figure 21 for Manage Project will be illustrated in this topic.

Fig. 14 Code Segment for Login and Register

Fig. 15 Code Segment for Manage Staff

Fig. 16 Code Segment for Manage User Profile

Fig. 17 Code Segment for Manage Leave for admin and employee

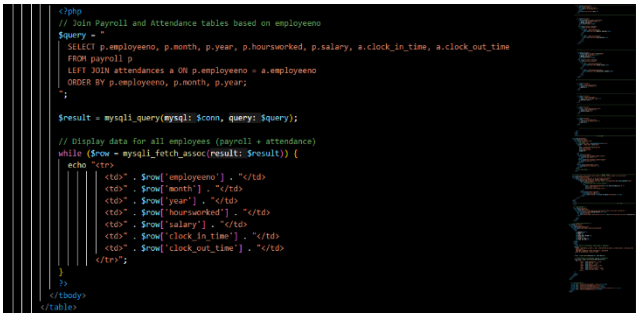

Fig. 18 Code Segment for Manage Payroll

Fig. 19 Code Segment for Generate Report

Fig. 20 Code Segment for Manage Payroll

Fig. 21 Code Segment process for Manage Project

4.9 Testing

The testing phase was done after the full application was built and ready for use in the real world. The purpose of testing was to find any bugs or errors and make sure the application works properly and meets the user's needs.

4.9.1 Test Cases

Table 6 shows list the test cases for all the modules in the Ultimate Southern Fiber Management System. There are eight test cases in total, each created to check specific features and make sure the system works properly across its modules.

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Table 6 *Test case for all module*

Test Case ID	Description	Status	Test Case ID	Description	Status
TC_100	Login and Register	Pass	TC_500	Manage Payroll	
TC_101	The system shall allow admin login using email and password.	Pass	TC_501	The system should calculate payroll for both full-time and part-time staff members.	Pass
TC_101_1	Verify the system allows login with valid employee number and password.	Pass	TC_501_1	Ensure payroll calculations are accurate, including taxes and deductions.	Pass
TC_101_2	Verify the system rejects login with invalid employee number or password.	Pass	TC_502	The system must handle payroll calculations accurately to ensure correct payments.	Pass
TC_102	The system shall allow admin to register new staff.	Pass	TC_502_1	Validate the payroll summary of payroll calculations is correctly displayed for each employee.	Pass
TC_102_1	Verify The admin can register a new employee	Pass	TC_600	Generate Report	
TC_103	The system shall allow staff login using email and password.	Pass	TC_601	The system should generate attendance reports for admin.	Pass
TC_103_1	Verify the user is redirected to the correct dashboard based on their role (admin, supervisor, user).	Pass	TC_601_1	Ensure reports of attendance display all required data fields.	Pass
TC_200	Manage Staff		TC_602	The system should generate payroll reports for admin.	Pass
TC_201	The system should allow admin to add new staff members.	Pass	TC_602_1	Ensure reports of payroll display all required data fields	Pass

TC_201_1	Verify that admins can add a new staff member with valid details, including personal and payroll information.	Pass	TC_700	Manage Attendance	
TC_202	The system should enable admin to edit existing staff details.	Pass	TC_701	The system should allow staff to clock in and out.	Pass
TC_202_1	Verify that admins will be able to edit existing staff details	Pass	TC_701_1	User should be able to clock in and clock out successfully.	Pass
TC_203	The system should allow admin to delete staff profiles.	Pass	TC_702	The system must record accurate timestamps for clock in/out actions.	Pass
TC_203_1	Verify that admins can delete staff profiles	Pass	TC_702_1	User's record attendance must be accurate with timestamps for clock in and clock out actions.	Pass
TC_300	Manage User Profile		TC_703	The system should display the current attendance status after clock in/out.	Pass
TC_301	The system should be able to update the profile successfully.	Pass	TC_703_1	System should display the status after clock in and clock out	Pass
TC_301_1	Verify that users can update their personal details	Pass	TC_800	Manage Project	
TC_301_2	Verify the system saves updated user details to the database.	Pass	TC_801	The system should enable administrators to assign tasks to staff members.	Pass
TC_400	Manage Leave		TC_801_1	Validate the admin can create a new project with all mandatory fields	Pass

TC_401	The system should enable administrators to approve or reject leave requests submitted by staff.	Pass	TC_801_2	Validate the admins can view project tasks	Pass
TC_401_1	Verify that admins should be able to approve and reject leave request by staff	Pass	TC_802	The system should allow staff to update task progress.	Pass
TC_402	The system should allow staff to apply for leave.	Pass	TC_802_1	Validate that staff can update task progress	Pass
TC_402_1	Verify that's user should be able to apply leave and notified if leave request is successfully submitted.	Pass			

4.9.2 Alpha Testing

Alpha testing is the first phase of testing conducted within the development team or by selected internal users to identify bugs, ensure functionality, and verify that the system works as intended. Table 7 shows for the Ultimate Southern Fiber Management System (MS), this includes testing modules like login, staff management, leave management, payroll, and more to ensure they perform their tasks without errors under controlled conditions. Any issues discovered during alpha testing are reported and resolved before moving to the next phase. The user acceptance testing for stakeholders will be attached in Appendix D.1.

Table 7 *Test criteria for the MS*

Module/Acceptance Criteria	
Login and Register	**Manage Payroll**
There is a login page in the system	There is manage payroll in the system
I able to login to the system	I able to calculate the salary of the part time employee
I able to go to the dashboard after login	I able to calculate the salary of the permanent employee
Error message will be display if wrong login credentials	I able to view each of the salary's employee
I able to change password	**Generate Report**
There is a register page	There is generate report page in the system
I able to register the employee	I able to view retrieve data from payroll employee
Notification will be pop up after the register	I able to view retrieve data from attendance employee
Manage Staff	I able to download csv file format
There is a manage staff page in the system	**Manage Attendance**
I able to view employee detail	There is a manage attendance in the system
I able to update all the information for the employee	I able to clock in in the system
Success message will pop up after update the employee	I able to clock out in the system
Manage User Profile	I able to view attendance record
There is manage user profile in the system	I able to select date to view attendance record

I able to update my information detail	I able to filter by month to view attendance record
I able to change password	I able to search the attendance record
Succes message will pop up after updating my information	**Manage Project**
Manage Leave	There is manage project in the system
There is a manage leave page in the system	I able to assign task to the supervisor
I able to apply leave	I able to view progress project
I able to retrieve leave request from employee	I able to edit project details
I able to approve leave request	I able to complete the task
I able to reject leave request	I able to update progress task
	I able to approve the updated task
	I able to view updated progress

4.9.3 Beta Testing

Beta testing is the second phase, conducted by real users in a live environment to evaluate the system's performance, usability, and reliability. For the Ultimate Southern Fiber Management System, beta testing involves allowing a group of employees, supervisors, and admins to use the system in their day-to-day tasks, such as managing attendance, projects, and payroll. Feedback from beta testing is gathered to fix any remaining issues and improve the overall user experience. The user acceptance testing in google form for users will be attached in Appendix E.1.

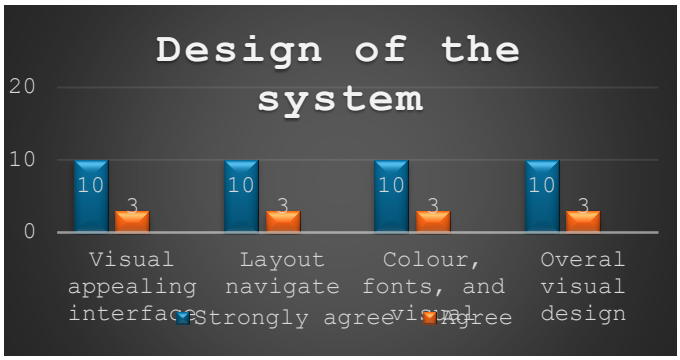

Fig. 14 *Testing result of design for Ultimate southern Fiber Management System*

Figure 14 shows the test results for the design of the Ultimate Southern Fiber Management System show strong satisfaction. Most participants strongly agreed (10 responses) that the system has a visually appealing interface, is easy to navigate, and uses effective colors, fonts, and visuals. Similarly, they strongly agreed that the overall visual design was excellent. A smaller group (3 responses) agreed but not as strongly. This indicates that the design elements are well-received overall.

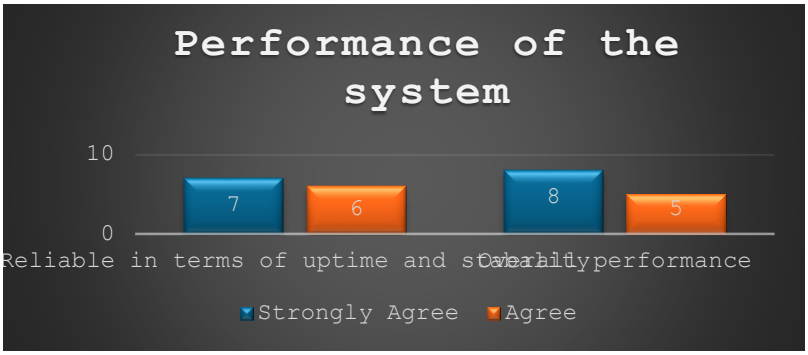

Fig. 15 *Testing result of performance for Ultimate southern Fiber Management System*

Figure 15 shows the performance results indicate positive feedback, with most users expressing strong agreement about the system's reliability and overall performance. Specifically, 7 users strongly agreed, and 6 agreed that the system was reliable in terms of uptime and stability. For overall performance, 8 users strongly agreed, and 5 agreed. These results suggest the system performs well, though there is still room for improvement.

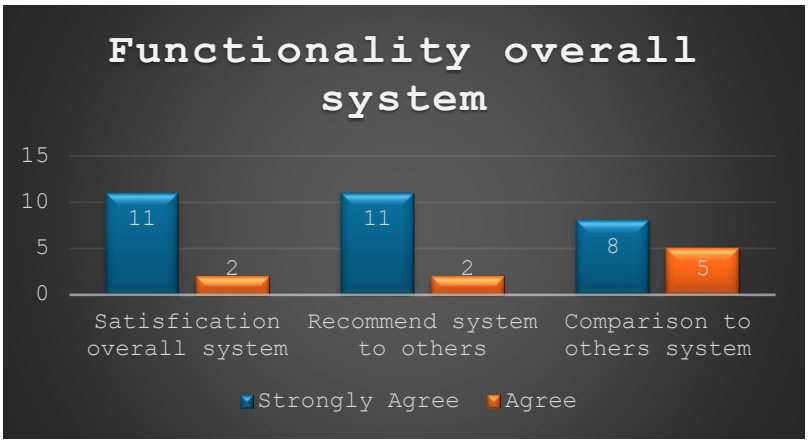

Fig. 15 *Testing result of functionality overall for Ultimate southern Fiber Management System*

Feedback on the system's functionality was highly positive. A significant number of users (11 responses) strongly agreed that they were satisfied with the system and would recommend it to others. For comparisons with other systems, 8 users strongly agreed it performed well, while 5 agreed. This indicates the system's functionality is highly regarded by most testers.

5. Conclusion

The Ultimate Southern Fiber Management System simplifies key processes like managing staff, user profiles, leave, payroll, attendance, and projects, making work more efficient and reducing errors. This project has 3 objectives where this project has applied an object-oriented approach by using UML to produce 8 use case, 11 class diagram, activity diagram and sequence diagram. Secondly, this project develops using PHP, Visual Studio Code, Apache and MySQL within the XAMPP to develop the website applications. Thirdly, this project also has tested alpha and beta testing where alpha testing gets 90% pass the requirement and for beta testing gets 62%, gets 59.5%, and gets 62%. For future work, the system should include advanced reporting features that let administrators create detailed, customizable reports on areas like attendance, project progress, and employee performance. Next, enhancing the system to integrate with external tools, like calendar apps for scheduling or accounting software for payroll, would streamline tasks and reduce manual data entry. Adding advanced security measures, such as multi-factor authentication (MFA) for users with access to sensitive data, would strengthen system protection.

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Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

Author Contribution

This journal requires that all authors take public responsibility for the content of the work submitted for review. The contributions of all authors must be described in the following manner:

The authors confirm contribution to the paper as follows: ***study conception and design:*** *Muhammad Faris Bin Nor Fauzi, Nur Liyana Binti Sulaiman;* ***data collection:*** *Muhammad Faris Bin Nor Fauzi, Nur Liyana Binti Sulaiman;* ***analysis and interpretation of results:*** *Muhammad Faris Bin Nor Fauzi, Nur Liyana Binti Sulaiman;* ***draft manuscript preparation:*** *Muhammad Faris Bin Nor Fauzi, Nur Liyana Binti Sulaiman. All authors reviewed the results and approved the final version of the manuscript.*

An author name can appear multiple times, and each author name must appear at least once. For single authors, use the following wording:

The author confirms sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

References

[1] Jamsa, K., King, K., & Anderson, A. (2002). *HTML & Web Design*. McGraw-Hill.

[2] Adewumi, A., Misra, S., & Damaševičius, R. (2019). A complexity metrics suite for cascading style sheets. Computers, 8(3), 54.

[3] Simaanya, M. (2015). *Employee Management System* (Doctoral dissertation).

[4] Singh, P., Fartyal, H., Zubair, K. A. A., & Laddha, A. (2019). Employee management system. *International Research Journal of Engineering and Technology (IRJET)*, *6*.

[5] Ashmi, R. (2016). Employee Management System for Jazan University.

[6] Margatama, L. (2017). Employee self-service-based human resources information system development and implementation. Case study: BCP Indonesia. *Jurnal Informatika*, *11*(1), 52-60.

[7] Rahman, D., Mishu, T. I., Islam, M. S., & Akanda, M. S. (2017). Implement fingerprint authentication for employee automation system. Int J Innov Res Inf Secur, 4(9)..

[8] Strohmeier, S. (2020). Digital human resource management: A conceptual clarification. German Journal of Human Resource Management, 34(3), 345-365.

[9] Gunderson, M. (2021). Principles of EMS system design. Emergency Medical Services: Clinical Practice and Systems Oversight, 2, 16-31.

[10] Kumar, B., Singh, K., Kumar, B., & Singh, K. (2015). Testing uml designs using class, sequence and activity diagrams. International Journal for Innovative Research in Science and Technology, 2(3), 71-81.

Appendix A

History Log	1.0.0	1. Create initial use case		
Version	1.0.0			
Use Case ID	UC-8			
Use Case Name	Manage Project			
Created By	Muhammad Faris	**Updated By**	Muhammad Faris	
Date Created	1 Jan 2024	**Last Revision Date**	1 June 2024	
Actors	Admin and Staff			
Description	Admin can assign tasks to staff, track task progress. Staff can update task status.			
Preconditions	Admin and staff must have valid login credentials and appropriate permissions			
Post conditions	None			
Normal Flow	**8.0 Manage Project** a) Admin selects "Manage Project" option. b) Admin views list of projects and associated tasks. c) Admin assigns tasks for staff members. d) Staff members can choose to select the task. e) Staff members update task status as they progress. f) Admin tracks overall project progress and task completion.			
Alternative flow	None			
	ID	**Requirement**		**Priority**

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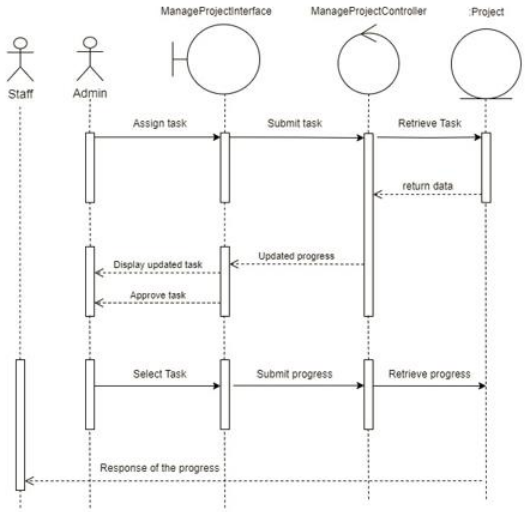
Related requirement	FR08-01	The system should enable administrators to assign tasks to staff members.	Basic
	FR08-02	The system should allow staff to update task progress.	Basic
	CR08-01	The system must ensure that task assignments are communicated clearly to staff members.	Basic
	CR08-02	The system should provide notifications for task updates to relevant parties.	Basic



Sequence Diagram for Manage Project

Activity Diagram for Manage Project

Appendix B

Fig. B.1 *Employee Interface*

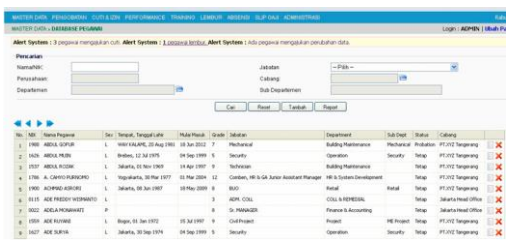


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Fig. B.2 *Admin Main Display*

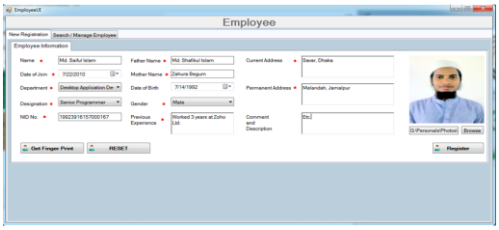

Fig. B.3 *Register New Employee*

Appendix C

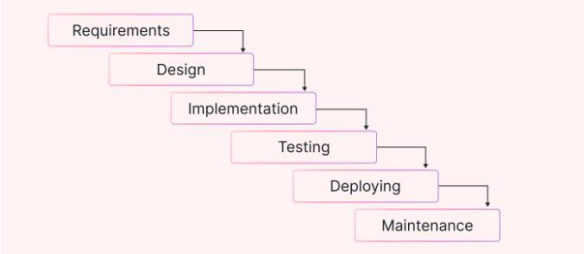

Fig. C.1 *Waterfall Model*

Appendix D

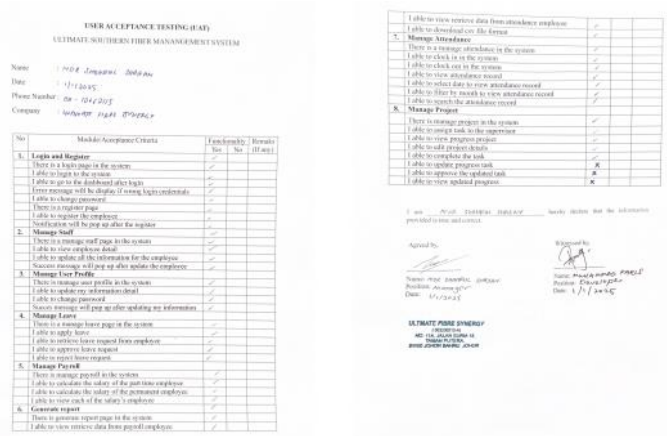

Fig. D.1 User Acceptance Testing for stakeholders

Appendix E

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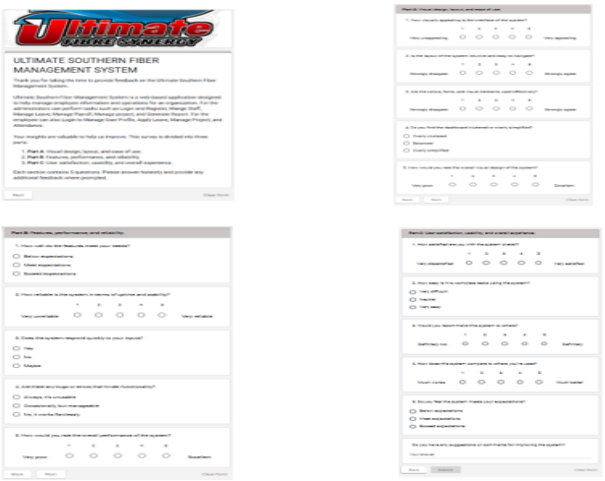

Fig. E.1 User Acceptance Testing using google form for users