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Santai Ilmu Publication Employee Management System

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Abstract

This project emphasizes and concerns in maintaining employee data for a web-based solution to solve data lost issues as well as data maintanence. Administrators will be able to input employee data and control attendance using the proposed system, while workers will be able to check their attendance performance and obtain salary statements online. The project also emphasizes the need to implement a payroll system that allows employees to view their pay stubs online, which reduces the need for paper-based statements and improves employee access to information. The project's scope includes a web-based personnel administration system for administrators to use for HR functions such as time and attendance monitoring and payment. The report also contains a list of personnel participating in the information retrieval process, system users, and system function modules. The anticipated result is a fully functional software solution for managing corporate tasks such as staff attendance records and payroll statements, with a user-friendly interface that allows easy access to the system's features and functions.

1. Introduction

A human resource (HR) database is a central repository for all employee data, where human resources professionals may save employee data digitally. It is a software solution that aids in the automation of human resource functions and the safe and secure storage of personal data. A human resources database collects, organizes, and stores employee data, including personal information. This project proposes an employee management system for Santai Ilmu Publication, which enables administrators to handle HR operations efficiently in terms of time and attendance monitoring and compensation information. Furthermore, workers can and rapidly assess their job performance and compensation information. Via the system.

Currently, some problems are encountered with the existing process of storing employee data on vast volumes of paper and in files. If a calamity occurs in the company, some vital data may be lost due to a lack of security in keeping employee data.

Therefore, a web-based system for managing employees for Santai Ilmu Publication is developed to deal with the current problems in order to address them. The web-based interface will allow administrators to input employee data into the system and make it simple for administrators to enter staff attendance. Employees can check their attendance performance on the online system and acquire salary statements without having to ask the administrator for a copy.

2. Related Work

Santai Ilmu Publication is a corporation that provides different printed book services. This project objective is to create a web system for employee administration that allows administrators to enter staff attendance easily. The primary goal of this web system development is to provide users with an easy-to-use online platform for saving all employee data in the system. Users can view their attendance report, payroll statement, data employee, and incident report through the integration of the employee management system. Aside from that, it is a web-based system that runs within a web browser and is often received over a network connection via HTTP rather than being saved in the memory of a device [1]

Table 1 *System Comparison*

Module and Function	Kakitangan.com	cuteHR	HR.my	EMS
User Login Function	Yes	Yes	Yes	Yes
Register Account Function	Yes	Yes	Yes	Yes
Incident Report	No	No	Yes	Yes
Attendance Check In	No	Yes	No	Yes
Leave Application	Yes	No	Yes	Yes
Payroll Statement Module	Yes	No	Yes	Yes

Table 1 compares three existing language learning HR online platforms, namely kakitangan.com, cuteHR, and HR.my. According to the study, each system has its unique functionality, which might be perceived as inadequate compared to other systems. Some systems, for example, may not prioritize supplying employee data and salary statements. This investigation of existing web systems centers around the five major feature modules proposed to develop an employee management system. According to this comparison, all three current systems, including the proposed system, used a login and sign-up feature, indicating a commonality in user access and personalization material.

The newly designed system is Santai Ilmu Publication Employee Management System, which allows users to take and track attendance. It also allows administrators to record incidents that occur among employees. The system allows administrators to add pay slips to the system. It has a user-friendly interface and is easy to use.

3. Methodology

The Prototyping Model is chosen in the development of the proposed system, an employee management system for the Santai Ilmu publication, to ensure that the program complies with increasing user needs requirements. The prototype model is a type of software development model consisting of several prototypes that will be presented for the customers to evaluate. A prototype is known as a preliminary version that requires review and evaluation by the customers to find out if the requirement is achieved or not. Once that prototype fulfills the requirement and it will be upgraded with other features until a final product is formed [2]. **Table 2** shows, the prototyping model was chosen in the development of develop an employee management system for the Santai Ilmu publication to ensure that the program complies with increasing user needs requirements. Furthermore, the production was completed within the time frame specified. The Gantt chart is shown in **Appendix A.**

Table 2 *Software development activities and tasks*

Phase	Task	Output
Planning	i. Proposed the project ii. Determine the project schedule, activities and output	i. Project proposal ii. Develop Gantt chart
Analysis	i. Gather and analyze the related information ii. Determined problem statement, objective and project expected outcomes	i. UML class diagram ii. Functional and Non-functional
Design	i. Design user interface and its functionality	i. Design user interface and its functionality ii. User interface iii. Web system design
Implementation	i. Create a prototype using requirement analysis and design	i. Prototype ii. After iteration process the final system will finalized

	ii.	Implement the final design of the system		
Testing	i.	Test the prototype functionality and usability	i.	Finalized system functionality and usability

4. Analysis and System Design

4.1 System Requirement Analysis

System requirements analysis is an essential phase in the development process because it guarantees that the finished system meets all of its users' and stakeholders' requirements. There are two categories of requirements in system requirements analysis: functional and non-functional.

Functional requirements describe what the system must accomplish in terms of its properties and the specific activities and tasks that the system must carry out. There are business standards to follow, for example, as well as the boundaries of user levels and authorization. **Table 3** depicts the functional requirements of the proposed system. Non-functional requirements specify how the system should work, perform, and behave rather than what it should do [3]. **Table 4** depicts the proposed system's non-functional requirements. The research and analysis of user requirements includes how a user will interact with the system and what users anticipate. Understanding user requirements is critical to the success of interactive systems and information system design. The user requirements are shown in **Table 5**.

Table 3 *Functional Requirement*

No	Module	Description
1	Registration and Login Module	• Allow the administrator to register new employee new account before login. • Allow the existing users to login with the id and password. • Redirect the valid users to dashboard when successful login.
2	Attendance Module	• Allow user to monitor their attendance record.
3	Payroll Statement Module	• Employee can access their payslip invoice.
4	Incident Management Module	• Allow the administrator to record incidents of wrong printing and postage caused by the employees.
5	Leave Application	• Administrator can approve employee leave and employee can apply leave in the system.

Table 4 *Non-functional Requirement*

No	Module	Description
1	Performance	• The system should be always usable. • The loading time required for a website is no more than 1 minute.
2	Security	• Only the administrator should be able to manage the database and create reports.
3	Compatibility	• The web system should be able to work on any web browser.
4	Usability	• The system should be user friendly.

Table 5 *User Requirement*

No	Requirement
1.	All users must have an account with valid id and password.
2.	Administrator must have access to create account for new employee.
3.	Administrator should be able to manage incident management material.
4.	Administrator should be able to generate the incident report.
5.	Employee can access their payroll slip.
6.	The administrator should be able to generate payroll slips..
7.	All user should be able to access attendance performance.

8. Administrator must be able to access data employee.
9. Administrator must have access to add new data new employee.
10. Administrator must have access to edit data employee.
11. An employee can apply for their leave through the system.
12. Administrators have access to approve employee leave.

4.2 System Analysis

Level 0 Data Flow Diagram (DFD) depicts the web system at a high level, highlighting critical operations and associated entities. It aids in understanding the system's primary functions and how they are linked. **Appendix B** depicts the employee management system's Level 0 Data Flow Diagram (DFD 0). An Entity Relationship Diagram (ERD) depicts a system's entities, properties, and relationships. It aids in designing the database structure and understanding how various items are linked.

The entity relationship diagram for the employee management system is shown in **Appendix C**. A flowchart is a diagram that depicts the processes, decisions, and actions involved in a process. It aids in comprehending the logic and sequence of events inside the system. The system flowchart is shown in **Appendix D**.

4.3 System Design

Regardless of the size and complexity of the program, web application architecture dictates how the components communicate with one another. It is a framework that specifies how components are linked and interact to define the relationship between the client and server. The architecture of a web application is critical to its success since it is intimately connected to user-friendly and secure web-based communication. **Figure 1** displays the EMS architecture and how it interacts with one another.

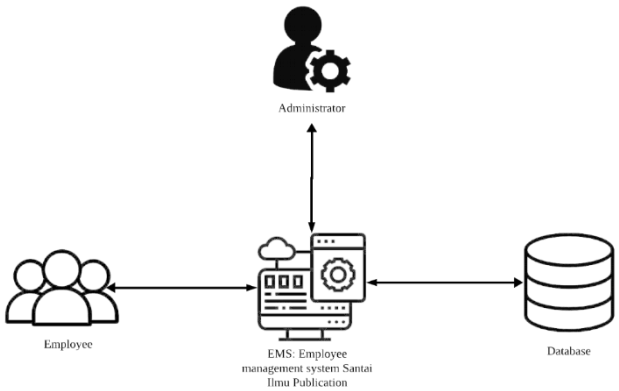
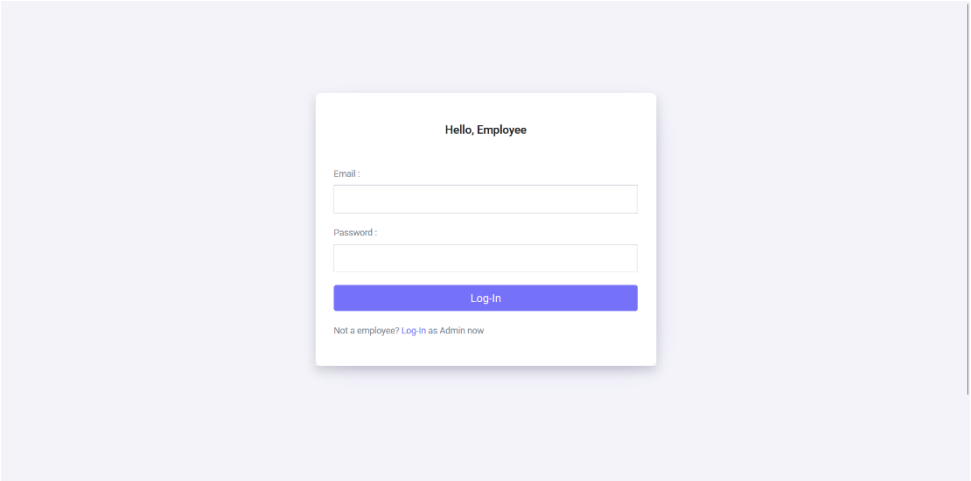


Fig.1 *System Architecture*

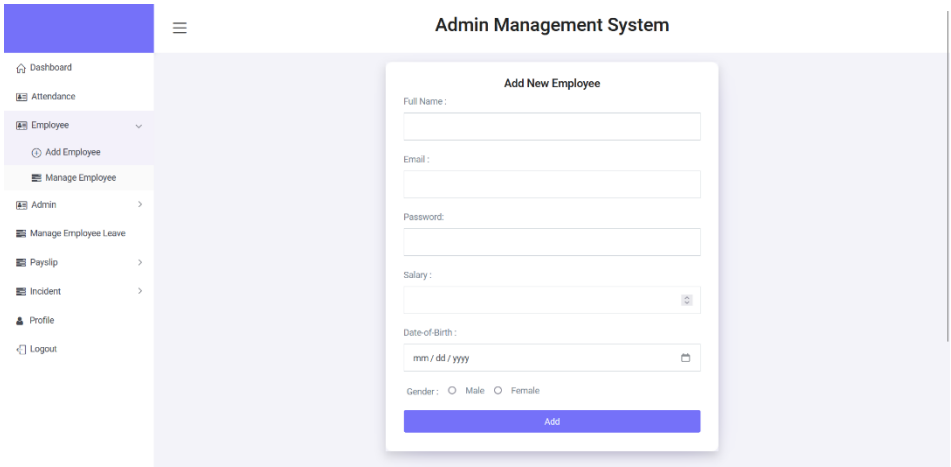
Following is the list of entities from the database that have been designed and extracted from ERD.

i. administrator (Admin_id,email, password)
ii. employee (employee_id, name, username, email, password)
iii. incidentReport (incident_id, context, date_generate, employee_id)
iv. leave (employee_name, date, leave_info)
v. payroll (admin_id, employee_id, date_generate)
vi. attendance (admin_id, employee_id, name, username, email, password)

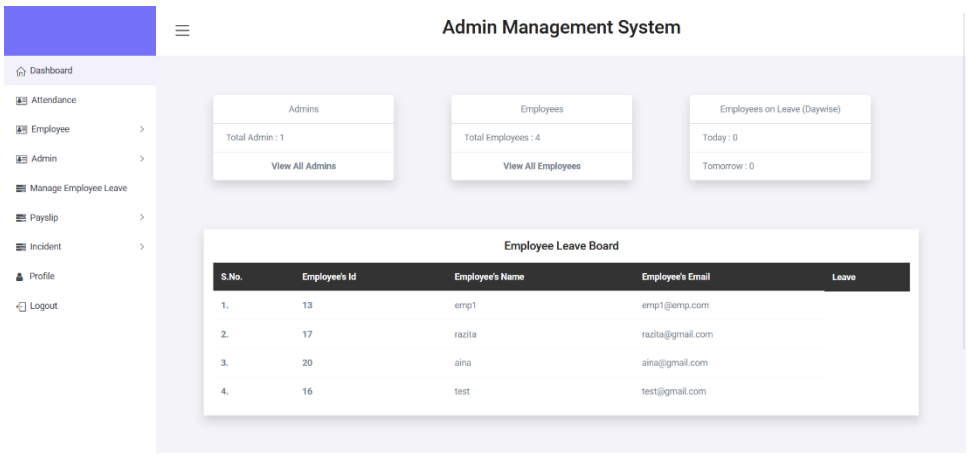
The following are the interfaces designed based on each process described in the analysis. **Figure 2** shows the interface for Employee management system.



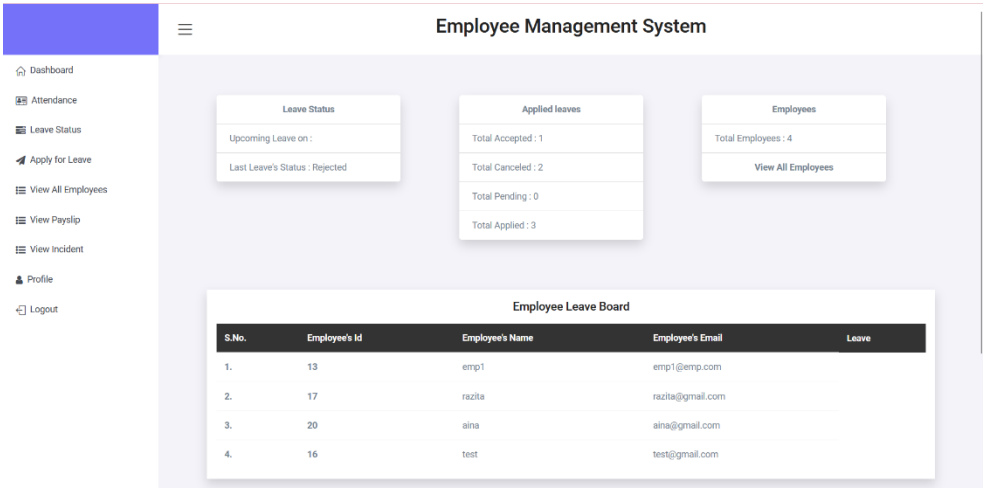
a) Login Interface



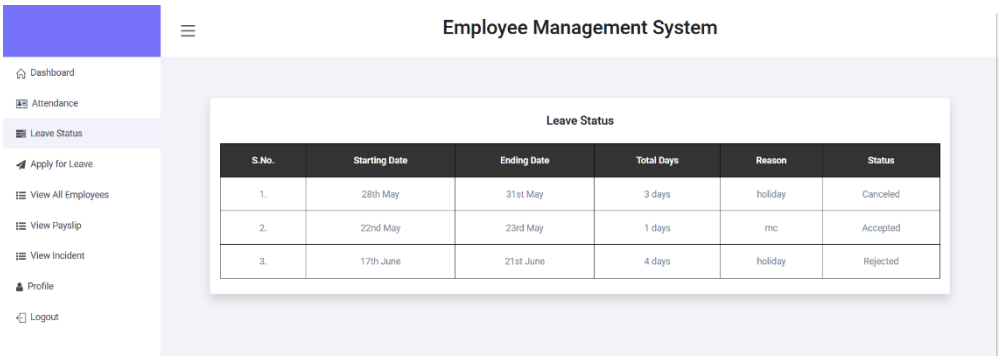
b) Employee register Interface



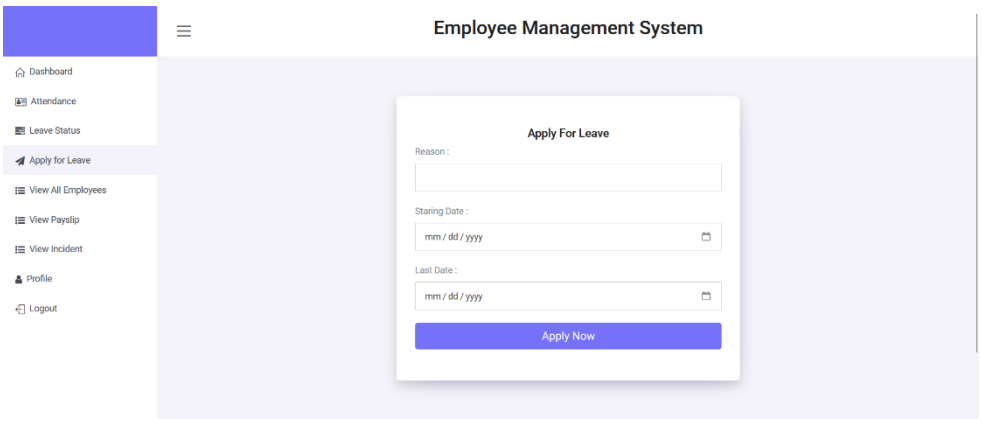
c) Administrator Dashboard Interface



d) Employee Dashboard Interface



e) Leave Status Interface



f) Applyy Leave Interface

Fig.2 Interface Design

5. Testing

In this stage, a thorough test will be conducted to determine how effectively each module in the system functions. During testing, end-users will evaluate the system's performance and usability using the User Acceptance Test (UAT). During the User Acceptance Testing (UAT) phase, users and administrators, will complete particular activities to ensure modules fulfil goals and are easy to use.

Table 6 *test case for register and login Module*

Test Case ID	Description	Result
M1-1	To check whether the administrator can register for an account	Pass
M1-2	To check whether the employee can log into the system	Pass
M1-3	To check whether the system will restrict login whenever a wrong credential is entered	Pass

Table 7 *test case for attendance Module*

Test Case ID	Description	Result
M2-1	To check whether the employee can access attendance in their interface	Pass
M2-2	To check whether the admin can access attendance in their interface	Pass

Table 6 shows test cases for the Login Module, including valid and incorrect credentials, and empty fields, which produced anticipated results. Successful logins sent the user to the main page, while failed logins displayed an error message. **Table 7** lists test scenarios for the attendance module, such as allowing employees to access data and take attendance. In these cases, the administrator no longer needs to enter the employee's attendance in Excel. The attendance module passed all tests, demonstrating its usefulness and dependability.

Table 8 *test case for payslip Module*

Test Case ID	Description	Result
M3-1	To check whether the administrator can add pay slip for employee in the system	Pass
M3-2	To check whether employees can see pay slip in the system	Pass
M3-3	To check whether the employee can download pay slips in the system	Pass

Table 9 *test case for incident Module*

Test Case ID	Description	Result
M4-1	To check whether administrator can add incident cost done by the employee	Pass
M4-2	To check whether employee can access the incident report	Pass

Table 10 *test case for leave Module*

Test Case ID	Description	Result
M5-1	To check whether the employee can apply for leave in the system	Pass
M5-2	To check whether the administrator can see the employee application leave in the system	Pass
M5-3	To check whether the employee and administrator can see the leave history	Pass

Table 8 displays a collection of test cases for the pay slip module; administrators may fill out the form to add pay slips to the website, and employees can view their pay slips by downloading them or checking in on the website. Next, **Table 9** displays several test cases for the incident module, where the administrator may enter the number of losses incurred by the employee in the system and the employee can view the pay deduction based on the losses they suffered. Finally, **Table 10** displays test scenarios for the leave module; an employee may request

leave through the website, and the administrator can approve or deny the rest. Employees may also examine the history of how much leave they take.

6. Conclusion

This project tackles significant issues on employee data preservation by presenting a comprehensive web-based solution that prevents data loss and assures effective data administration. The technology allows administrators to manage employee payroll and attendance, while workers can view their attendance records and salary statements online. The project's goal in introducing an online payroll system is to lessen dependency on paper-based statements while improving employee access to essential information. The project's scope comprises an efficient web-based management system for HR activities including time and attendance tracking and payroll processing. The expected result is a fully working software solution that simplifies corporate operations while providing a user-friendly interface for simple navigation and system functionality access.

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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:*** *Aina Razita Binti Ahmad Rosman and Nazri Bin Mohd Nawi;* ***data collection****: Aina Razita Binti Ahmad Rosman and Nazri Bin Mohd Nawi;* ***analysis and interpretation of results:*** *Aina Razita Binti Ahmad Rosman and Nazri Bin Mohd Nawi****; draft manuscript preparation:*** *Aina Razita Binti Ahmad Rosman and Nazri Bin Mohd Nawi. All authors reviewed the results and approved the final version of the manuscript.*

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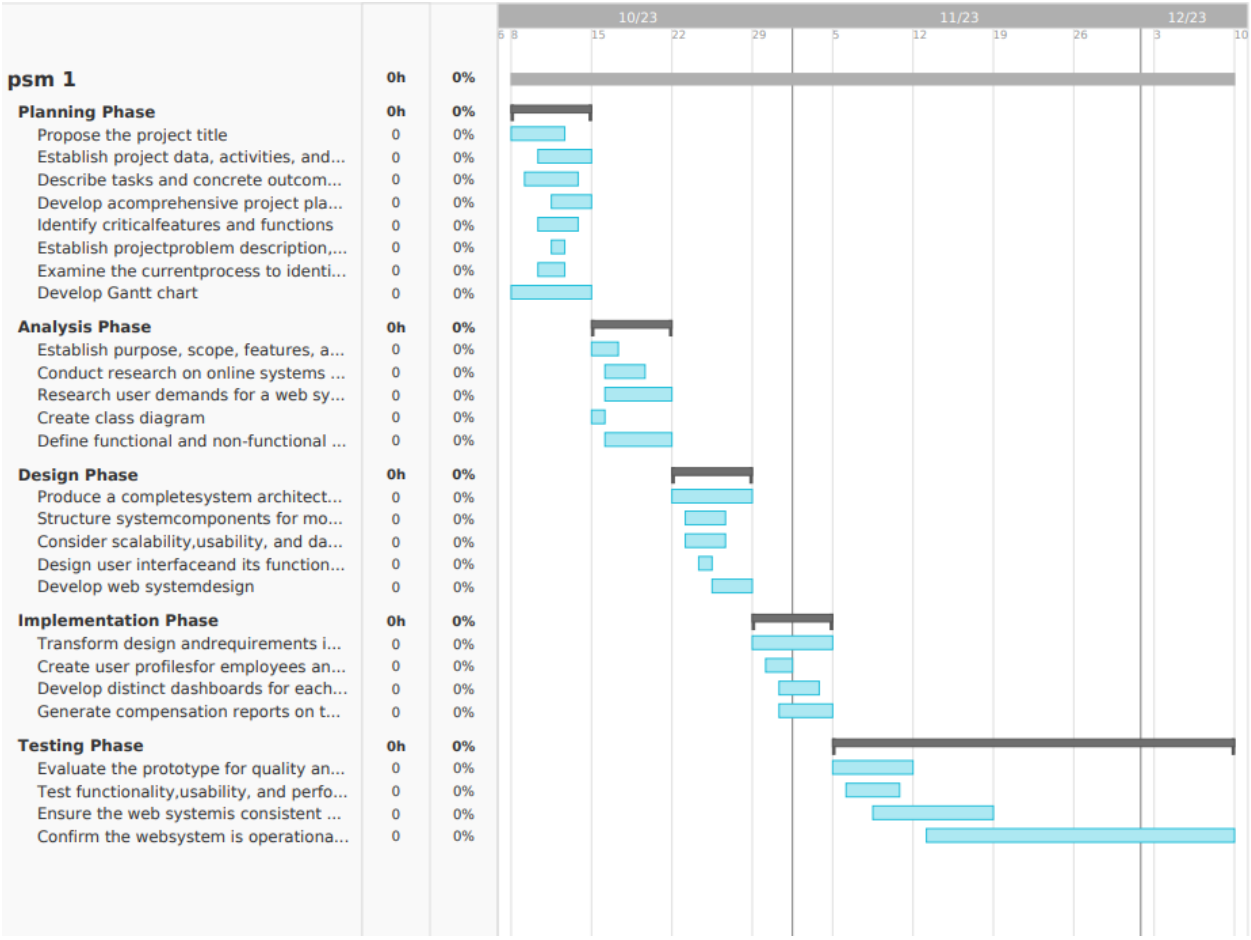
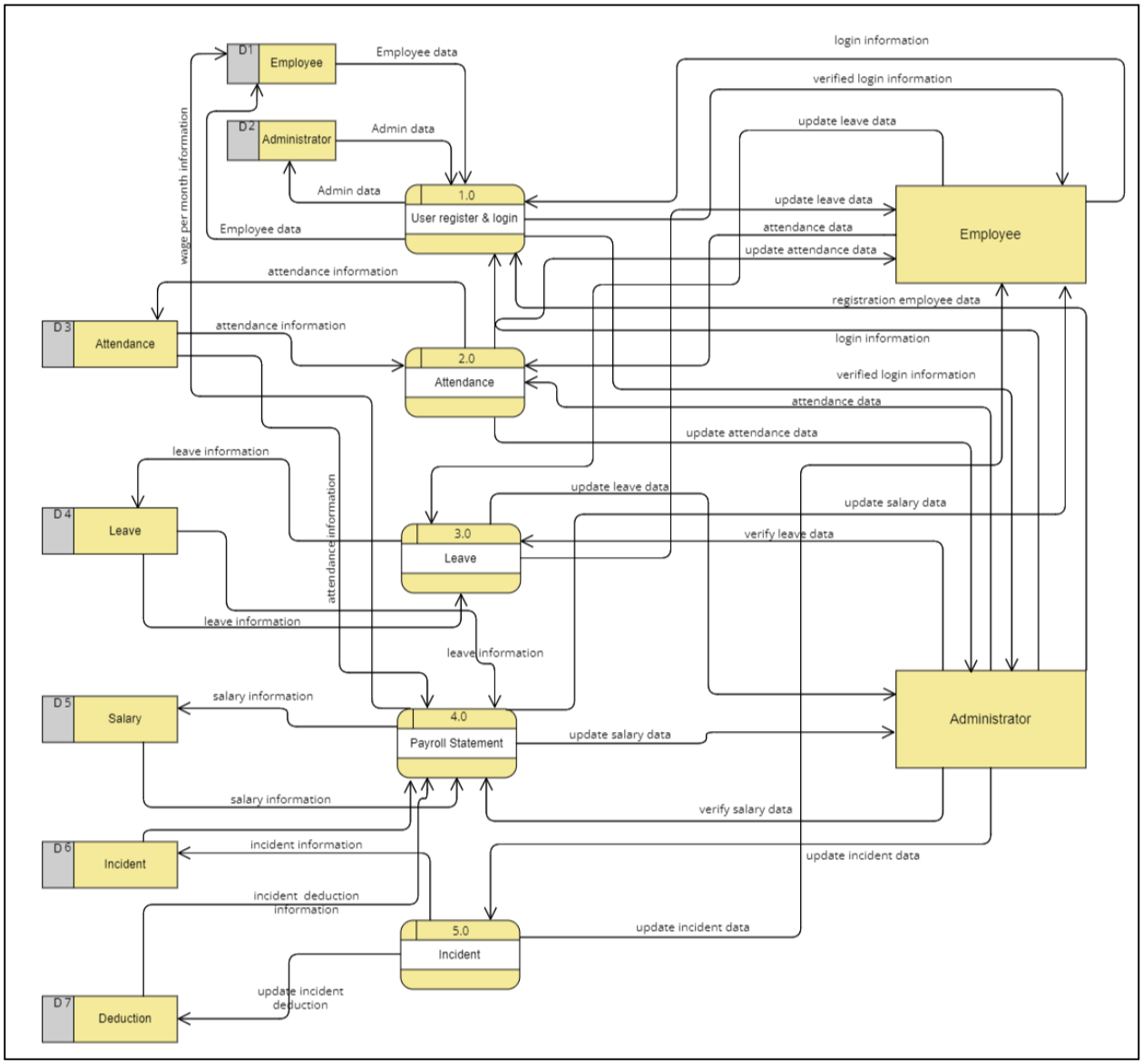
Applied Information Technology and Computer Science Vol. 6 No. 1 (2025) p. 2093-2105

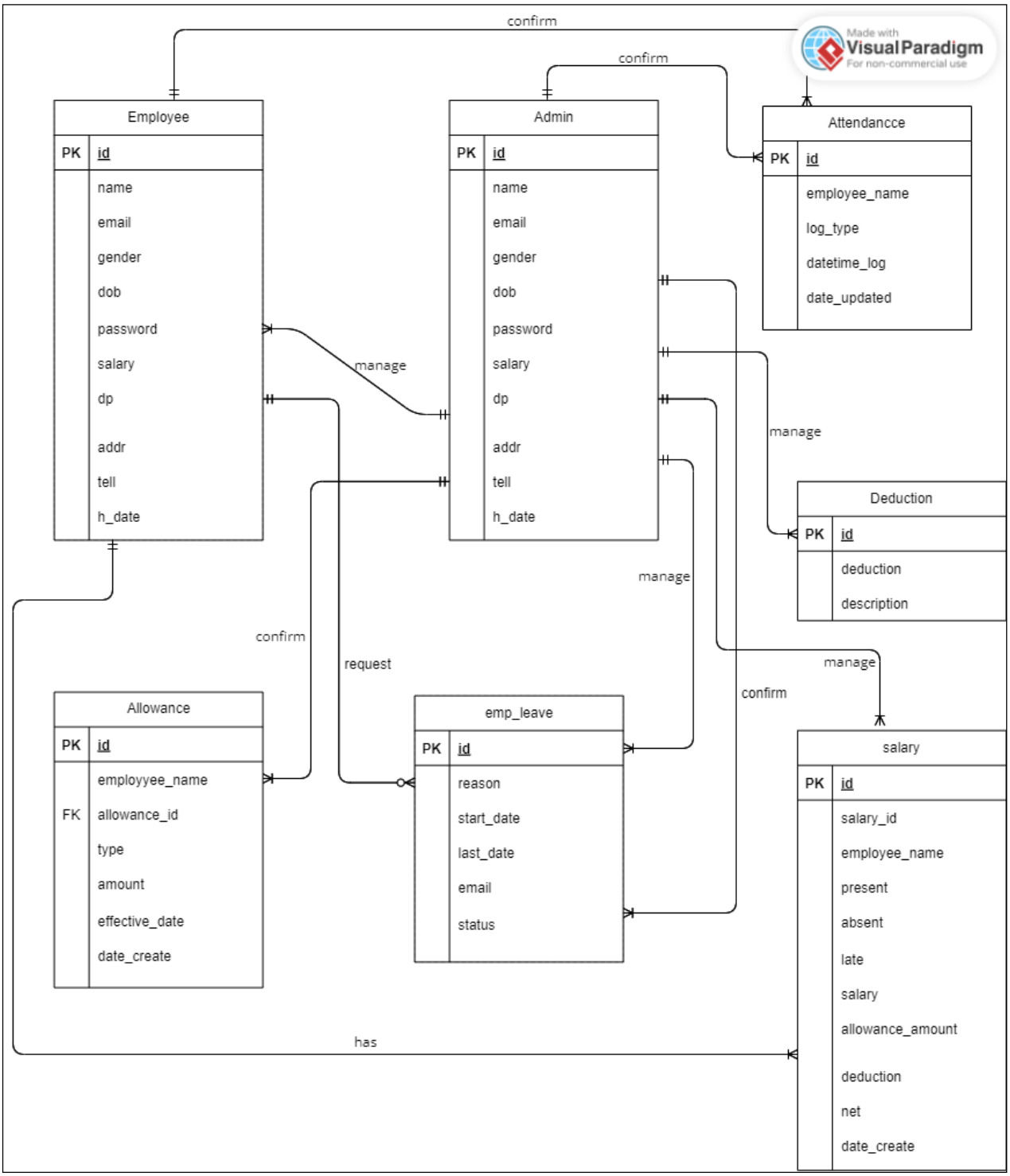
Appendix A: Project Gantt Chart



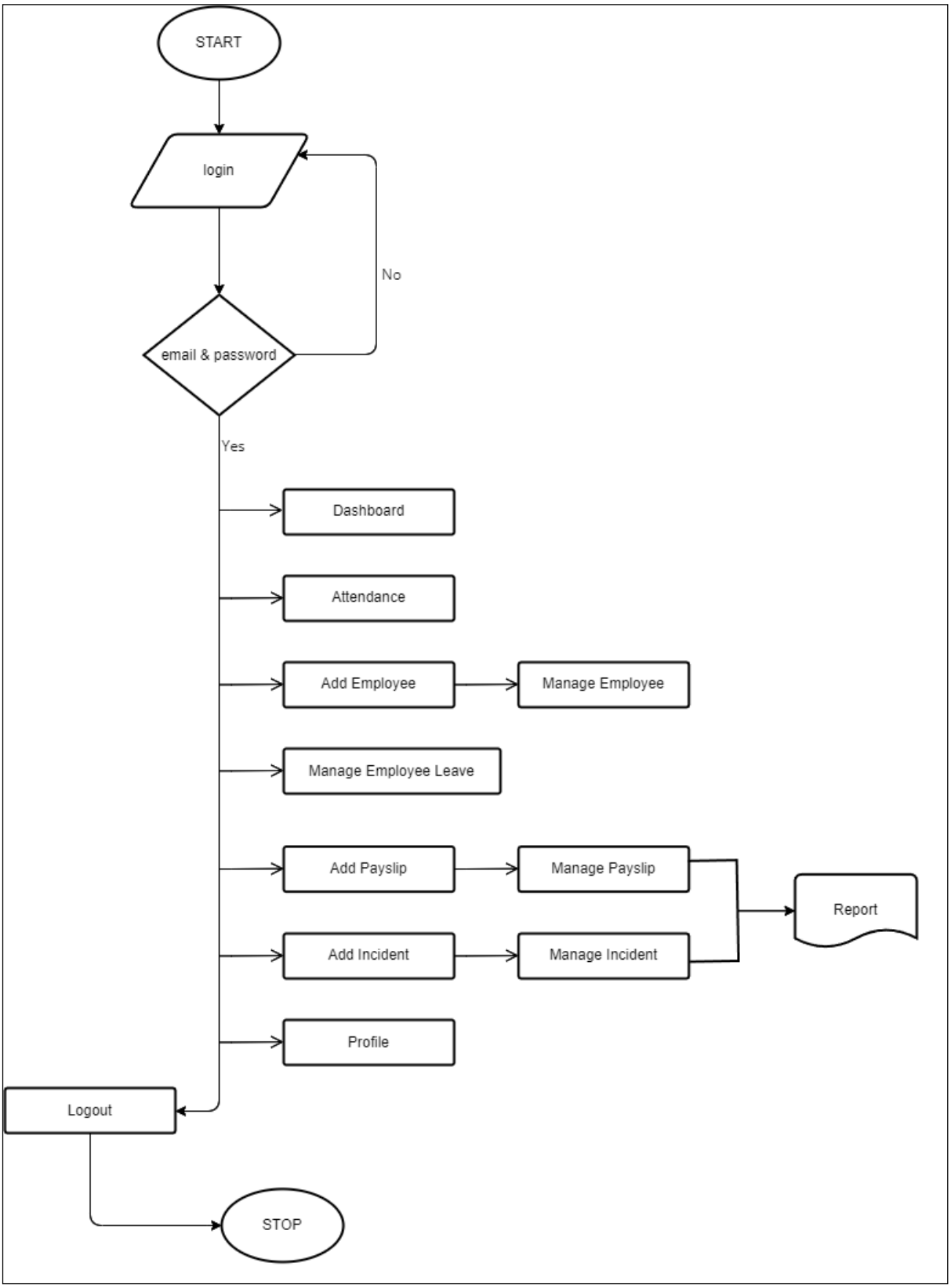
Appendix B: Data Flow Diagram Level 0 (DFD Level 0)



Appendix C: Entity Relationship Diagram (ERD)



Appendix D: Flowchart



Applied Information Technology and Computer Science Vol. 6 No. 1 (2025) p. 2093-2105