



The Development of a Web-Based MyHr Organization System

Muhamad Redhuan Shamsuddin¹, Rozanawati Darman^{1*}

¹Faculty of Computer Science and Information Technology,
Universiti Tun Hussein Onn Malaysia, Parit Raja, Batu Pahat, 86400, MALAYSIA

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Abstract: The web-based MyHr Organization System was developed and designed specifically for Opensoft Technologies company manage employee-related information online. The staff of this Opensoft Technologies firm is the system's targeted users. Administrators from human resources will handle the responsibility of keeping this website. The manager is also responsible for assigning tasks and reviewing leave applications made by staff. Meanwhile, employees are able to apply for leave using this web system. In addition, managers and staff are able to get reports related to salary and leave releases. The development of this system is based on the Waterfall model. The software used is Microsoft Visual Studio Code as an Integrated Development Environment (IDE) and the database used is phpMyAdmin. Overall, the implementation of the MyHr system empowers companies, like Opensoft Technologies, to address the challenges associated with managing employee information efficiently.

Keywords: MyHr organization system, opensoft technologies, tasks, human resources, reports

1. Introduction

Human resources (HR) is focused on all facets of how employees and managers are handled in organizations. Human resources management in companies in order to achieve organizational goals. Organizations would do well to establish methods to enhance current knowledge, talents, and skills in light of the workforce's crucial role in achieving this aim. Organizations will develop the idea of integrated organization and technology development to enable organizational change [1]. The importance of efficient workforce management is an issue that receives the attention of management practitioners and researchers. Good workforce management practices are often linked to the concept of human resource management. This concept suggests one barn approach in workforce management. From another point of view, the development of human resources has brought benefits to the local economy in Malaysia. According to the Chair of the ASEAN Senior Labor Officials Meeting Dr. Anwar Sanusi who has said that since human resource development (HRD) is a major force behind economic growth, all nations, particularly those that are developing, like Malaysia, should prioritize it [2].

*Corresponding author: zana@uthm.edu.my

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From the author's observation and experience, while interviewing Opensoft Technologies staff, the administrator of Opensoft Technologies might face the possibility of spending much time searching for information related to company staff. The utilization of several costs while employing outdated management technologies is one of the problem statements. This is because the use of a lot of files and paper for recording data will cost a lot.

The human resource management department needs a lot of time to update a lot of employee information and data. Since there are many employees in one company, the human resource management will take a long time to complete the task to ensure that the employee's personal information and data are carefully stored one by one. It will cause the risk of losing the data and personal information.

The main objectives of the MyHr Organization System are to implement a structured approach for designing and developing individual functions for company staff and to evaluate the efficiency of these systems through testing in the daily lives of staff.

The MyHr Organization System is a system developed for Opensoft Technologies in Shah Alam, Selangor, which is designed to facilitate the retrieval of information by administrators, professional managers, and staff. The system has a range of modules, including a staff module that allows administrators to view and track staff information, a task module that records information about tasks assigned by managers to their staff, a leave application module where staff can submit leave requests and a salary module that enables staff to access salary information and generate salary-related reports.

The system allows administrators to modify or remove data related to professional managers and staff and allows managers to view the staff under their department, assign tasks to staff, and receive and respond to leave requests. Staff must log in to their accounts to access the system and can apply for leave, view leave and payroll information, and submit leave requests to their managers.

The MyHr Organization System is a digital system that is used to manage company records and information. It is more efficient and cost-effective than manual record-keeping, and it promotes a paperless environment that is more environmentally friendly. The system is secure and protects employee privacy, and it can be accessed easily by both employees and management. It is also the only system that can be used to submit requests and update tasks related to attendance documentation for staff. The system is ideal for modern companies, and it helps professional managers easily manage and lead their departments.

2. Related Work

This section discusses the related work for the study which is an overview of the organization system, the study of the structured approach and the existing system.

2.1 Overview of the Organization System

Organizational systems are becoming more common in every company for various reasons. These systems, also known as organizing systems, are a group of resources that are organized and set up to allow interaction between humans or computational agents and those resources [3]. The rise in popularity of these systems is influenced by external factors such as technical and economic advancement. The purpose of an organizational structure, which is part of an organizational system, is to assist the organization in achieving its objectives and to help individuals complete their work efficiently. It assigns specific job tasks and duties to employees and assists management in coordinating and controlling operations. Company staff can obtain comprehensive employee data by browsing the developed system, and it is becoming more common for companies to allow data entry only through the system. Web-based simulation is one approach to increasing the use of simulation in the workplace, due to its accessibility from anywhere in the world and compatibility with any computer platform [4].

2.2 Structured Approach

Structured analysis is a method of development that allows analysts to understand and know about a system and its activities in a logical way. The System Development Life Cycle (SDLC) methodology, which includes requirements and analysis, project planning, design, coding and implementation, testing, deployment, and maintenance, is important for system development using this structural approach. It is suitable for projects with clear objectives and consistent user needs [5]. According to Brumec, structural methodologies must be incorporated to complement each other rather than being incompatible in the design of systems for computer experts [6].

2.3 Study of Existing System

In this section, the author discussed the study of existing related systems to organization management from online sources which are Qi Tian Management [7], Lembaga Tabung Haji [8], and Human Resource Management Information System (HRMIS) [9]. Table 1 shows the features between the three existing systems and the proposed system.

Qi Tian Management Sdn. Bhd. is a company that develops new products using digital innovation techniques and technology to foster a technologically knowledgeable generation. It uses a management system called Hr.My. The system includes features for checking in and out, applying for leave, and discussing and asking questions, and it allows managers to approve or reject leave requests. The Hr.My system helps managers to monitor staff performance and makes it easier for employees to access and use the system.

Lembaga Tabung Haji (LTH) is a financial institution in Malaysia that uses tHR4Us, a HR management system, to increase efficiency and provide HR information. The tHR4Us system has features such as automated workflows, notifications, reminders, and To Do lists, and it allows employees to access and control their HR data through the Employee Self-Service (ESS) feature. The system is connected to the Internet of Things (IoT) and records employee entry and exit times using thumbprint technology. It also allows employees to apply for travel claims and other claims, and to view their allowances, monthly income, and salary deductions.

Table 1: Comparison between Existing System and the Proposed System

No	Features	Hr.My	tHR4Us	HRMIS	MyHr Organization System
1	Staff Module	✓	✓	✓	✓
2	Salary Module	✓	✓	✓	✓
3	Task Module	✓	✓	✓	✓
4	Leave Application Module	✓	✓	✗	✓
5	Report Module	✓	✓	✓	✓
6	Salary contribution Module	✗	✗	✓	✗
7	Location Detection	✗	✗	✓	✗
8	Safety Features (password required)	✓	✓	✓	✓
9	Notification on the system dashboard	✓	✓	✓	✓
10	Search function	✗	✓	✓	✓

For reference: ✓ = Yes, ✗ = No

3. Methodology

The Modified Waterfall model was selected to be used in the development of this system. This chapter will cover several phases, including planning, system requirements, system design, system development, system maintenance, and system documentation. This methodology has been discovered that many large corporations employ the original waterfall paradigm for their internal initiatives [10].

3.1 Requirement Phase

The requirement analysis phase is a crucial part of the development of a system, during which the context, weaknesses and strengths of the existing technology and the requirements of the end user are identified. The phase includes conducting interviews with stakeholders through online meetings and gathering feedback and suggestions. After the interviews, data is analyzed to identify problems with the current process and to design use case functions that meet the requirements and goals of the project. The data is analyzed to create a data visualization report that can be used by outsiders. As a result, Table 2 and Table 3 respectively conduct and explain the functional needs and non-functional requirements.

Table 2: Functional Requirement

Module	Descriptions
1. Staff Module	<ul style="list-style-type: none"> Allows administrators to perform CRUD processes in managing staff records. Allows users to view and edit their information.
2. Leave Application Module	<ul style="list-style-type: none"> The information filled in by the staff when applying for leave is included in this module. The leave application can only be processed based on the number of days of leave balance for each staff. A report based on the data that has been stored can be produced for staff to view.
3. Payroll Module	<ul style="list-style-type: none"> Allowing employees to see their monthly payroll details and net pay. A report based on the data that has been stored can be produced for staff to view.
4. Task Module	<ul style="list-style-type: none"> Task information given by the manager according to the department will be inserted into this module. Staff members are able to view and take notice of the tasks assigned to them by their managers. Staff can provide updates on the status of tasks that have been delegated to them.
5. Report Module	<ul style="list-style-type: none"> Gives admin the option to view a summary of a particular record such as a leave record and salary record.

Table 3: Non-Functional Requirement

Requirements	Function
Operational Requirements	This system should be used if have an Internet connection.
Safety Requirements	This system allows users to log in before using it.
Implementation Requirements	This system must execute instructions quickly and accurately.

3.2 Design Phase

The design phase incorporates a comprehensive list of requirements, analyzed and discussed beforehand. It involves system analysis, entity relationship diagram creation, data flow diagram development, and user interface design. This phase is crucial, complementing the requirements analysis, and culminates in the creation of the architecture design upon completion of the requirements analysis phase.

3.2.1 Flow chart

The flowchart shows how each type of user would interact with the system as planned. It illustrates the sequence of actions and decision points for each user, providing a clear overview of their expected interactions. It helps ensure efficient and streamlined user experiences within the system. Appendix A below has a flowchart for the administration, manager, and staff.

3.2.2 Data Flow Diagram

A data flow diagram (DFD) is a graphical representation that illustrates how data flows and moves within a system. It serves as a visual tool to depict the logic models and data transformations occurring in the system [11]. To learn more about the process and workflow of the MyHr Organization System in greater depth, the context diagram is shown in this section and DFD Level 1 can be referred to in Appendix A.

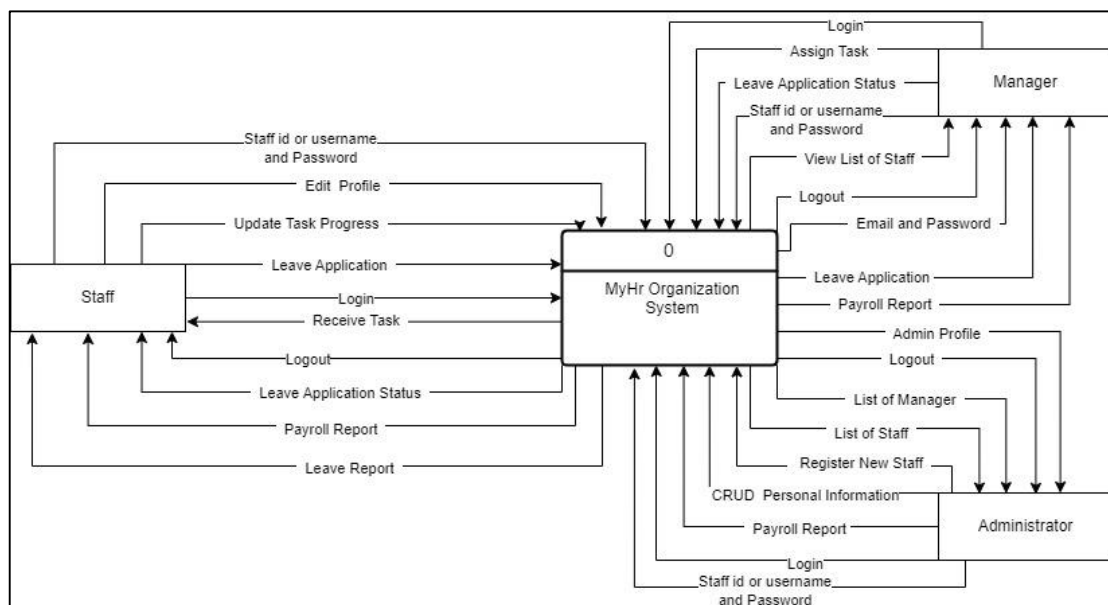


Figure 1: Context diagram

3.2.3 Entity Relationship Diagram (ERD)

The MyHr Organization System database system's Entity Relationship Diagram (ERD) shows the relationships between entities. The ERD for the MyHr Organization System is shown in Figure 2. There are five tables, including ones for the staff, leave application, payroll, task and reports.

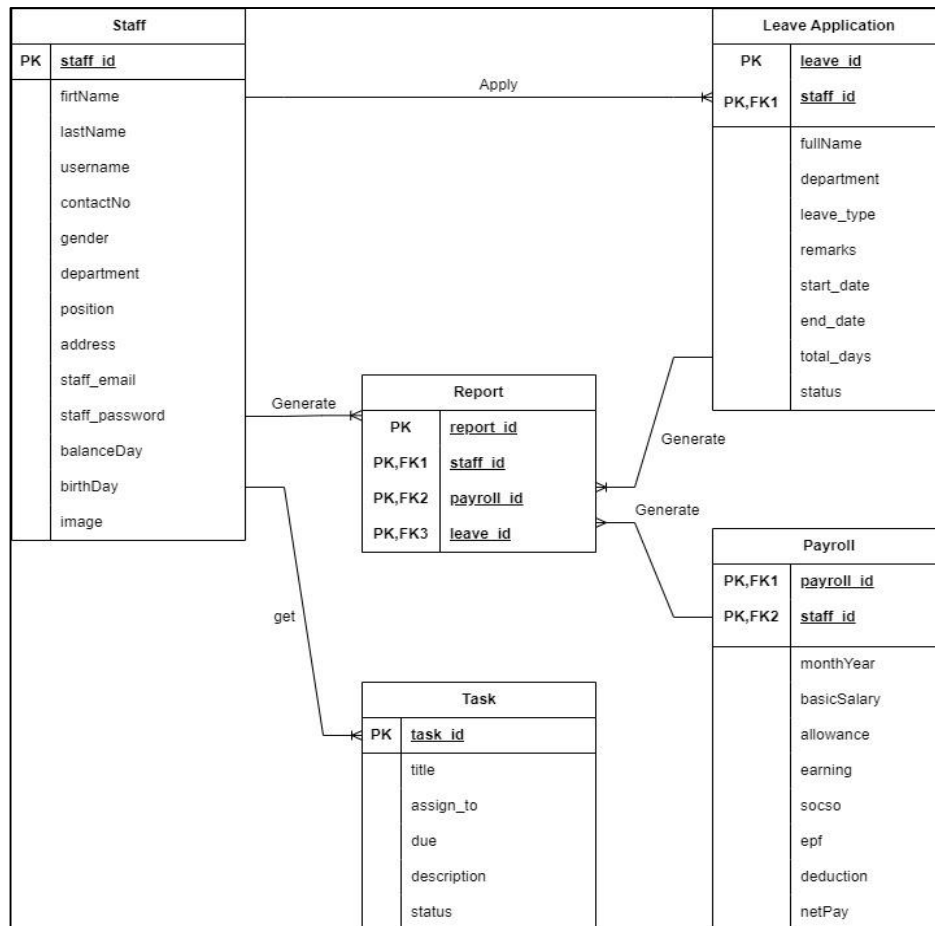


Figure 2: Entity relationship diagram

3.3 Implementation Phase

This phase in the development of a system includes the implementation of important elements such as the Human-Computer Interaction (HCI) element and the generation of an algorithm through a function in the program. The system being developed has three main modules for the manager, staff and admin.

3.4 Verification Phase

The project will undergo functional testing, which is a type of testing that checks whether each feature of the system meets the requirements of the product. Functional testing involves providing input samples, collecting the output, and comparing the actual results to the expected results to confirm that the system meets the end user's expectations. The functionality testing is being performed to ensure that all components of the system work correctly. Experienced members of the Opensoft Technologies crew are doing a functioning test to check for any bugs or faults.

3.5 Documentation Phase

The documentation phase is the framework that includes the maintenance phase. Documentation involves recording all information and analysis obtained throughout the project in a MySQL database, which is important because it shows the development process step by step. The final report is prepared for presentation once the paperwork is complete. The research outcome will be used to assess whether the project's objectives have been met. For maintenance, the system will be gradually tested to improve system maintenance, which is connected to the testing phase because this project involves a system that requires user interaction. Any issues or suggestions for improvement made by users will be addressed once the system has been tested and documented.

4. Implementation and Testing

The development of a functional system based on the stated analyses and designs is detailed, along with the installation and testing of the web-based MyHr Organization System. During the implementation stage, the essential codes for system development and the use of software, hardware, programming languages, web hosting services, and databases are also covered.

After the implementation phase was complete, the system was tested. The two testing approaches used during the process were functional testing and browser compatibility testing. Conducting tests was essential to find any glitches or errors in the system. Verifying that the system satisfied the users' needs through testing was also helpful. The test results were recorded in tables.

4.2 Implementation of Module

This web-based system comprises a total of 5 modules, namely staff, leave application, payroll, task, and report. Each module serves a specific purpose and contributes to the overall functionality of the system. The subsequent subsection provides an elaborate description of each implemented module, shedding light on its features and functionalities.

4.2.1 Database Connection

A connection must be established between a PHP script and a database in order to access and contribute material to the MySQL database. Each module in the web-based system has to establish a connection to a database in order to perform a function and request the staff id or username and password for a certain user. The retrieval of data from a MySQL database cannot be performed by a system if there is no database connection. Figure 3 above shows the code for the extension 'MySQLi', which only supports MySQL databases, which are used to connect to the database in MySQL. It grants access to new MySQL system functions and supports prepared statements for server-side in a system application.

```

connect.php
1  <?php
2
3  session_start();
4
5  $conn = mysqli_connect("localhost", "root", "", "osdb");
6
7  ?>

```

Figure 3: Database Connection Using MySQLi

4.2.2 Implementation of Staff Module

Several processes can be done in this staff module. Admin can add staff information by registering staff in the form section. The information that has been registered by the admin will be entered into the staff database. In addition, the process of updating information can also be done by the staff and their details will also be displayed in the interface every time the staff wants to view the profile.

Starting with login. Figure 4 below shows the display for user login and users are allowed to register an account if they don't have their account yet.

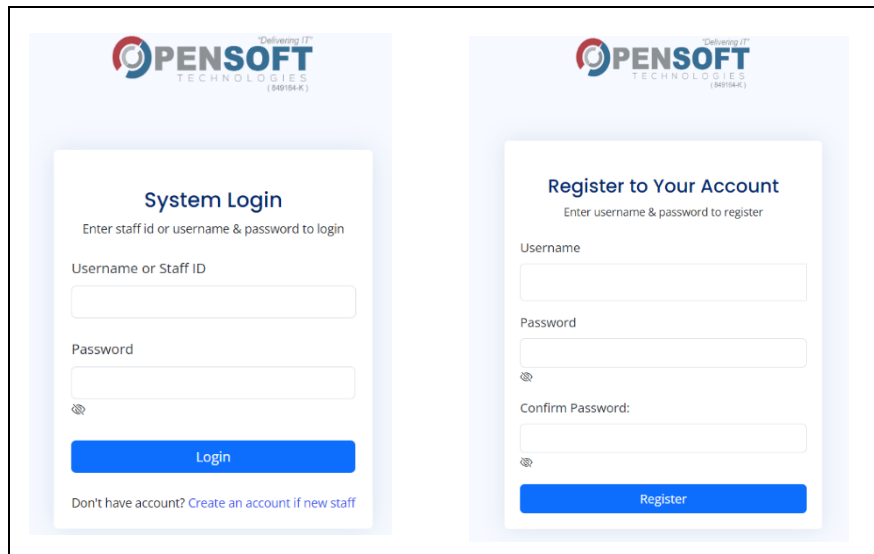


Figure 4: Login and Register Account

Figure 4 shows the user profile interface, which remains consistent across all user types including admins, managers, and staff. It allows staff members to view the information registered by the admin. Additionally, also demonstrates the profile update interface for each user within Opensoft Technologies. Staff members have the ability to modify the displayed information and update their profile picture to reflect the current image.

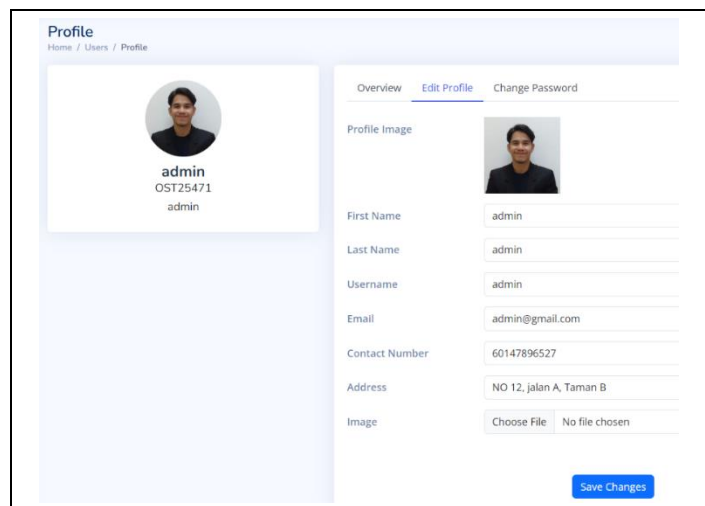


Figure 5: Interface of Profile View

4.2.3 Implementation of Task Module

The implementation of, the task module involves developing the necessary functionality and user interface components to enable efficient tasks within the system, ensuring seamless communication and collaboration among users. The task module plays a crucial role in task management within the system. The Create, Read, Update, and Delete (CRUD) process also takes place in this module.

To set a task, the manager needs to fill in the space provided based on Figure 6. Managers can assign tasks to staff who are in the same department just by selecting the available staff names. Staff who receive the task will be able to see the assigned task when logging into this system.

Figure 6: Interface of Assign Task

The staff members can provide updates on the task's progress after receiving it. As shown in Figure 7, this may be done by choosing the appropriate choice from a group of radio buttons. The staff can indicate whether a task is in progress, completed, or incomplete. By offering this feature, the system makes it possible to track and monitor work progress effectively, maintaining transparency and promoting good communication between staff and managers.

Figure 7: Interface of Update Task Progress

4.2.4 Implementation of Leave Application Module

The Leave Application Module focuses on enabling staff to submit leave requests with specified details through a user interface. Input validation ensures accurate data entry, including date range and mandatory fields. This module enhances efficiency and communication within the organization by streamlining the process of requesting and managing employee leaves.

The user interface of the Leave Application Module, which enables staff members to apply for leave, is shown in Figure 8. The remaining leave days that are available to workers are prominently shown on the user interface. Additionally, it specifies the due date for applications for leave relief, giving the manager enough time to evaluate and decide. Following this schedule offers frequent updates on the application process, supporting efficient coordination and planning of leaves.

The screenshot shows a web-based 'Leave Application Form'. At the top, it says 'Leave Application' with a breadcrumb 'Home / Leave Application'. Below this is the 'Leave Application Form' section. The form contains the following fields and values:

- Staff ID: OST98115
- Name: Ahmad Bukhari
- Department: Developer
- Position: Staff
- Balance Day: 11
- Leave Type: Select Leave Type...
- Remarks: (Empty text area)
- Start Date: dd/mm/yyyy
- End Date: dd/mm/yyyy
- Total Day: (Empty text field)

At the bottom of the form, there are two buttons: 'Submit' and 'Reset'.

Figure 8: Interface of Leave Application Form

4.2.5 Implementation of Leave Application Module

The implementation of the Leave Application Module involves developing the necessary functionality to allow users to apply for leaves within the system. This module provides a user interface where employees can submit leave requests, specifying details such as leave type, start date, end date, remarks for leave, and any additional notes.

Figure 9 shows the user interface of the Leave Application Module, which displays the staff members' remaining leave days. This helps ensure that leave requests do not exceed the available balance and promotes compliance with leave policies. The interface also specifies a deadline for leave relief applications, allowing sufficient time for review and decision-making by managers. Adhering to this timeline enables staff members to receive timely updates on the status of their leave applications, facilitating effective planning and coordination of their leave arrangements.

The screenshot shows a web interface for a 'Leave Application' form. At the top, there is a breadcrumb trail: 'Home / Leave Application'. Below this, the form is titled 'Leave Application Form'. It contains several input fields: 'Staff ID' with the value 'OST98115', 'Name' with 'Ahmad Bukhari', 'Department' with 'Developer', 'Position' with 'Staff', 'Balance Day' with '11', 'Leave Type' with a dropdown menu showing 'Select Leave Type...', 'Remarks' with a text area, 'Start Date' and 'End Date' both with 'dd/mm/yyyy' placeholders, and 'Total Day' with an empty input field. At the bottom of the form, there are two blue buttons: 'Submit' and 'Reset'.

Figure 9: Interface of Leave Application Form

Figure 10 below illustrates the error message highlighted in red, informing staff that they are unable to submit a leave request. The error message specifically tells them that the number of days they are requesting leave exceeds the number of days they have left.

This screenshot shows a close-up of the error handling part of the form. It displays the 'Start Date' and 'End Date' fields with 'dd/mm/yyyy' placeholders, and the 'Total Day' field. Below these fields, a red error message is displayed: 'You cannot apply for more than your available balance days.' At the bottom, there are 'Submit' and 'Reset' buttons.

Figure 10: Error Message Display Interface

4.2.6 Implementation of Payroll Module

The Payroll Module implementation focuses on developing efficient functionality and user interface components for managing employee payroll. Admins have full CRUD control over payroll data, while staff and managers can view their payroll information for selected months. Printing options are available for staff and managers to maintain records or reference their payroll details. This module streamlines the payroll process, ensuring accuracy and providing necessary access to relevant parties within the organization.

Figure 11 displays the payroll form for admins to input detailed information each month. With the basic salary and allowances, the module automatically calculates SOCSO and EPF deductions based on official sources. Automation saves time and ensures accurate calculations, simplifying the payroll process. Admins can maintain consistency in deductions while focusing on other important tasks. The Payroll Module streamlines payroll management through deduction automation and a user-friendly form for admins.

Figure 11: Interface of Adding New Payroll

Other than that, Figure 12 in the Payroll Module presents a detailed view of payroll information. Users have the option to print their payroll data, generating paycheck slips for record-keeping. This user-friendly interface enhances transparency and accessibility, enabling users to manage their compensation effectively.

Earning		Deduction	
Basic Salary	4820.10	Epf	530.21
Special Allowance	1256.20	Socso Employee	120.50
Total Earning	6076.30	Total Deduction	650.71
Net Pay	5425.59		

Figure 12: Payroll Information Detail

4.2.7 Implementation of Report Module

The report module streamlines data retrieval and publication for administrators. It allows them to gather information from various tables and generate reports based on predefined criteria. Administrators can quickly access relevant data by utilizing the report module, such as generating staff-specific or salary-related reports. The module also includes a printing feature, enabling administrators to obtain hard

copies or digital versions of the reports for dissemination or documentation purposes. Overall, the report module simplifies the process of retrieving and presenting required data for administrators.

Figure 13 shows the list of each staff that will display their report when the admin presses the report button. The function that has been coded in the coding will be used to produce each staff report.

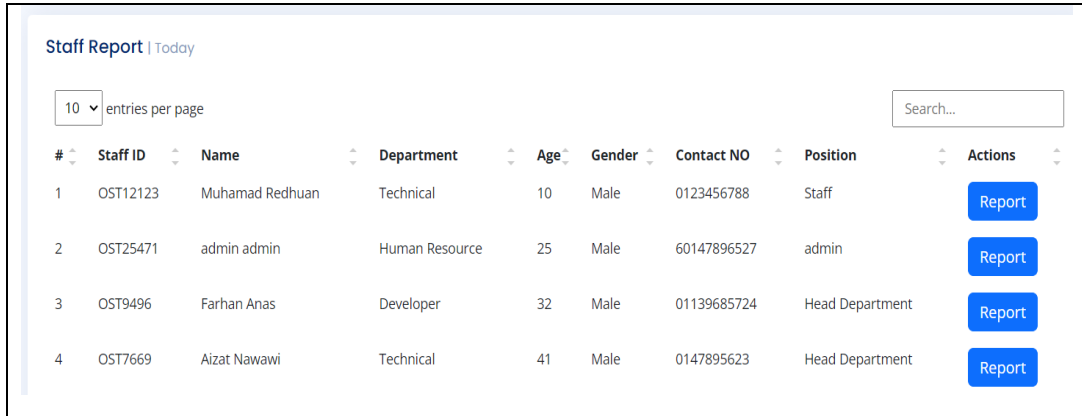


Figure 13: The List of Employees That Store the Reports.

4.3 System Testing

System testing is an essential type of testing that utilizes scripts to identify errors in the system. It encompasses both the thorough testing of the entire system and the application itself. The objective of application testing is to ensure seamless functionality, deliver the intended results, and meet the proposed objectives and scope for end-users. Consequently, conducting testing aligns with the project's objectives right from the outset. This web-based system consists of precisely five main modules.

Table 4: Staff Module Testing

Role	Test Case	Expected Output	Test Result
Admin Manager Staff	User login with correct staff id or username and password	Login successful and redirect to the dashboard.	Pass
	Incorporating role-based access control into the system.	Once logged in successfully, different types of users are sent to distinct specified tasks.	Pass
	View profile and be able to update information	Information successfully updated	Pass
	Update password	Changing a password successfully requires that the confirmation password and the new password match.	Pass
Admin	Adding registered staff information	Staff information is successfully added to the list upon completing the form.	Pass
	View the list of staff registered in the company	Each list displays general information	Pass
Manager	View the list of staff under the manager's department	Detailed information about staff under the same department is displayed when clicking the view button	Pass

Table 5: Task Module Testing

Role	Test Case	Expected Output	Test Result
Manager Staff	Performs CRUD on task title, description and date submission	The CRUD function is effective.	Pass
	View a list of assigned tasks.	The task list is displayed when the manager has assigned a task to the staff	Pass
Manager	List of staff under the same department	The list of staff under the department is displayed successfully	Pass
	Edit task information	Change the task's details and the staff to assign	Pass
	Update task progress	The task progress state may be successfully chosen and set.	Pass

Table 6: Leave Application Module Testing

Role	Test Case	Expected Output	Test Result
Staff	Fill out the form to apply for leave	Leave information successfully submitted.	Pass
	Balance day of leave function in the form	Application not sent when total day leave exceeds leave balance days	Pass
Manager	Reviewing and making decisions about leave requests	Application results can be updated	Pass
	Display of leave applications that are still pending	The number of applications that have not been decided is displayed correctly on the dashboard	Pass

Table 7: Leave Payroll Module Testing

Role	Test Case	Expected Output	Test Result
Admin	Performs CRUD on basic salary and allowance.	The CRUD function is effective when the save button is clicked.	Pass
	Calculation related to SOCSO and EPF deduction.	Calculation according to the correct percentage based on official information sources.	Pass
Manager Staff	Salary information in the list by month	View information related to payroll in the payroll list displayed	Pass
	Print payroll information	The print button works and can print a detailed payroll	Pass

Table 8: Leave Payroll Module Testing

Role	Test Case	Expected Output	Test Result
Admin	View detail record	Detailed staff information records are displayed correctly	Pass
	Print record information	The print button works and can print a detailed staff.	Pass

4.3.1 User Acceptance Testing

User acceptance testing is done by using the concept of a questionnaire to get feedback responses from users. Google Forms is created as a medium to do this test. A total of 9 people the respondent has informed. User testing is done in two parts namely testing interface display and functional testing. The figure below shows an overview of the respondents' responses that have been recorded and analyzed.

The intermediate display is tested in terms of neatness, comfort and application layout. The selection of color, text and background give a great impact on the user's typing using this application over a long period.

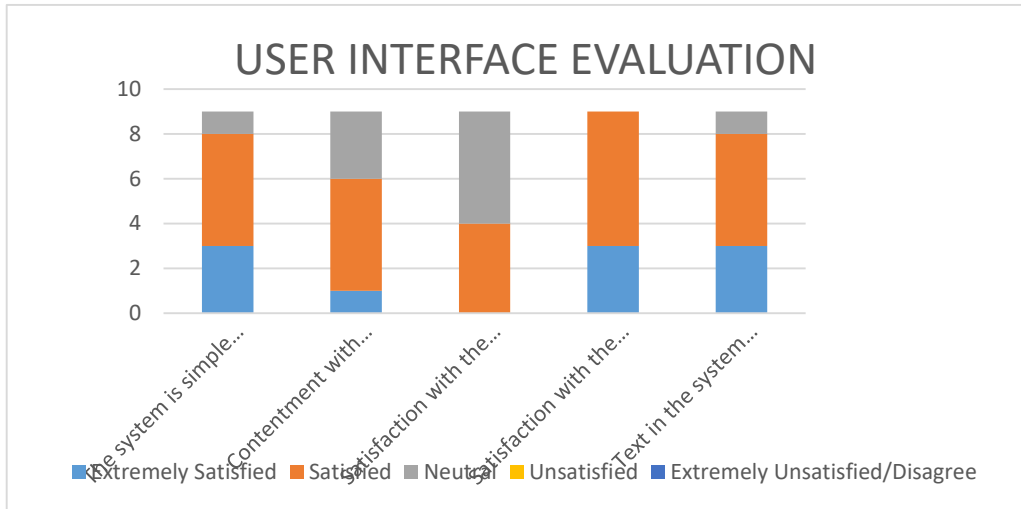


Figure 14: User Interface Test Results

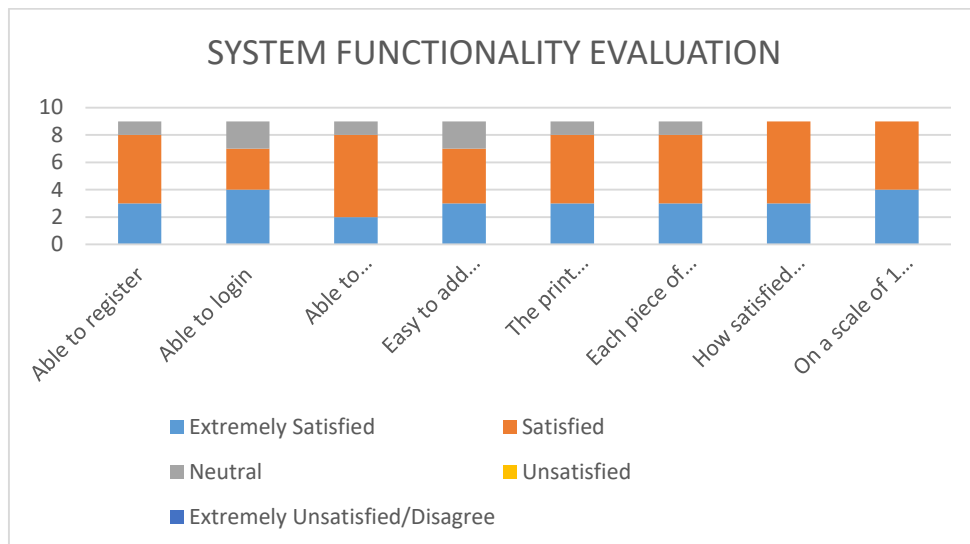


Figure 15: User Function Test Results

5. Conclusion

In conclusion, the numerous tasks and data gathering were finished to enable the effective creation of the suggested system. It is crucial to adhere to the phases of the approach you have selected to prevent making the process of developing applications take longer. The intended outcome is for the proposed application to perform as the user would anticipate.

Acknowledgment

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Appendix A

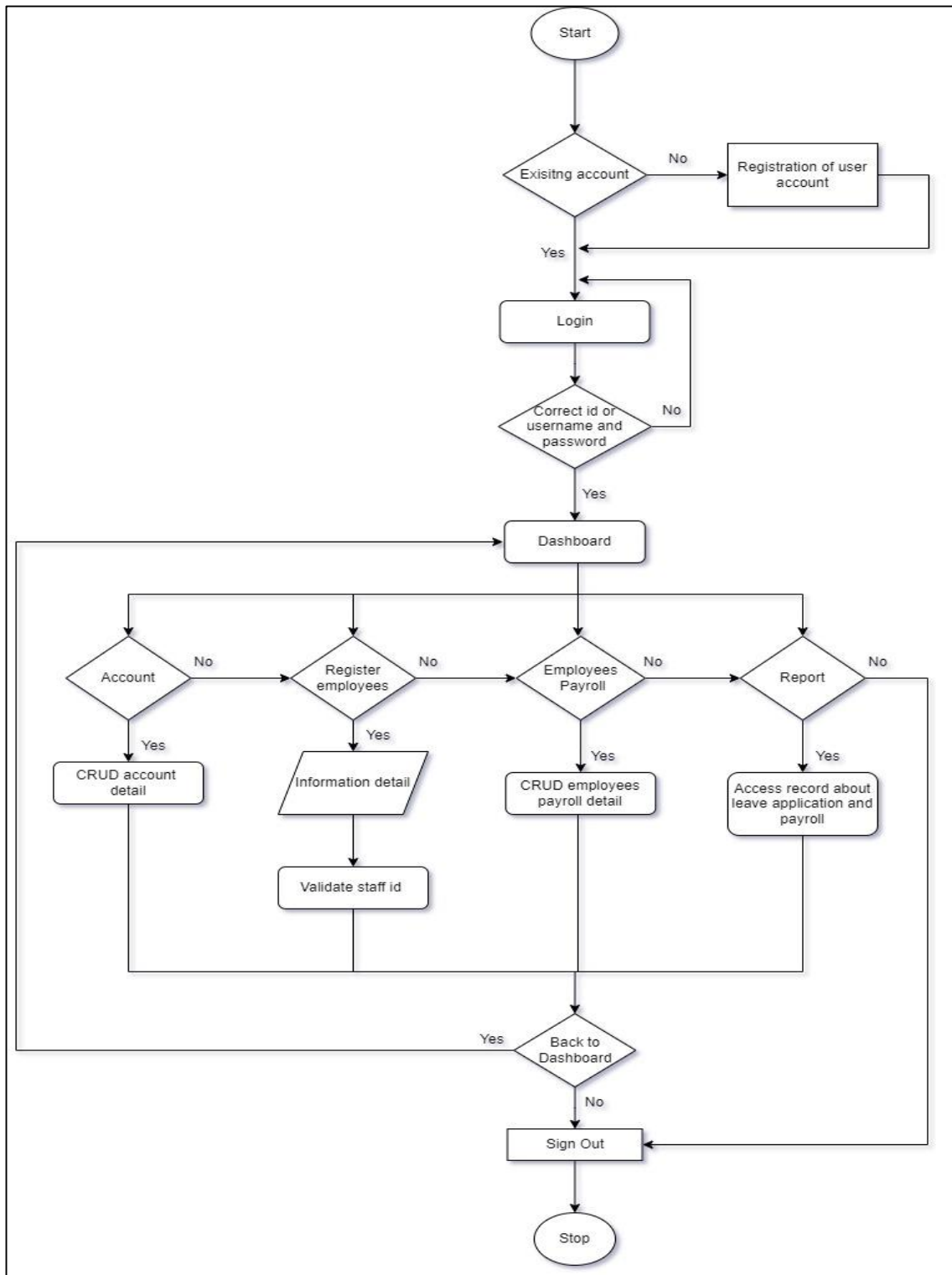


Figure 16: Administrator Flowchart

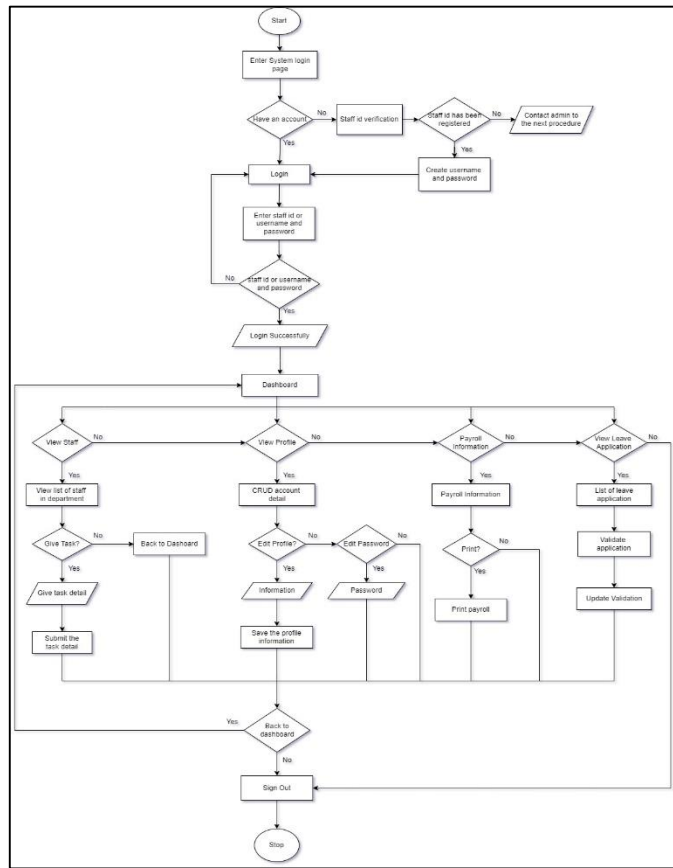


Figure 17: Manager Flowchart

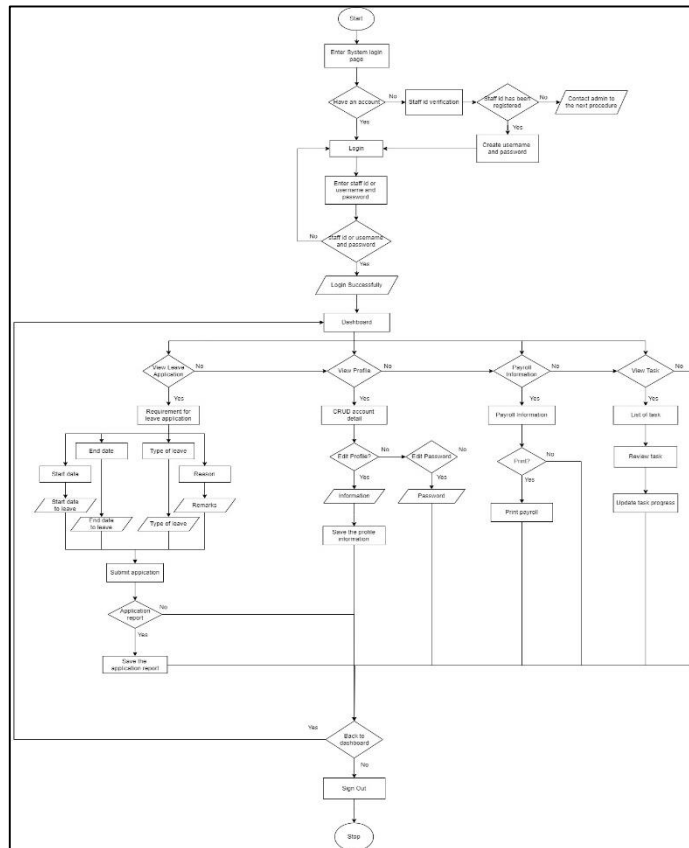


Figure 18: Staff Flowchart

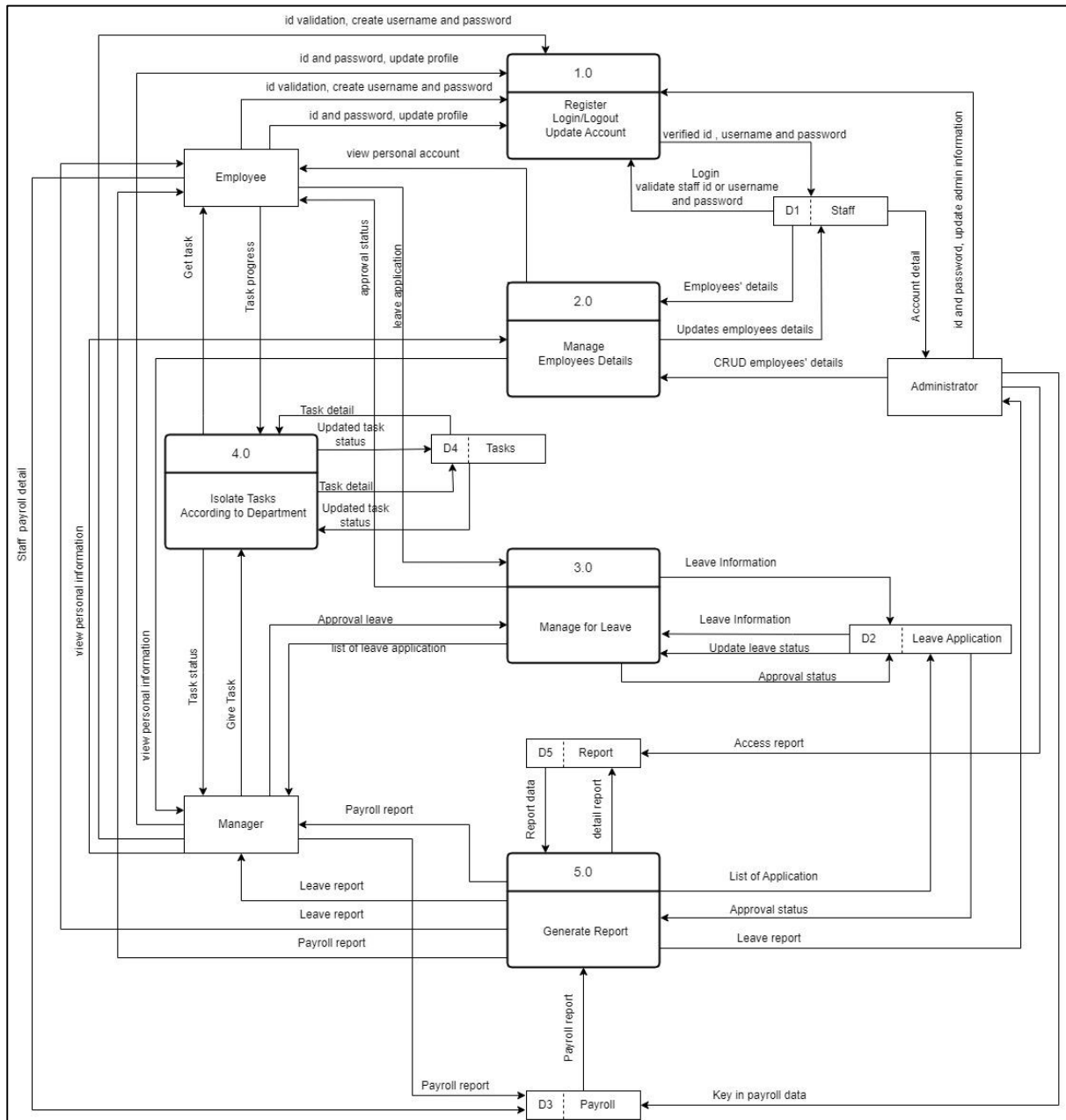


Figure 19: DFD Level 1

Appendix B

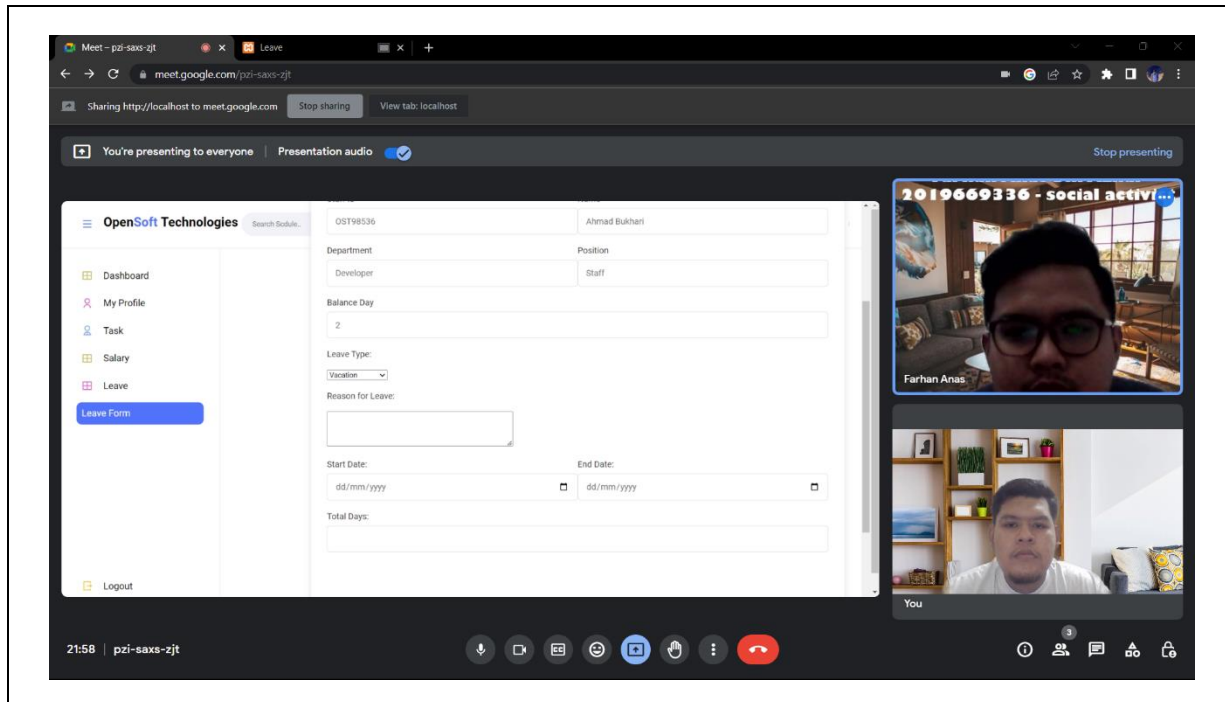


Figure 20: Interview with a representative of Opensoft Technologies

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