

Leave Management System

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Abstract: The Leave Management System digitizes and streamlines staff leave processes at the University of Computer Studies, Hinthada (UCSH). Built with Laravel, PHP, MySQL, and modern front-end tools, it enables Staff, Department Heads, Administrators, and Super Admin to manage applications seamlessly. Core features include real-time leave balance tracking, dynamic four-tier RBAC, leave type management, PDF/Excel report generation, and automated workflows. Department Heads review and recommend staff requests, while their own applications bypass departmental review and route to the Super Admin for final approval. Centralizing records eliminates paperwork, enhances data accuracy, promotes operational transparency, and improves overall administrative efficiency at UCSH.

Keywords: leave management, staff, automation, leave tracking, role-based access control

INTRODUCTION

In today's digital environment, traditional paper-based leave management at the UCSH causes processing delays, high paper consumption, and record inconsistencies. Manual tracking across administrative tiers makes it difficult to maintain accurate real-time records and verify remaining leave balances. The web-based Leave Management System digitizes the entire leave application workflow at UCSH. Staff submit requests online, Department Heads recommend applications, Administrators handle configurations, and the Super Admin holds final approval authority. The system features real-time leave balance tracking, automated notifications, and digital PDF/Excel report generation. By centralizing records and eliminating paperwork, the system reduces paper usage, minimizes administrative errors, enhances transparency, and improves operational efficiency at UCSH.

PROBLEM

At the UCSH, manual leave handling creates critical administrative challenges across departments. Paper-based procedures lead to approval delays, excessive paper consumption, and potential human errors in calculating leave balances manually. The absence of a centralized digital repository creates communication gaps among Staff, Department Heads, Administrators, and Super Admin, making tracking statuses and retrieving historical records complex. Furthermore, physical documents lack security and backup capabilities, leaving records vulnerable to loss, damage, and unauthorized access. Therefore, a digitized web-based Leave Management System is essential to streamline multi-tier approval workflows, eliminate physical paperwork, ensure data integrity, and significantly improve administrative efficiency at UCSH.

APPROACH

The Leave Management System is built using Laravel, PHP, MySQL, and dynamic four-tier Role-Based Access Control (Staff, Department Head, Administrator, and Super Admin). Staff submit requests and track balances online, which route to Department Heads for initial evaluation to recommend or not recommend. Recommended requests and direct Department Head applications then route to the Super Admin for final approval, while System Administrators oversee profiles, departments, allocations, logs, and report generation. Centralizing records within a secure database eliminates paperwork and modernizes administrative workflows at UCSH.

As shown in Figure 1 (a) and (b), both Admin and Super Admin authenticate via email and password to access the dashboard for managing departments, staff, leave types, and system reports. As illustrated in figure, the Admin evaluates leave requests and forwards recommended applications, while the Super Admin holds exclusive authority to manage Admin accounts and give final leave approvals.

As shown in Figure 2 (a) and (b), both Staff and Department Heads authenticate via email and password to access the dashboard for submitting leave requests, viewing history, managing profiles, and generating reports. As illustrated in figure, Department Heads can also evaluate staff requests to recommend or not recommend and forward them to the Admin, while Staff members focus on submitting and tracking their own applications.

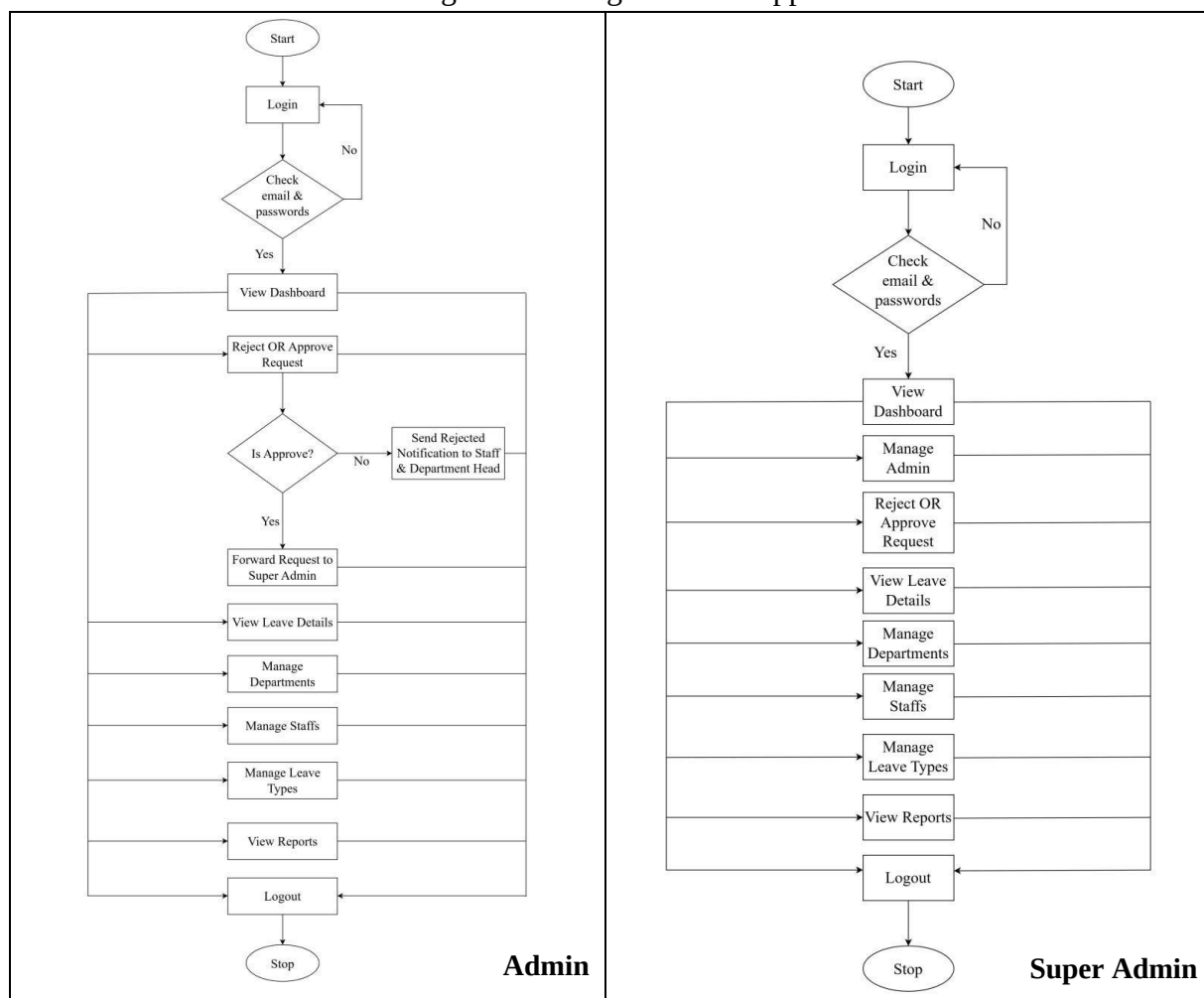


Figure 1(a). System Flow Diagram for Admin

Figure 1(b). System Flow Diagram for Super Admin

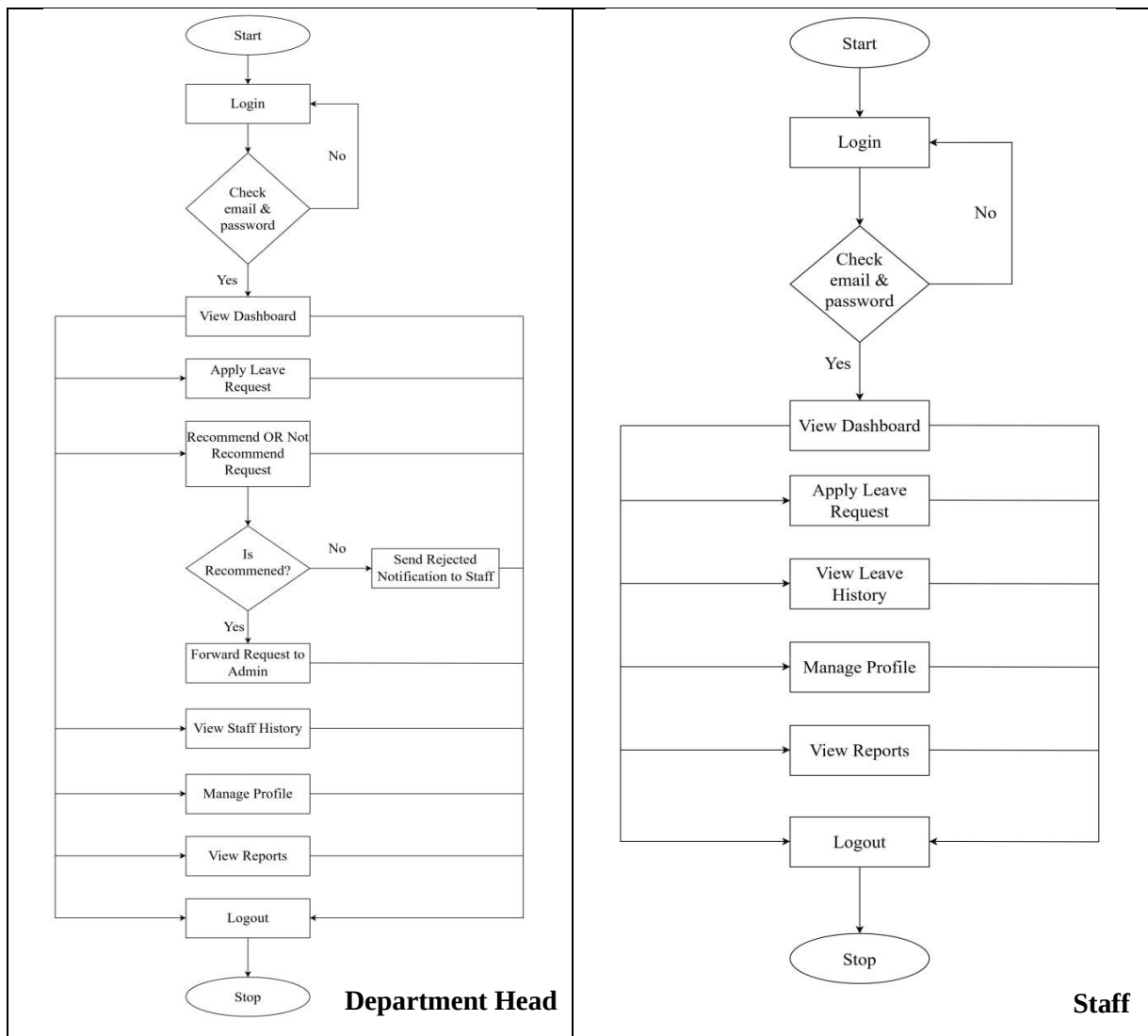


Figure 2(a). System Flow Diagram for Department Head

Figure 2(b). System Flow Diagram for Staff

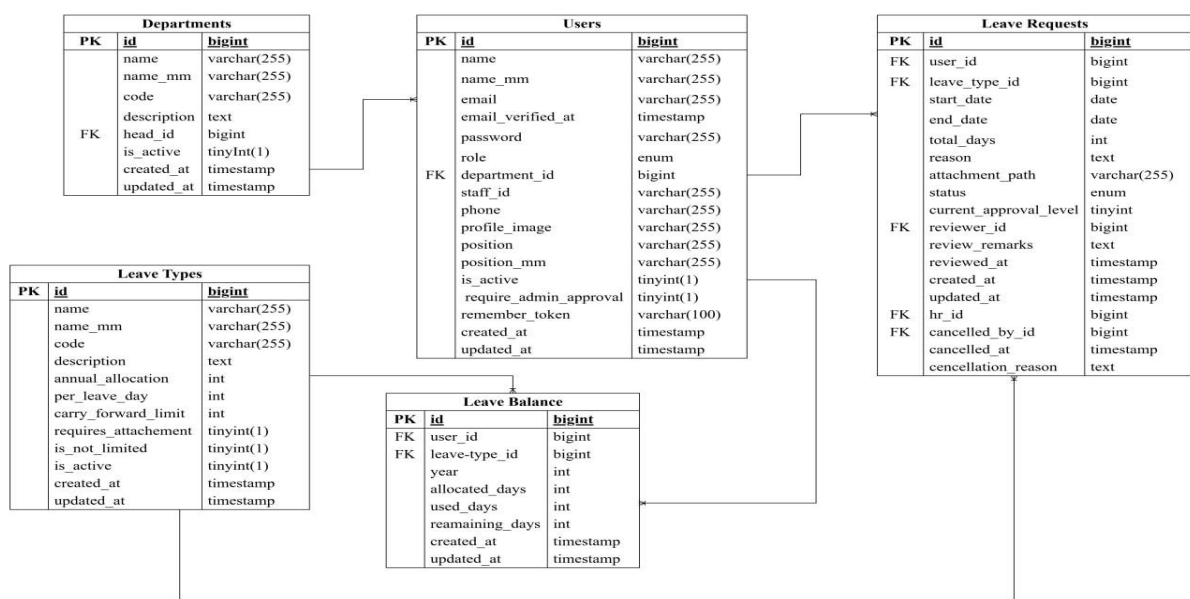


Figure 3. Database Architecture

Figure 3 presents the Entity Relationship Diagram (ERD) of the Leave Management System, which visually represents the structure of the system's relational database and the relationships between its main entities. The ERD defines primary keys (PKs) to uniquely identify records in each table and foreign keys (FKs) to establish relationships between related tables. Cardinality is used to represent the number of possible relationships between entities, mainly one-to-many relationships. The database is designed with interconnected tables to support employee leave management, departmental administration, leave allocation, leave balance tracking, and leave request approval processes. The core tables in the system include:

- departments store department information, including department name, code, description, active status, and the department head.
- users store user and employee account information, including personal details, email, password, role, department, staff ID, contact information, position, and account status.
- leave_types store different types of leave available in the organization, including leave name, code, description, annual allocation, per-leave-day settings, carry-forward limits, attachment requirements, and active status.
- leave_balance stores the leave entitlement and usage information for each user and leave type, including allocated days, used days, and remaining days for a specific year.
- leave_requests store employee leave applications, including the requested leave type, start and end dates, total leave days, reason, attachment, approval status, current approval level, reviewer information, HR information, and cancellation details.

The tables are connected through primary and foreign keys to maintain referential integrity. The users table links to departments via department_id, while departments reference a user as department head via head_id. The leave_balance table connects users with leave types to track individual annual entitlements. Similarly, leave_requests links to users and leave types, while referencing reviewers and cancellation handlers. Overall, Figure 3 illustrates the interconnected structure of users, departments, leave types, balances, and requests, providing the foundation for leave submission, balance tracking, and multi-tier approval workflows in the system.

RESULTS

The Leave Management System provides a centralized platform for managing staff leave records, including pending approvals, department tracking, staff balance reports, leave history, and data imports. It also provides PDF and XLSX export functions for reporting and official record-keeping. The system helps administrators monitor leave usage efficiently and eliminates manual tracking and fragmented paper records.

The reports module presents critical leave information through interactive search filters, bar charts, and tabular data, allowing administrators to filter by department, year, staff member, and leave type. These visual and structured summaries provide a clear overview of overall leave patterns, balance distributions, and department-wise usage to support administrative decision-making. Role-based access control ensures that Super Admin and Admin users carry out system functions according to their permissions.

In Figure 4, the interactive bar chart displays individual staff leave balances, while top search filters allow administrators to filter results by department, staff name, year, and leave type, alongside quick PDF and XLSX export options.

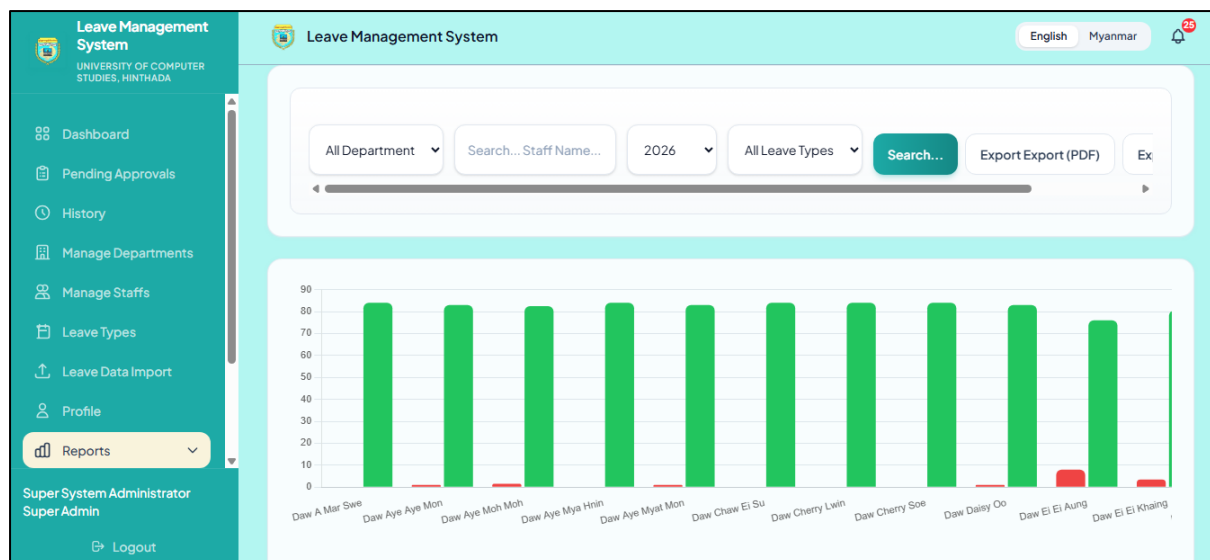


Figure 4. Staff Leave Balance Report



Figure 5. Department Leave Usage Report

No.	Name	Staff ID	Department	Leave Type	Start Date	End Date	Days	Status	Reviewed By	Reviewed Date
1	Daw Soe Soe Mon	MOST-02775	Faculty of Computer Systems and Technologies	Casual Leave	August 31, 2026	August 31, 2026	1	Approved	—	—
2	Daw Soe Soe Mon	MOST-02775	Faculty of Computer Systems and Technologies	Casual Leave	August 30, 2026	August 30, 2026	1	Approved	—	—
3	Daw Soe Soe Mon	MOST-02775	Faculty of Computer Systems and Technologies	Casual Leave	August 29, 2026	August 29, 2026	1	Approved	—	—
4	Daw Thu Thu Aung	MOST-02836	Department of Administration	Casual Leave	August 26, 2026	August 26, 2026	1	Approved	—	—
5	Daw Yin Mar Than	MOST-02780	Department of Natural Science	Casual Leave	August 25, 2026	August 25, 2026	1	Approved	—	—
6	Daw Thu Thu Aung	MOST-02836	Department of Administration	Casual Leave	August 25, 2026	August 25, 2026	1	Approved	—	—
7	Daw Yin Mar Than	MOST-02780	Department of Natural Science	Casual Leave	August 24, 2026	August 24, 2026	1	Approved	—	—
8	Daw Khaing Thazin	MOST-02784	Faculty of Information Science	Casual Leave	August 18, 2026	August 18, 2026	1	Approved	—	—

Figure 6. Detailed Staff Leave History Record

In Figure 5, the bar chart compares total leave days taken across various departments, while the accompanying summary table details exact total leave days for each department, such as Computer Science and Administration.

In Figure 6, a tabular report lists specific approved leave instances, including staff names, staff IDs, departments, leave types, start and end dates, total days, and current status. This granular view allows administrators to review detailed chronological leave records and verify historical data across various academic and administrative divisions.

CONCLUSION

The development of the Leave Management System for the UCSH provides an effective digital solution for streamlining staff leave processes. By digitizing the leave submission, recommendation, and approval workflow, the system reduces paperwork, minimizes calculation errors, and saves processing time across all four roles: Staff, Department Heads, Administrators, and Super Admin. It enhances transparency and communication regarding leave balances and tracking records. With key features such as dynamic leave tracking, automated balance updates, role-based access control, and report generation, the platform supports efficient administrative decision-making. Department Heads review and recommend staff requests, while their own requests are routed to the Super Admin for final approval. Overall, the system significantly improves operational efficiency and establishes a solid foundation for future institutional digitization at UCSH.

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