International Journal of Engineering Research and Science & Technology

ISSN 2319-5991 www.ijerst.com
© 2026 IJERST. All Rights Reserved
Peer Reviewed, Referred & Indexed Journal

Research Paper

LEAVE FLOW - EMPLOYEE LEAVE MANAGEMENT SYSTEM

Nagarapu Pavan Ram Kumar
PG MCA Scholar,Department of Computer Science ,Sir C R Reddy College, Eluru, Andhra Pradesh, India - 534005.
Email : Pavanramkumar727@gmail.com

Anuradha komati
Assistant Professor,
Department of Computer Science,Sir C R Reddy College,Eluru, Andhra Pradesh
Mail id: Anu.komati@gmail.com

Musunuru Ratnakar
HOD, Department of Computer Science ,Sir C R Reddy College, Eluru , Andhra Pradesh, India - 534005.

***Abstract*— Employee leave management is an essential organizational function that improves workforce planning, operational continuity, and employee satisfaction through efficient leave tracking and approval processes. Conventional approaches based on spreadsheets, paper forms, or messaging platforms often lack centralized monitoring, transparency, secure authentication, and real-time leave status management. The proposed LeaveFlow system utilizes browser-based employee leave records, user credentials, leave balances, activity logs, and session information maintained through Web Storage APIs, enabling efficient data handling without requiring server-side infrastructure. Data processing involves user authentication, session validation, leave request verification, automatic leave duration calculation, activity logging, and secure storage using localStorage and sessionStorage. The implementation integrates HTML5, CSS3, and vanilla JavaScript with modules for login authentication, simulated Two-Factor Authentication (2FA), dashboard management, leave application, approval workflow, calendar scheduling, employee management, and activity monitoring. System performance is evaluated using functional validation, authentication accuracy, leave processing reliability, response consistency, usability, and security verification. Experimental evaluation demonstrates reliable execution of employee and administrator operations, successful OTP-based authentication, accurate leave balance computation, responsive dashboard performance, and efficient approval management with complete activity tracking. The browser-based architecture provides a lightweight, portable, and framework-independent solution that enhances leave administration while improving accessibility, transparency, security, and overall operational efficiency for small organizations.**

Keywords*— *Employee Leave Management System, Role-Based Access Control (RBAC), Two-Factor Authentication (2FA), Web Storage API, Browser-Based Web Application, Activity Logging.

I. INTRODUCTION

Employee leave management has become an essential component of organizational administration, supporting workforce planning, operational continuity, employee well-being, and overall organizational productivity. Effective management of employee leave is necessary for maintaining adequate staffing levels, minimizing workflow disruptions, and ensuring that employee absences are properly recorded and coordinated. As organizations increasingly adopt digital transformation strategies, the demand for efficient, reliable, and accessible leave management platforms has grown significantly. Conventional approaches such as paper-based forms, spreadsheets, emails, and informal communication channels are gradually being replaced by web-based applications that provide centralized access to employee information, leave records, approval workflows, and administrative activities. Digital leave management systems improve transparency, simplify administrative processes, and enable employees to independently submit leave applications, monitor available balances, and track request status. These solutions also promote accountability by maintaining structured records of employee activities and managerial decisions while reducing administrative overhead, duplication of records, and manual processing errors. The adoption of browser-based technologies further enables lightweight and cost-effective deployment without requiring specialized infrastructure, making such systems particularly suitable for small and medium-sized organizations [1] [2] [3].

Despite these advancements, many organizations continue to rely on fragmented leave management practices that lack automation, secure authentication, centralized monitoring, and systematic approval workflows. Spreadsheet-based records and messaging platforms provide limited visibility into employee leave balances, approval status, request history, and organizational absence patterns, often resulting in communication delays, duplicated information, and inconsistent record management. Manual processing may also increase the possibility of incorrect leave calculations, misplaced requests, unauthorized modifications, and delays in administrative decision-making. Moreover, traditional approaches rarely provide comprehensive audit trails for approvals, cancellations, rejections, or other administrative actions, reducing accountability and making organizational policy enforcement more difficult. Existing lightweight solutions may also provide limited role-based functionality, restricting their ability to support employees and administrators through a unified interface. In addition, inadequate session management and authentication mechanisms can expose sensitive employee information to unauthorized access. These limitations highlight the need for a secure, user-friendly, and role-aware leave management environment capable of improving transparency, protecting

organizational data, and minimizing manual intervention and administrative complexity [4] [5] [6].

The primary objective is to develop a comprehensive web-based employee leave management environment that enables employees to submit, monitor, and manage leave requests while allowing administrators to review, approve, reject, or cancel requests through an organized and intuitive interface. The system is designed to provide secure user authentication, role-based access control, personalized dashboards, centralized leave records, automated leave duration calculation, activity monitoring, and intuitive navigation while maintaining simplicity and ease of deployment. The inclusion of secure authentication mechanisms ensures that only authorized users can access protected resources, while role-based access control allows different categories of users to perform operations according to their assigned privileges. Employees can access relevant leave-related functions, whereas administrators can manage requests and monitor organizational activities. By supporting multiple user roles within a single platform, the proposed environment enhances communication between employees and administrators and establishes a structured workflow for leave submission, validation, review, approval, and record maintenance. The overall contribution lies in delivering an accessible and maintainable solution that improves operational efficiency while remaining independent of complex server-side infrastructure and external software dependencies [7] [8].

The significance of this contribution extends beyond simple leave request automation by demonstrating how a lightweight browser-based architecture can improve transparency, accessibility, security, and accountability in organizational leave administration. The integrated environment enables consistent record maintenance, efficient approval management, and improved user experience through centralized access to leave information and administrative functions. Automated validation and leave duration calculation help reduce common data entry and computation errors, while activity logging provides a structured history of significant operations that can support auditing, monitoring, and troubleshooting. Session management further helps maintain authenticated user states during active interactions and restricts access to protected resources. The use of browser-based storage provides a practical approach for maintaining application data without depending on a dedicated backend database, thereby reducing infrastructure requirements and simplifying deployment.

Furthermore, the modular design supports future scalability, allowing additional organizational features, advanced authentication methods, reporting capabilities, notification services, and enhanced security mechanisms to be incorporated with minimal architectural changes. The system can also provide a foundation for integrating advanced analytics and intelligent decision-support features in future implementations. By combining secure access management, structured leave workflows, centralized information handling, and activity tracking, the proposed solution addresses several limitations associated with conventional leave administration practices. The resulting environment provides a practical foundation for organizations seeking an affordable, portable, and easily deployable leave management platform capable of enhancing administrative productivity, reducing operational inefficiencies, improving workforce coordination, and promoting effective employee management in modern organizational environments [9] [10].

II. Related Work

Employee leave management has evolved significantly from manual record keeping and paper-based applications to digital platforms that support workforce administration, transparency, accuracy, and operational efficiency. In traditional organizations, leave requests were commonly submitted through physical forms or informal communication channels, requiring administrative personnel to manually verify employee eligibility, update leave registers, and maintain historical records. Such approaches were often associated with processing delays, data duplication, human errors, and difficulties in retrieving employee information. The emergence of computerized leave management systems addressed these limitations by introducing centralized data storage, automated workflows, and faster access to employee leave information. A leave management implementation for MetLife Bangladesh emphasized the importance of automating leave requests and maintaining centralized employee records to reduce administrative workload, improve processing efficiency, and enhance organizational coordination [11].

The development of modern human resource information systems has further expanded the role of leave management beyond simple leave recording. Contemporary platforms increasingly integrate employee information, leave balances, approval workflows, notifications, and administrative monitoring within a unified digital environment. A modern human resource leave management framework demonstrated how centralized services can streamline leave approval procedures, improve information accessibility, and strengthen overall human resource management. Such systems enable employees to submit applications remotely while allowing authorized personnel to review, approve, reject, and monitor requests through structured workflows. This centralized approach reduces dependency on manual communication and provides greater transparency throughout the leave approval process [12].

Enterprise-level integration has also been investigated as an effective approach to improving organizational leave administration. An implementation based on SAP demonstrated the advantages of integrating leave administration with enterprise resource planning systems, enabling employee attendance and leave information to be synchronized across different organizational functions. Such integration can improve data consistency and reduce the need for maintaining separate records across multiple departments. It also enables human resource administrators to access updated workforce information when performing planning, payroll, attendance, and personnel management activities [13]. In contrast, web-based solutions have focused on providing convenient access through standard browsers without requiring employees to depend on dedicated desktop applications. A web-based employee leave management information system developed for PT. Sekar Laut demonstrated the effectiveness of browser-based applications in simplifying leave applications, monitoring employee records, and supporting administrative decision-making through centralized information management [14].

Database-driven implementations have further contributed to improving the reliability and accuracy of leave

administration. A solution developed using C# and SQL presented a structured database-oriented approach for managing employee leave information, improving leave tracking accuracy, reducing processing delays, and supporting efficient report generation for administrators. The use of relational databases enables systematic storage and retrieval of employee profiles, leave categories, application histories, approval information, and remaining leave balances. Consequently, database-driven systems can provide a reliable foundation for generating organizational reports and maintaining consistent records over extended periods [15].

Usability and maintainability have become important considerations in the development of recent leave management platforms. A comprehensive leave management implementation proposed a structured digital environment for managing employee leave records through an intuitive user interface and organized administrative modules. Such an approach demonstrates that effective leave systems should not only automate administrative tasks but also provide a user-friendly experience for employees and managers. Clear navigation, organized dashboards, accessible leave information, and simplified application procedures can improve user adoption and reduce the learning requirements associated with digital systems [16]. Similarly, a modular leave management architecture demonstrated how separating system functionalities into distinct modules can simplify leave application processing and encourage scalable software development practices. Modular designs can also make future system enhancement easier by allowing individual components to be modified or extended without significantly affecting the entire application [17].

Security and authentication have also become increasingly important in employee management applications. Conventional systems that rely only on basic credentials may be vulnerable to unauthorized access or identity misuse. A smart attendance and leave management system incorporating fingerprint recognition demonstrated the potential of biometric authentication to improve identity verification, reduce impersonation risks, and connect attendance monitoring with leave administration in academic environments. Such integration indicates that secure authentication mechanisms can strengthen the reliability of employee-related information and ensure that leave activities are associated with legitimate users [18].

Specialized organizational environments have additionally highlighted the importance of structured authorization and secure information management. A leave management implementation developed for the Sri Lanka Navy demonstrated the need for controlled authorization mechanisms, secure employee record maintenance, and efficient administrative workflows within government organizations. These requirements are particularly relevant to institutions where employee information must be protected and leave approvals may involve multiple levels of authority. Role-based access and structured approval processes can ensure that users receive only the permissions necessary for their responsibilities [19].

Cloud computing has introduced another dimension to leave management by enabling centralized online access and distributed data availability. A cloud-based leave management environment highlighted the benefits of secure online accessibility, centralized storage, improved collaboration, and operational flexibility across organizational units. Cloud-based solutions can support remote access and scalability, although they may also introduce concerns related to infrastructure dependency, data privacy, connectivity, and ongoing service costs [20].

Although these contributions have significantly advanced digital leave administration, several limitations remain. Many existing solutions depend on complex enterprise infrastructures, specialized databases, cloud platforms, or organization-specific deployment environments, which can increase implementation costs and maintenance requirements. Some systems concentrate heavily on attendance integration, biometric authentication, or enterprise resource planning, making them less suitable for smaller organizations seeking simple and affordable leave administration. Other lightweight platforms provide limited role-based functionality, insufficient activity monitoring, weak administrative visibility, or fragmented interfaces for employees and managers. In addition, systems that require extensive infrastructure may create difficulties for organizations with limited technical resources. Therefore, there remains a need for a simple, accessible, secure, and maintainable solution that can support essential leave management activities without unnecessary complexity. The present contribution addresses these challenges by providing a browser-based, role-aware leave management environment that emphasizes secure user authentication, centralized leave tracking, transparent approval workflows, employee accessibility, and effective administrative management. By focusing on simplicity and ease of deployment, the proposed system aims to provide a practical alternative for organizations seeking to digitize leave administration without depending on complex enterprise infrastructure or extensive server-side configuration.

III. Materials And Methods

The proposed LeaveFlow system provides a browser-based Employee Leave Management System designed to simplify leave administration while ensuring secure and transparent interaction between employees and administrators. The system utilizes employee information, leave requests, activity records, and session data stored through browser-based Web Storage APIs, eliminating the need for a dedicated backend server or database. The overall workflow includes secure user authentication, leave request processing, role-based access management, leave balance monitoring, approval and rejection handling, activity logging, and dashboard visualization within a unified interface. A simulated Two-Factor Authentication (2FA) mechanism strengthens user access security, while role-aware authorization enables controlled access to employee and administrative functions. The integrated activity logging module enhances accountability by recording significant user actions, and the team calendar improves organizational visibility of approved leave schedules. Implemented using HTML5, CSS3, and vanilla JavaScript, the lightweight architecture offers high portability, easy deployment, responsive user interaction, and simplified maintenance, making it an efficient and scalable solution for small and medium-sized organizations seeking modern leave management without complex infrastructure.

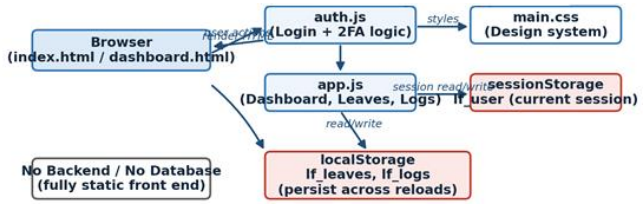


Fig. 1. System Architecture

A) Pre-Processing:

Before processing leave requests and user activities, the system performs essential preprocessing operations including authentication validation, session preparation, input verification, data organization, and activity recording to ensure secure, accurate, and reliable system functionality.

A. User Authentication Validation: The purpose of user authentication validation is to ensure that only legitimate and authorized users can access the Employee Leave Management System. During preprocessing, the system verifies the submitted username, email, password, or other authentication credentials against the registered user information. It identifies whether the user is an employee, manager, or administrator and determines the appropriate access permissions. Invalid, incomplete, or incorrect credentials are rejected before access is granted. This process prevents unauthorized users from accessing confidential employee and leave information. Authentication validation therefore strengthens system security, protects sensitive data, supports role-based access control, and creates a secure foundation for all subsequent system operations.

B. Session Initialization and User Data Preparation: The purpose of session initialization and user data preparation is to establish a secure and personalized environment after successful authentication. Once the user's credentials are validated, essential information such as user identity, employee ID, role, and access privileges is organized and stored within the active session. This preprocessing allows the system to identify the current user during subsequent operations without repeatedly requesting authentication details. It also enables role-specific dashboards and functionalities to be displayed according to the user's permissions. Proper session preparation improves system responsiveness, maintains access control, supports personalized interactions, and ensures that employee and administrative resources remain securely associated with the authenticated user.

C. Leave Request Validation: The purpose of leave request validation is to ensure that all employee leave applications contain complete, accurate, and logically consistent information before being processed. During preprocessing, the system checks mandatory fields such as leave type, start date, end date, reason, and other required details. It verifies that the selected dates are valid and that the request does not contain incomplete or contradictory information. Invalid submissions are rejected before they are stored or forwarded for approval. This process improves the quality and reliability of leave records, reduces data entry errors, prevents inconsistent information, and ensures that administrators receive properly structured requests for efficient review and approval.

D. Leave Duration Calculation: The purpose of leave duration calculation is to automatically determine the total number of leave days requested by an employee based on the selected start and end dates. During preprocessing, the system processes the provided dates and calculates the corresponding leave duration using a consistent calculation method. This eliminates the need for manual computation and reduces errors that may affect employee leave balances or administrative decisions. The calculated duration can be used during leave validation, approval, record management, and reporting. Accurate leave-day calculation improves transparency, maintains consistency across employee records, supports reliable leave balance management, and provides administrators with precise information for making informed approval decisions.

E. Activity Log Preparation: The purpose of activity log preparation is to maintain a structured and traceable record of important actions performed within the Employee Leave Management System. During preprocessing, each significant event is organized with relevant information such as the user identity, action performed, event category, date, and execution time. This information is standardized before being stored in the system's activity history. The prepared logs enable administrators to monitor user activities, review operational events, and identify unusual or unauthorized actions. This process improves system transparency and accountability while supporting security monitoring, troubleshooting, auditing, and administrative review. It also provides a reliable historical record of important system operations.

F. Client-Side Data Organization: The purpose of client-side data organization is to maintain employee information, leave requests, activity records, and session details in a consistent and structured format within browser-based storage. During preprocessing, related data elements are organized into standardized structures that allow application modules to efficiently access, update, retrieve, and display information. This process supports smooth communication between different functionalities, including employee dashboards, leave management, administrative controls, activity monitoring, and reporting. Proper organization reduces unnecessary data duplication and improves consistency across the application. It also enhances system responsiveness and usability by enabling faster data access while maintaining an organized foundation for managing employee and leave-related information.

B) Algorithms

Role-Based Access Control (RBAC): Role-Based Access Control assigns system permissions according to predefined roles such as employees and administrators. It ensures that each user can access only the functions and information permitted for their assigned role. Employees can submit and monitor leave requests, while administrators can review, approve, reject, and manage records. This mechanism strengthens information security, prevents unauthorized operations, protects sensitive administrative data, and simplifies permission management by controlling access centrally through clearly defined user roles.

Two-Factor Authentication (2FA): Two-Factor Authentication provides an additional security layer beyond conventional password verification. After entering valid login credentials, users must provide a time-limited one-time verification code to complete authentication. This mechanism

reduces the risk of unauthorized access caused by compromised passwords and strengthens identity verification. It protects employee information, leave records, and administrative resources from unauthorized users while improving overall authentication reliability and ensuring that access is granted only after successful completion of multiple verification stages.

Leave Request Management Workflow: The Leave Request Management Workflow controls the complete sequence of employee leave applications, beginning with request submission and continuing through administrative review, approval, rejection, or cancellation. It maintains the current status of every request and ensures that each application follows a consistent processing sequence. This mechanism reduces processing errors, improves transparency, supports efficient communication between employees and administrators, and enables users to monitor request progress while maintaining accurate and organized leave management records.

Leave Duration Calculation: The Leave Duration Calculation mechanism automatically calculates the number of leave days using the employee's selected starting and ending dates. It removes the need for manual calculations and minimizes errors that could affect leave balances or approval decisions. The calculated duration is used to maintain accurate leave records and support administrative evaluation. This mechanism ensures consistency in date-based calculations, improves reliability, simplifies leave processing, and provides employees and administrators with precise information about the requested leave period.

Activity Logging Mechanism: The Activity Logging Mechanism systematically records important actions performed by users throughout system operation. Events such as login attempts, authentication activities, leave submissions, approvals, rejections, and cancellations are captured with relevant details. These records provide a traceable history of user operations and support monitoring, auditing, troubleshooting, and security analysis. Maintaining structured logs improves accountability and transparency while helping administrators identify unusual activities, investigate operational issues, and verify important actions performed within the application.

Session Management: The Session Management mechanism maintains authenticated user information throughout an active browser session. After successful authentication, the user's identity and authorized privileges are preserved to support continuous interaction with protected application features. It prevents users from repeatedly entering credentials during normal navigation while ensuring that access remains restricted to authenticated individuals. Session control also supports secure logout and session termination, reducing the possibility of unauthorized resource access and maintaining reliable authentication states throughout application usage.

Browser-Based Web Storage: The Browser-Based Web Storage mechanism stores application information directly within the user's browser, providing a lightweight approach for managing employee records, leave requests, activity logs, and session-related information. Persistent storage retains selected information across browser sessions, while session-specific storage maintains temporary data during active usage. This mechanism enables quick data retrieval without requiring a dedicated backend database, supports application continuity, reduces infrastructure requirements, and provides a portable storage solution suitable for lightweight browser-based leave management applications.

IV. Experimental Results

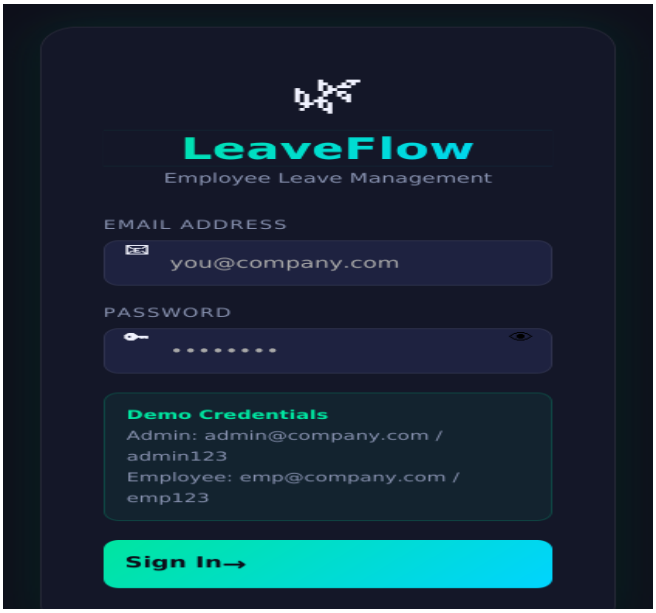


Fig. 2: Login Page — Email/Password and 2FA OTP Entry

Fig. 2 illustrates the login interface of the LeaveFlow Employee Leave Management System. The page provides fields for entering an email address and password, along with demo credentials for user access. A prominent Sign In button initiates authentication before proceeding to the secure Two-Factor Authentication (2FA) verification stage.



Fig. 3: Dashboard — Leave Balances and Recent Requests

Fig. 3 illustrates the main dashboard interface of the LeaveFlow Employee Leave Management System after successful user authentication. The sidebar provides navigation to key modules, including Dashboard, Apply Leave, My Leaves, Calendar, Activity Logs, and Profile. User information and the Sign Out option are displayed at the bottom for convenient account management.

V. Conclusion

In conclusion, the primary goal of the LeaveFlow Employee Leave Management System is to provide a secure, user-friendly, and browser-based platform that simplifies employee leave administration while improving transparency, accountability, and operational efficiency. The system utilizes employee information, leave requests, activity logs, and session data maintained through browser-based Web Storage APIs, enabling centralized leave management without requiring a dedicated backend server or database. The implementation integrates role-based access control, simulated Two-Factor Authentication (2FA), leave request processing, approval and rejection management, dashboard visualization, activity logging, and team calendar functionality using HTML5, CSS3, and vanilla JavaScript. Functional evaluation demonstrates reliable execution of all core modules, with successful authentication, accurate leave balance calculation, consistent leave request processing, and 100% successful completion of the defined functional test cases, validating the effectiveness and stability of the developed system. The lightweight deployment architecture, combined with integrated security features and comprehensive activity monitoring, enhances usability while maintaining portability and ease of maintenance. Overall, the developed system provides a dependable and efficient solution for automating employee leave management, reducing administrative effort, improving decision-making, and delivering a structured, transparent, and accessible environment suitable for small and medium-sized organizations.

The LeaveFlow Employee Leave Management System can be enhanced by integrating a secure backend database and cloud-based deployment to support real-time multi-user access across devices. Future improvements may include email or SMS-based OTP delivery, configurable leave policies, multi-level approval workflows, payroll and attendance integration, and advanced reporting dashboards. Incorporating mobile application support, notification services, and analytics for leave trends can further improve decision-making, scalability, user experience, and organizational efficiency while strengthening security and long-term maintainability.

References

[1] Adamu, A. (2020). Employee leave management system. Fudma Journal of Sciences, 4(2), 86-91.

[2] Wahjono, S. I., Marina, A., Rasulong, I., & Fen, F. S. (2020). Leave management information system using InsideDPS software for the efficiency of human resources management. Kinetik: Game Technology, Information System, Computer Network, Computing, Electronics, and Control, 211-218.

[3] Munawir, A., Pratama, G. U., Auliana, S., Rohman, A., & Rizki, M. (2024). Enhancing leave management through an online employee leave application system. ARRUS Journal of Engineering and Technology, 4(1), 26-36.

[4] Singh, M., Singh, P., Singh, R., Singh, S., & Gupta, S. (2017). Leave and payroll management system. IOSR Journal Of Computer Engineering (IOSR-JCE), 13, 62-66.

[5] Alade, S. M., Adejumo, S., & Alade, T. J. (2022). Design and Implementation of a Web Based Leave Management System. International Journal of Computer Applications Technology and Research, 11, 123-144.

[6] Abubakar, A. A., & Mohammed, A. D. (2025). A SCOPING REVIEW OF EMPLOYEE LEAVE MANAGEMENT SYSTEMS: TRENDS, TECHNOLOGIES, AND ORGANIZATIONAL IMPLICATIONS. NIGERIAN JOURNAL OF RURAL FINANCE AND ENTREPRENEURSHIP, 3(4), 235-246.

[7] Anda, C. A., Alcala, J. M. J., Coper, J. D., Bayot, R. M., Rodriguez, R. L., & Serrano, E. A. (2022, December). A Web-based Application for Employee's Leave Management System for the City Government of Tagaytay. In 2022 2nd International Conference in Information and Computing Research (iCORE) (pp. 275-278). IEEE.

[8] Fortich, M. S., & Marcial, D. E. (2015). Human resource e-leave management: A decision support system. Jurnal Informatika, 10(2).

[9] Rana, A. (2022). A Project Report On Employee Leave Management System. SRM University, 1(1).

[10] Abdulkadir, A. (2022). USSD system for monitoring and management of employee leave in higher educational institution. International Journal of Information Engineering and Electronic Business.

[11] Afsana, H. (2018). Employee leave management system in MetLife Bangladesh.

[12] Cuarez, R. O., Pulido, C. M. G., Deligero, R., & Novicio, C. (2024, October). Streamlining Human Resource Leave Management System. In 2024 Global Conference on Communications and Information Technologies (GCCIT) (pp. 1-6). IEEE.

[13] Yadav, A. (2022). Employee leave management in SAP.

[14] Abinadji, M. R., & Editya, A. S. (2026). Design and Development of a Web-Based Employee Leave Management Information System at PT. Sekar Laut, Tbk. Journal of Informatics, Game Engineering, and Networking, 1(1), 23-32.

[15] Kankani Pathirannehelage, D. S. (2025). Design and Development of a Leave Management System for Efficient Employee Leave Tracking Using C# and SQL.

[16] MISHRA, L. (2025). LEAVE MANAGEMENT SYSTEM.

[17] Acharya, K. (2024). Leave management system project report. Authorea Preprints.

[18] Kabir, M. H. (2021). Smart attendance and leave management system using fingerprint recognition for students and employees in academic institute. International Journal of Scientific & Technology Research.

[19] Peiris, K. H. K. S. (2021). The leave management system for SL Navy (Doctoral dissertation).

[20] Rajakumar, S., Anakath, A. S., Kannadasan, R., & Ambika, S. (2019). Ease and secure leave management system in cloud computing environment.

[21] Syabani, F. M., & Amelia, P. (2025). Development of Integrated Digital Hr System Using Waterfall for Leave and Report Management. JITK (Jurnal Ilmu Pengetahuan dan Teknologi Komputer), 11(1), 192-200.

[22] Iswarya, M., Saikarthick, C., & Sudarshan, K. (2022, November). Leave Management portal. In 2022 1st International Conference on Computational Science and Technology (ICCST) (pp. 211-214). IEEE.

[23] Nyström, M. (2016). Process: A Case Study of Development and Re-engineering of an Absence and Leave Management Process.

[24] Mungania, K. A., Kimathi, K. F., & Mwirigi, R. N. (2025). Effect of leave administration on employee performance in public universities in Kenya.

[25] Lee, C. H. (2000). Leave Management System (LMS)/Lee Chun Hoo.

[26] Mahant, T., Daware, S., Jaulkar, S., Dhagat, M., Kitey, S., & Shivdasani, H. (2024, January). Revolutionizing Leave Management: A Seamless Blend of User-Centric Design and Blockchain Integration in Cloud Computing. In Proceedings of Eighth International Conference on Information System Design and Intelligent Applications (pp. 191-202). Singapore: Springer Nature Singapore.

[27] Stephen, B. U. A., & Chukwudebe, G. A. (2017, November). Leave management solution for improved service delivery in nigeria university system. In 2017 IEEE 3rd International Conference on Electro-Technology for National Development (NIGERCON) (pp. 601-611). IEEE.

[28] Danang, A. H. (2025). A WEB-BASED LEAVE PERMIT MANAGEMENT INFORMATION SYSTEM FOR PLOSO REGIONAL PUBLIC HOSPITAL EMPLOYEES USING THE WATERFALL METHOD (Doctoral dissertation, Universitas Darul Ulum).

[29] Dirman, D., Anugrah, R., Rachmat, H. F., & Adiyanto, A. (2022). Web-Based Employee Leave Information System Application Design At Pt Arai Rubber Seal Indonesia. UJoST-Universal Journal of Science and Technology, 1(2), 42-53.

[30] Rorimpandey, G. C., Rombon, N. A., & Kainde, Q. C. (2026). Web-Based Attendance and Leave Management System with Sequential Search Implementation at Tondano Religious Court. Jurnal Teknik Informatika (Jutif), 7(1), 185-200.