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Review On Leave Management System

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ABSTRACT

The Teacher Leave Management System (TLMS) is an intranet-based program that is accessible to a designated group or department or to the entire college. The processing of leave requests and their approvals can be automated with this system. Additionally, leave is automatically credited on a periodic basis. Faculty and staff can view the total amount of leave that staff members have taken. Faculty will record related staff members' attendance and verify authorized leave. This system has features like report generators, email notifications, and automatic leave approval. An application for leave management will cut down on paperwork and keep records more effectively. Easy Leave is an intranet-based application that is accessible to a designated group or department or to the entire organization. The processing of leave requests and their approvals can be automated with this system. Additionally, leave is automatically credited on a periodic basis. This tool has features like email notifications, leave cancellation and approval, report generators, and more. The project has been designed with a distributed architecture in mind, with the database stored centrally. An application has been planned for data storage. All of the user interfaces were created using Android Studio technologies and Firebase constructs.

Keywords: Teacher Leave Management, Automated Leave Approval, Leave Tracking and Reporting, Leave Workflow Automation, Faculty Leave Requests, Digital Leave Management, Real-time Attendance Monitoring, Android Leave Management App

1.INTRODUCTION

In the current educational environment, staff leave is managed manually, with staff members submitting leave requests using conventional techniques. Time-consuming administrative duties like record-keeping and leave verification are frequently the result of this antiquated method. A web-based program called the Staff Leave Management System was created to automate and expedite the leave application and approval procedure for employees of educational institutions. Staff members can safely submit leave requests with this software application by using their passwords and unique identifiers. By decreasing paperwork, lowering the possibility of data loss, and removing record-keeping errors, the system makes leave management more effective and structured. It gives employees the authority to manage their leave requests while abiding by rules and guidelines unique to their institution.

Effective employee leave management is essential for preserving productivity and guaranteeing a healthy work-life balance in the fast-paced workplace of today. Conventional leave management systems frequently depend on laborious documentation and manual tracking, which can result in mistakes, misunderstandings, and a large administrative burden. In order to overcome these obstacles, we suggest creating an Android application for a leave management system that will expedite the leave application procedure for management and staff.

Employees can submit leave requests, check their leave balances, and get timely updates on the status of their applications with this application's user-friendly interface. The system will provide managers with powerful tools to view team leave schedules, approve or reject requests, and create reports for improved resource allocation. This system will guarantee accessibility and convenience by utilizing Android's capabilities, enabling users to manage their leave while on the go.

Our project's main goal is to provide a smooth experience that lowers paperwork, minimizes mistakes, and improves internal communication in businesses. With features like calendar integration, role-based access, and notifications, this leave management system seeks to transform how businesses manage employee leave, which will ultimately lead to better workforce management and happier workers.

It is more crucial than ever to have streamlined and effective procedures in the technologically sophisticated world of today. In addition to wasting important time, educational institutions run the risk of making mistakes in leave records and causing decision-making bottlenecks when leave requests are handled manually. By giving workers more control over their leave requests, a strong staff leave management system not only improves accuracy and transparency but also fosters employee satisfaction. By automatically updating records, alerting pertinent personnel, and guaranteeing adherence to institution-specific regulations, it also assists institutions in adhering to leave policies.

2.LITERATURE REVIEW

[1] M Iswarya; C Saikarthick; K Sudarshan : Addressing the shortcomings of conventional manual systems, the paper "A Smart Leave Management System" offers a novel method for automating the leave management procedure. It draws attention to the difficulties that organizations encounter, like inaccurate leave tracking and sluggish approval procedures, and suggests an intelligent system that makes use of technology to increase precision and speed. The system's architecture, which includes features like real-time notifications, automated leave request workflows, and an intuitive interface for managers and staff, is described in detail by the authors. Significant improvements in processing times and user satisfaction are shown by the implementation, and data-driven insights help improve workforce management decision-making. All things considered, the study advances the field by demonstrating how intelligent technology can change.

[2] Vikrant Kumar Kaushik , Arjun Kumar Gupta , Ashish Kumar , Abhishek Prasad : System for Managing Student Leave. The "Student Leave Management System" paper highlights the inefficiencies of conventional paper-based methods while examining the urgent need for effective leave tracking in educational institutions. The authors suggest a digital solution that simplifies the student leave application process by offering an intuitive user interface that makes submissions and approvals simple. Real-time alerts, leave balance monitoring, and administrative dashboards for teachers are important features that improve transparency and communication. When compared to manual processes, the system's implementation shows notable improvements in processing times and user satisfaction. By demonstrating how a specialized leave management system can streamline operations in educational settings and eventually promote a more structured approach to managing student attendance, this study advances the field.

[3] Kamal Acharya : Employee leave management system.The study "A Comprehensive Leave Management System: Design and Implementation" highlights the shortcomings of manual procedures that result in errors and inefficiencies while addressing the difficulties businesses encounter in efficiently managing employee leave. The authors offer a complete digital solution that streamlines workflow by automating leave requests, approvals, and tracking. A user-friendly interface, automated notifications, and strong reporting capabilities are some of the system's key features that improve the experiences of managers and employees. The system's efficacy in optimizing leave management is demonstrated by the evaluation results, which show notable increases in processing efficiency and user satisfaction. With its potential to revolutionize organizational practices in HR management, this study offers insightful information about the benefits and design of a comprehensive leave management system.

[4] Samuel Mayowa Alade, Adejumo Samuel, Temitope Alade: Developing and Putting into Practice an Online Leave Management System. In order to address the urgent need for effective leave management in organizational settings, the paper "Design and Implementation of a Web-Based Leave Management

System" highlights the shortcomings of conventional approaches, which frequently result in mistakes and administrative burdens. It offers a user-centered design methodology that puts accessibility and usability first, guaranteeing that staff members can easily submit and monitor leave requests. The authors describe in detail how the system was implemented using contemporary web technologies, placing special emphasis on a strong architecture that facilitates scalability and integration with pre-existing HR systems. When compared to legacy systems, evaluation results show notable improvements in processing times and user satisfaction. All things considered, the study offers insightful information about practical leave management solutions, opening the door for further innovations in HR technology.

[5] Abubakar Adamu: Employee Leave Management System. The "Employee Leave Management System" paper examines how important automated solutions are to improving the effectiveness and precision of leave administration in businesses. It talks about the drawbacks of manual procedures, like the higher risk of mistakes and administrative burden, and promotes a digital strategy that expedites leave requests and approvals. The authors offer a thorough system design with robust backend functionalities and user-friendly interfaces that make it simple for managers and staff to access. The implementation demonstrates how web technologies and database management can be used to enable real-time tracking of leave statuses and balances. The system has the potential to optimize HR operations and promote a more structured leave management framework, as evidenced by evaluation results showing significant improvements in processing times and overall user satisfaction.

[6] Christian A. Anda; Joel Mari J. Alcala; Juel D. Coper; Rumer M. Bayot; Ramon L. Rodriguez; Elcid A. Serrano: A web-based application for managing employee leaves. Effective leave tracking and management is becoming increasingly important in businesses, as the paper "Design and Implementation of an Automated Leave Management System" discusses. It lists the drawbacks of conventional leave management techniques, including administrative inefficiencies and manual errors, and presents an automated solution that expedites the leave request and approval procedure. To improve communication between staff and management, the authors offer a thorough framework that includes real-time notifications, backend database management, and an intuitive user interface. When compared to traditional methods, the system evaluation shows notable improvements in processing time and user satisfaction. This study highlights how automated solutions can revolutionize HR procedures and offers insightful information for creating organizational workflows that are more effective.

[7] Ali, S., & Kaur, P: Impacts of Manual Leave Management on Organizational Efficiency: The inefficiencies of manual leave tracking systems, particularly in small and medium-sized businesses (SMEs), are examined by Verma and Kumar (2022). A variety of studies that have documented the operational difficulties faced by SMEs when depending on conventional leave management techniques are highlighted in their literature review. The authors focus on problems that collectively undermine the efficacy of leave management, including lengthy procedures, poor communication, and human error. Verma and Kumar demonstrate how these inefficiencies result in lower employee morale and

productivity by examining data from a variety of SMEs. The implications of these difficulties for strategic resource allocation and workforce planning are also covered in the paper.

[8] Verma, P., & Kumar, S.: Identifying Inefficiencies in Manual Leave Tracking Systems: SMEs' perspectives. The inefficiencies of manual leave tracking systems, particularly in small and medium-sized businesses (SMEs), are examined by Verma and Kumar (2022). A variety of studies that have documented the operational difficulties faced by SMEs when depending on conventional leave management techniques are highlighted in their literature review. The authors focus on problems that collectively undermine the efficacy of leave management, including lengthy procedures, poor communication, and human error. Verma and Kumar demonstrate how these inefficiencies result in lower employee morale and productivity by examining data from a variety of SMEs. The implications of these difficulties for strategic resource allocation and workforce planning are also covered in the paper.

3. PROPOSED METHODOLOGY:

If the attendance is managed by hand, it can be very taxing on the teachers. An intelligent and automated attendance management system is being used to address this issue. The issue of proxies and staff being marked present even though they are not physically present can be readily resolved by applying this framework. Teachers may find that manually managing attendance is a major burden, taking up time and resources that could be better spent on instruction and other important duties.

In addition to being time-consuming, traditional manual attendance tracking techniques like roll call and paper-based registers are also prone to mistakes and inaccuracies. Furthermore, these manual techniques might unintentionally permit instances of proxy attendance, in which staff members are listed as present even though they are not physically in the classroom.

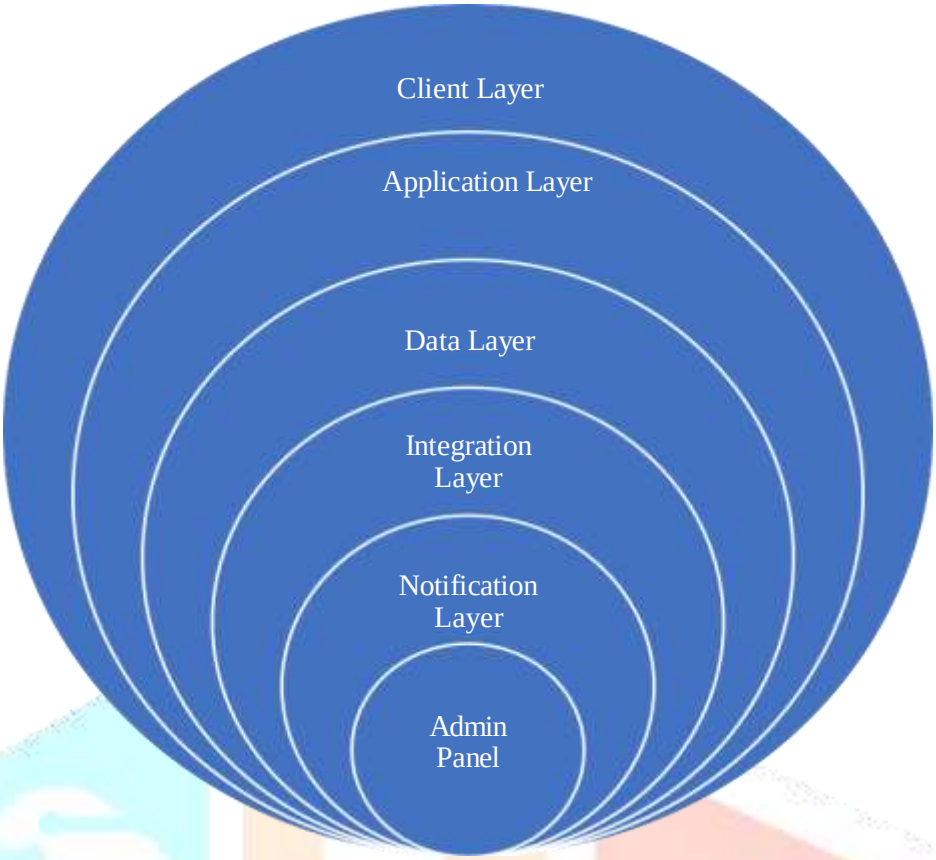

Fig 3.1 System Architecture

i. Intelligent Attendance Management Systems: systems for managing attendance To precisely and effectively track staff attendance, smart attendance management systems make use of technologies like biometric recognition, RFID (Radio Frequency Identification), barcode scanning, and facial recognition. By doing away with manual data entry, these systems lower the possibility of mistakes that come with using more conventional techniques.

ii. Automation of Attendance Tracking: with intelligent attendance management systems, teachers no longer need to manually call out names or record attendance on paper registers because attendance tracking is automated. Using biometric authentication, RFID tags, barcode scanning, or facial recognition technology, staff members' attendance is automatically tracked as soon as they enter the classroom or campus.

iii. Preventing Proxy Attendance: Intelligent attendance management systems considerably lower the risk of proxy attendance by utilizing biometric authentication or other cutting-edge identification techniques. The possibility of unauthorized attendance on behalf of absent staff members is eliminated because employees must physically present themselves in order for attendance to be accurately recorded.

iv. iv. Monitoring and Reporting in Real Time: Attendance Control Teachers and administrators can instantly access the most recent attendance records thanks to smart attendance management systems that monitor attendance data in real-time. This makes it possible to act quickly when there are unapproved absences or irregular attendance.

v. Simplified Administrative Procedures: Intelligent attendance management systems simplify administrative procedures for educators and school personnel by automating attendance tracking and doing away with manual data entry. By doing this, important time and resources that could be used for teaching and other academic pursuits are freed up.

vi. Improved Precision and Effectiveness: attendance control By removing the errors that come with manual methods, smart attendance management systems increase the overall accuracy and efficiency of attendance tracking. This guarantees accurate and current attendance records, which promotes improved reporting and decision-making.

4. PROJECT OVERVIEW

Since the data in the proposed system is kept in the form of a database, there is no chance of data loss. A user-friendly graphical user interface is used to update the database with daily attendance, leave, and notice information. The head of departments will have less work as a result. Because it is an online application, information access is more flexible.

Fig 4.1: Modules

- Modules:

i. HOD
ii. Faculty
iii. Approval Process
iv. Report

- Modules Description

i. HOD Module:

The department head will be authorized to manage the data of all the faculty and students in their department. Details about the faculty and students are visible to the HOD. Reports can be shown by

month or day. Using this application, the HOD can approve leave and view the leave records of each faculty member and student. Details about a leave application that is approved or denied are mailed to the student and faculty.

ii. Faculty Module

Once the username and password are valid, the faculty will log in to the account in this module. Faculty can view all the information, including department, roll number, and name, as well as the total number of days of leave for each semester. Faculty cannot proceed with the leave application process if the number of days of leave taken is greater. The Hod account will automatically receive the details of the leave application form.

iii. Approval Process

This module is a crucial component of the project. This module's primary goal is to approve or deny the faculty or student's leave application. The Hod oversees this module, and the Hod alone has the authority to accept or reject it. The first step is to view all the faculty and student leave application details, as well as the details of each faculty and student leave reason. Hod will then review the details of the prior leave records and the cause of the leave. If fewer faculty or students apply for leave, Hod will approve the leave request via the faculty or student's mail address.

iv. Report Module

All faculty and student registrations and leave requests are kept up to date in this module. It keeps track of previous leave information so that records from the past and present are readily available. Reports that break down leave data by semester can be generated by users, offering insights into trends like peak leave periods, average leave taken by faculty or students, and comparisons between semesters. Features to filter reports by department, leave type, and individual faculty or student records will be included in the module. Customized reports that satisfy particular administrative requirements are made possible by this flexibility. The module may incorporate graphical representations (charts, graphs) of leave trends over time to improve comprehension and facilitate visual analysis and decision-making.

This flowchart clearly demonstrates the steps involved in approving leave requests, including how they are filed, verified, assessed, and finally approved or denied. The system effectively enforces leave policies, safeguarding the interests of employees and the integrity of the organization thanks to the clear decision-making points. Let's examine each component in more detail:

- Staff

When a staff member (student or faculty) requests a leave of absence, the procedure starts. In this step, employees indicate their need for time off, which initiates the leave application process

- Authentication

Before submitting a leave request, employees must go through authentication to confirm their identity. To make sure that only authorized users are able to submit requests, this usually entails entering their login information (password and username).

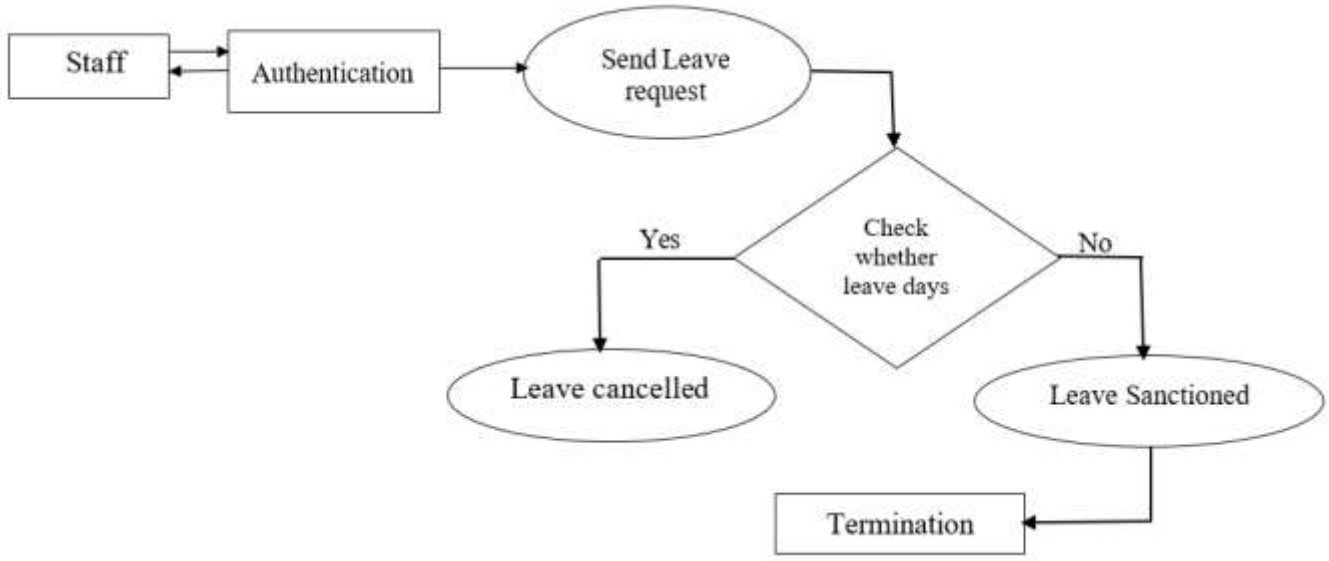

Fig 4.2: Activity Flow Diagram

- Submit Leave Requests

Employees can use the application to submit leave requests after authenticating. They will enter information like the kind of leave, the beginning and ending dates, and any supporting documentation or explanations that are required.

- Verify the Days of Leave

The system determines whether the leave days exceed the permitted limits after the leave request is submitted. In the process, this is a crucial decision point.

Yes Branch: The procedure proceeds to the Leave Cancelled action if the number of leave days exceeds the permitted limit. This shows that the leave request is invalid, and the employees are informed that their request cannot be fulfilled because they have used up all of their allotted leave days.

No Branch: The flow advances to the Leave Sanctioned step if the number of leave days does not surpass the permitted cap. In this case, the leave request is granted, and the system is updated to reflect the authorized leave in the relevant records.

- Termination

Termination is the flowchart's last step. This most likely marks the conclusion of the leave request procedure, at which point all procedures are finished and the employee is informed of the leave request's status (approved or canceled). Regardless of whether the leave was approved or denied, in this case, it means that the request process is complete.

FUTURE SCOPE

An Android application for leave management may have a lot of potential in the future, particularly as businesses continue to embrace digital transformation. Here are a few possible paths and improvements that our project could take into account:

1. Integration with Human Resources Systems:
   - APIs: Develop RESTful APIs to enable communication between your application and well-known HR systems, such as Workday, SAP, and Oracle. This can expedite the exchange of data, guaranteeing that HR has access to the most recent records and that leave balances are updated instantly.
   - User authentication: Use OAuth or SAML protocols to implement Single Sign-On (SSO) features that let users log in with their current business credentials. This improves security and streamlines the login procedure.
2. Machine Learning for Predictive Analysis:
   - Leave Trends: Forecast future requests by analysing past leave data to find trends (such as seasonal leave spikes). This might entail using time series data to train machine learning models.
   - Employee Well-Being: Examine data to identify workers who take excessive amounts of sick leave, possibly pointing out those who require assistance. This can assist HR in proactively addressing concerns about the welfare of employees.
3. Enhanced User Experience:
   - Integration of Chatbots: Create an AI-powered chatbot with Microsoft Bot Framework or Dialogflow. It can improve user engagement by answering questions about policies, procedures, and leave balances.
   - Custom Notifications: Set up push alerts for significant updates, like impending leave expiration dates, reminders about the remaining balance, or modifications to policies. The kinds of notifications that users want to receive can be customized.

4. Mobile Features:

- Offline Mode: To allow users to access and submit leave requests without an internet connection, use local storage solutions (such as SQLite). When connectivity is restored, the app can automatically sync data.
- Biometric Authentication: Enable fingerprint or facial recognition login by integrating Android's biometric APIs. This expedites the login process and improves security.

5. Reporting and Analytics:

- Managers' dashboard: Using libraries such as MPAndroidChart, create a real-time analytics dashboard that shows employee availability, department-specific statistics, and leave trends. This aids managers in making well-informed hiring decisions.
- Custom Reports: Give HR the ability to generate custom reports using filters like date ranges, employee roles, and leave types (such as leave usage by department and trend analysis over time).

CONCLUSION

In conclusion, the way educational institutions handle teacher leave requests has advanced significantly with the introduction of the Teacher Leave Management System (TLMS). TLMS saves time and resources by automating and modernizing the leave management process through its shift to a digital platform. A smooth and transparent leave management experience is ensured by essential features like online leave submission, real-time tracking, and automated notifications. Teachers benefit from an easy-to-use interface for leave requests and monitoring, while administrators gain from improved oversight and adherence to leave policies. The reporting feature of TLMS provides insightful information about leave trends, enabling resource allocation and decision-making that is well-informed. In the end, TLMS creates a more effective learning environment by increasing operational efficiency, decreasing errors, and optimizing teacher leave management.

The creation of an Android application for leave management for engineering college employees is a pertinent and timely endeavour that attends to the particular requirements of educational establishments. This application can be a vital tool for facilitating leave management, enhancing communication, and creating a positive work environment as universities work to improve their administrative procedures and improve faculty well-being. The application eases the administrative load on administrative staff and faculty by automating the leave request and approval process. This makes it possible to process leave requests more quickly, which lowers the backlog of paperwork and facilitates prompt decision-making. This is especially important in academic settings where staffing has a direct impact on the quality of education. By integrating data analytics capabilities, faculty leave trends can be better understood. The administration can make better plans and guarantee that there is enough

staffing for classes and other academic duties by having a better understanding of trends like peak leave times (such as around exam periods or holidays).

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