Online Leave Management System for Educational Institution

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Abstract—The study's main goal was to create an Online Leave Management System (Online LMS) for educational institution that would be more efficient and coordinated than the current manual application process. Leave is manually requested by writing a letter to the department head in the traditional fashion. The request is forwarded to senior officials for approval by the department head. This method takes time, is prone to error, necessitates additional documentation, and is difficult to maintain. As a result, an automated leave management system that is speedier, error-free, requires less paperwork, and is simple to manage is required. A web application has been built for enterprises to aid employees or users with a simple online leave application procedure in order to have an efficient and synchronized leave management system. The web application handles employee data, makes it simple to submit a leave request, track leave counts, grant leave, keep track of leave records, and administers leave records, as well as assisting the employee or user in finding a substitute or alternate faculty on the day of leave.

Keywords—LMS, HOD, Alternate employee/faculty.

I. INTRODUCTION

The traditional technique is used by most institutions to apply for and maintain leave status. The traditional method is time-consuming, difficult, and environmentally unfriendly, and employees must go through a lengthy application process. The employee must fill out and submit a formal leave request to the department's head (HOD). The application is subsequently forwarded to the higher authorities in charge, who either approve or reject the leave request. This method is slow, prone to errors, non-eco-friendly, and time-consuming, with a significant likelihood of applications being misplaced during the process, as well as additional paperwork and maintenance. As a result, an automated technique that is quick, safe, environmentally friendly, user-friendly, error-free, requires no paperwork, and is simple to implement is required. The LMS (Leave Management System) is a web application that allows an organization's or institution's employees to apply for leave online. Not only that, but it also assists the employee in keeping track of their leave count and status, as well as finding a replacement employee. An organization's or institutions administrative department is regarded as one of its most efficient assets.

Compensation, hiring, performance management, leave management, development, safety, wellness, benefits, employee motivation, communication, and training are all handled by the Human Resource department. The administrator of the Online LMS keeps track of employee leave, grants leave, adds users, and monitors user leave status. In many institutions, employees are entitled to various types of leaves, including Casual Leave (CL), Planned Leave (PL), Academic Advanced Leave (AAL), Matrimonial Leave (ML), and Maternity Leave (ML). These leaves are taken and recorded according to the policies of the institution.

The leave management system sends the request for leave to the appropriate supervisor for approval. If the superior denies the leave, an explanation for the denial must be written down. The employee who applied for the leave will receive an e-mail message indicating whether the leave has been approved or denied. The system will automatically subtract the applicant's leave from total leave and notify the employee and the employee of the leave status for each leave request made by an employee.

II. LITERATURE WORK

A. Android based leave management system[1]

The purpose of this study is to offer an educational institution an android-based leave management system. All students, instructors, administrators, and higher authorities have access to the system. The technology aids an organization in keeping track of teacher and student leave information. This system's disadvantage is that it only supports leave applications and is not web-based. Our system primarily concentrate on the employee and admin modules. The technology assists a user in finding a different faculty member and is fully responsive across all platforms. Our software enables the employee to keep track of both leave applications and leave records.

B. HR e-leave Tour Management System at RDCIS, SAIL[2]

This study intends to deliver quicker employee services and online access to varied employee data with an appropriate security system. The system of the HRMS could contribute to cost reduction, time savings, integration, and coordinating HR initiatives with those of the rest of the company. Employees and faculty will be empowered and involved additional input to keep and manage their work-life in check. Our system's goal is to provide accurate accounting of maintenance, activities and information. The second drawback is that the system's entire operation depends on a reliable mobile network. We created a single login for every employee and admin as our solution. Using the supplied email address and password, both the admin and the user can log in. Both the administrator and employee have the option to change their passwords upon login.

C. Employee Leave Management system [3]

The method described in this paper is primarily intended for managing employee leave. The employees can submit a leave request to higher-ups, check the status of their request, and view their remaining leave. This system's first flaw is that it doesn't offer the employee's leave history or any supporting documentation. The second flaw is that the employees aren't informed via mails when they request a leave of absence. Our application address these problems by maintaining the employee's leave history records and the accompanying documentation. Both the admin and the employee have access to the leave history. We sent an email notification to the employee and admin on the second issue. Employee and administrative staff are updated about leave request and approval status.

III. SYSTEM DEVELOPMENT

A. Development Method and Tools

The three-tier architecture is used to create the online Leave Management System. The conceptual and physical functionality are separated by a three-tier design. It aids with rapid development, scalability, security, and stability; each tier can be created in a variety of programming languages and has distinct functionality. A web server, application, and database server are all part of the three-tier design.

The presentation tier is the web server, which is primarily concerned with the Graphical User Interface (GUI). Depending on the situation, the content can be static or dynamic. Hypertext Mark-up Language (HTML), CSS, and JavaScript are used to create the user interface (JS). The application server, often known as the business logic tier, is the architecture's middle layer. This layer was created with the help of a programming language, the Hypertext Pre-processor (PHP), and the CodeIgniter framework. This layer talks with the database server, which stores the applicant's information, as well as the web server, which communicates with the client. Structured Query Language is used to design the database

server or data tier (SQL). It is made up of methods and classes that deal with data storage and transmission to the database. Figures 1 shows the architecture of the three-tier architecture
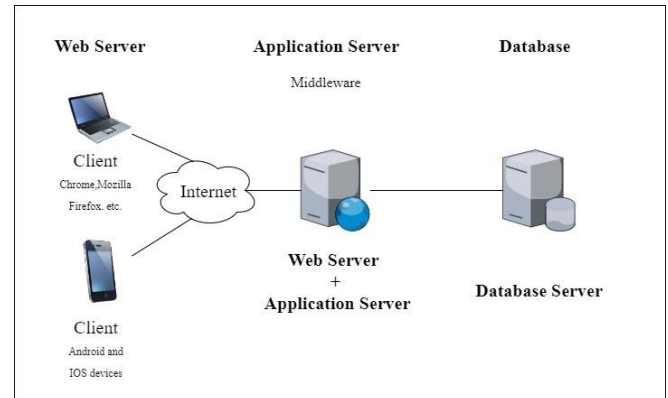

Fig. 1.   The Three-Tier Architecture

B. Functional Requirements

This section delves into the specifics of the application's procedures for the many activities it does. The admin and the employee are the only two users who have signed up. The following are the application's primary features: Employee records, leave applications, leave denial/rejection records, leave count records, leave credit adjustments, schedule records, finding a substitute faculty, and the personal settings module.

C. Non-Functional Requirements

Non-functional requirements are concerned with the system's operations rather than the application's functional needs. The system should support the available technology (for example, Windows and Linux) and assure the software system's stability, availability, performance, and scalability.

D. Admin Module

Using the credentials, the admin can log in to the admin module. The admin's functions include adding a new user/employee, deleting a user/employee, granting leave, and checking the leave count status. This module handles the process of adding, removing, and providing authorization to users. The admin module's functionality is depicted in Figure 2.
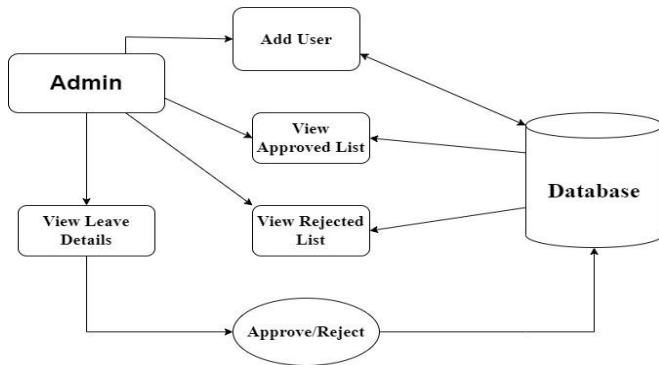
Fig. 2.   Admin Module

E. Employee Module

The employee can log in using the credentials in the employee module. Employees can apply for leave, check their leave status, and edit their profiles, among other things. The employee module's features are depicted in Figure 3.
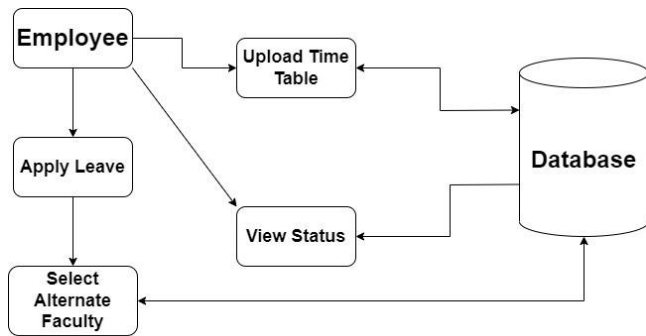

Fig. 3.   Employee Module

IV. RESULTS AND DISCUSSION

When an employee opens the application, the first graphical user interface that appears is the login page. Figures 4 and 5 demonstrate the login pages for employees and administrators, respectively. Employees and administrators can log in using their email and password, and after logging in successfully, they can alter their login details to suit their needs.
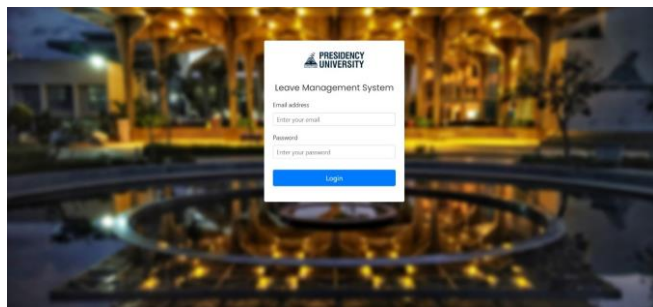
Fig. 4.   Employee Login Page
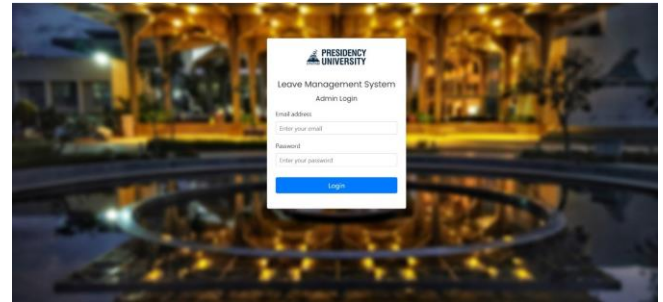
Fig. 5.   Admin Login Page

After logging in successfully, the employee will be directed to the employee dashboard, where they can apply for leave and choose alternative faculty. Figure 6 depicts the leave request.
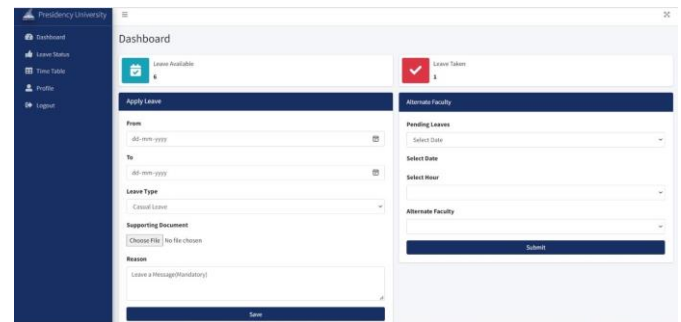
Fig. 6.   Employee Dashboard where the emplyees can apply for the leave by submitting the leave application form

Following the submission of an application for leave, an email will be sent to the alternate faculty asking them to agree or reject the request to be the alternate faculty. On the leave status in the application, the employee can check the alternate faculty approval status. Figure 7 and 8 depicts the operation of a mail notification, whereas Figure 9 depicts the status of a leave request.
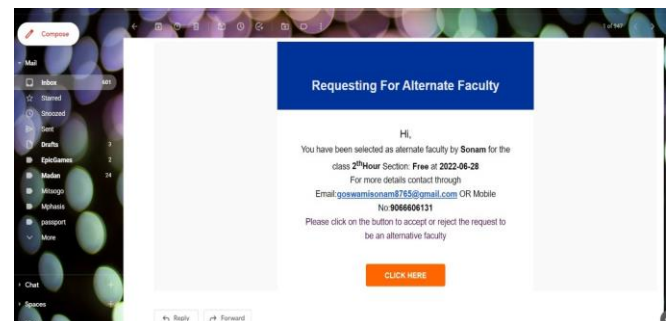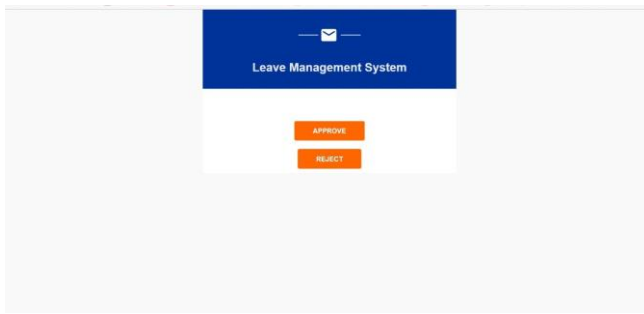

Fig. 7.   Mail Notification

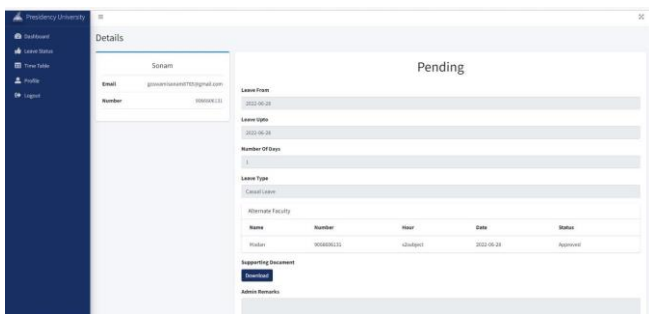Fig. 8. Mail Notification to accept the offer to be an alternative employee

Fig. 9. Leave Request Status Page

The admin will be brought to the admin dashboard following a successful login, where he can view the pending leave applications. The admin will be taken to the employee leave application form after selecting view details, where they will be able to review the leave request details as well as the alternate faculty designated on the day of leave. Figures 12 and 13 depict the admin dashboard and employee leave form, respectively.
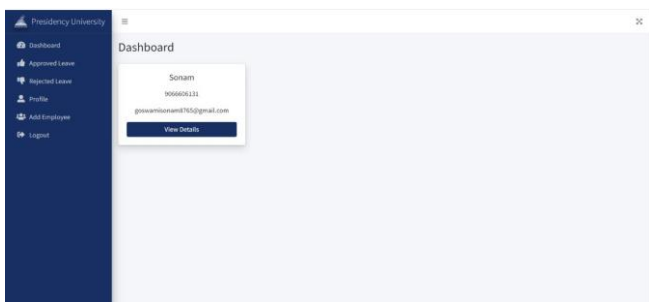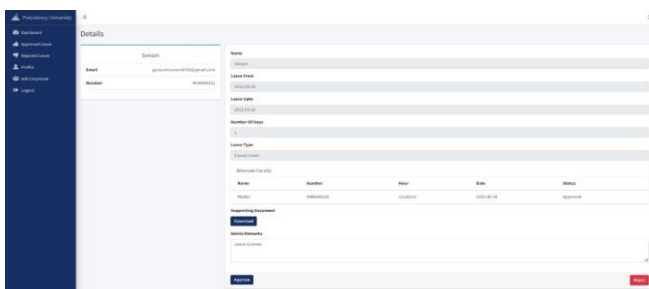

Fig. 12. Admin Dashboard

Fig. 13. Employee Leave Request Form

The admin can examine the authorized and refused leaves by going to the approved and rejected options in the application. Figures 14 and 15 depict the authorized and denied status pages, respectively.
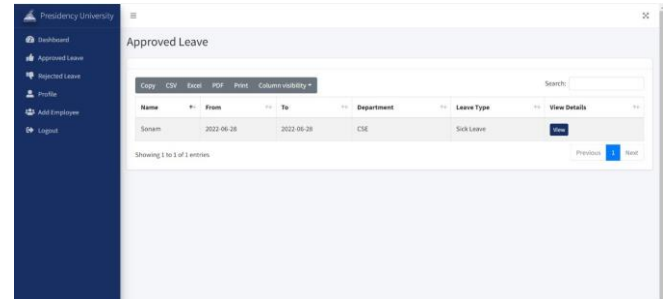

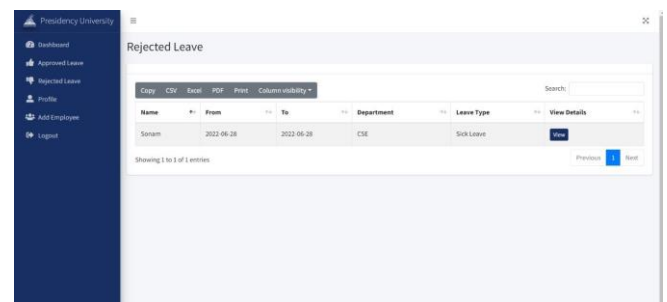Fig. 14. Admin Approved Leave Status Page

Fig. 15 Admin Rejected Leave Status Page

By going to add employees the admin can add a new employee to the application. Adding a new employee is as simple as entering the person's name, email address, and password. Figure 16 depicts the user registration page.
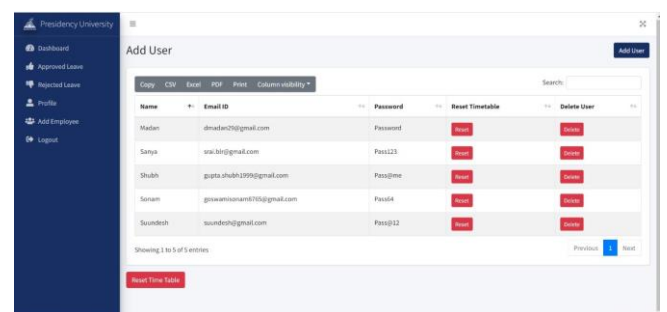

Fig. 16 User Registration Page

V. TESTING

The three-tier architecture is used to create the online Leave Management System.

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server, application, and database server are all part of the three-tier design.

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The following results were obtained from manual testing:

- Manual testing is a sort of software testing that involves manually running test cases rather than utilizing an automated tool.

- The tester runs all test cases manually from the perspective of the end user.

- It determines whether the application complies with the requirements laid out in the requirement document.

TABLE I
TESTING USABILITY

TEST CASES NUMBER	DESCRIPTION	RESULT
TC1	Employee Login	Passed
TC2	Admin Login	Passed
TC3	Add User	Passed
TC4	Leave Application & Alternate Faculty	Passed
TC5	Leave Status	Passed
TC6	Approved Leave	Passed
TC7	Rejected leave	Passed
TC8	Profile page	Passed

CONCLUSION

An educational institution's online employee leave management system has been implemented successfully. This system was created utilising a three-tier architecture software model and built using HTML, CSS, JS, MYSQL, PHP, and CODEIGNITER. The programme improves staff leave management, maintains accuracy and openness, and emphasises the importance of incorporating advanced technology into the employee leave management process. Employees in academic institutions can use the programme to request, track, and hire a replacement staff at their leisure in a timely way. The institution's and administrative department's superior officers can add and delete employees, grant or reject leaves, and keep track of employee leave history. In addition, researchers can take into account staff earnings, attendance, and emergency assistance.

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