

Web Design of Online Leave Management System using Java Full Stack

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Abstract: An online leave management system is a web-based software solution designed to simplify and automate the process of managing employee leave requests. This system is essential for modern businesses that want to efficiently manage employee leave and absences while ensuring compliance with labour laws and company policies. The system provides employees with a user-friendly interface through which they can submit leave requests online, view their leave balance and track the status of their requests. The system also allows managers to approve or deny leave requests, assign substitute employees and view attendance reports. HR Departments can benefit from this system by gaining access to leave-related data, tracking employee absences and generating reports. One of the main benefits of an online leave management system is the automation of the leave approval process. This feature eliminates the need for manual tracking, reduces the likelihood of errors, and ensures that leave requests are processed in a timely manner. In addition, the system can be configured to send automatic email notifications to employees and supervisors to remind them of pending requests, approved requests or changes to leave balances.

Keywords: Employees, Online Leave Management System, User-friendly

1 Introduction

According to [1] the development of a web-based leave management system that can efficiently track and manage employee leaves while processing requests for time off. The research approach used interviews, scenario generation, and analysis of existing processes to design a system using UML tools and web technologies such as HTML, CSS, and Python programming language. The evaluation of the system revealed a high satisfaction rate among users and increased accuracy and ease of use. The paper concluded that the proposed leave system enhances user satisfaction, increases productivity, and reduces processing time for leave applications.

[2] "Leave" typically refers to an authorized absence from work granted to an individual for a specific period of time, while "leave management" involves the systematic administration and coordination of employee leave-related activities, including maintaining accurate and up-to-date records, facilitating leave requests and approvals, and ensuring compliance with relevant policies and regulations.

Leave In today's era of the Internet, the process of leave management can be automated to improve the efficiency of work in educational institutions and other large organizations. The Online Leave Management System (OLMS) is a web-based application that can help faculty members optimize the time and effort required for the entire process of taking leave. This system automates the workflow of leave requests and approval via the website and cell phones. In order to use this system, faculty members must register with the portal. The registered faculty members can log in there to request leave by specifying the date from and to, the type of leave, and the reason.

After that, faculty members need to provide information about their adjusted lecture hours unless they are requesting an emergency leave. The leave request prepared in this manner is sent to the appropriate office HOD. The HOD must then accept or deny the faculty member's leave request, considering the information provided in the leave request. If the leave request is accepted, faculty members can track the status and cancel their leave request at any time during this process. In addition, faculty members can check their leave balance.

The objective of the current research is:

- To minimise the time it takes to complete a leave request by eliminating paperwork.
- To give a handy, easy-to-use environment.
- Leave record keeping to improve college efficiency.

2 System Analysis

2.1 Study of Existing System

The prevailing leave management approach at the college is manual. It is a long-lasting procedure that is not customised. Staff members have to manually execute an application for leave and submit it to their supervisor for approval under the existing system. The traditional expression is delivered to administration once it has been acknowledged by the supervisor. The administration department evaluates everyone's period of leaves, At the end of each month, it leads to an intensive task that might result in lost data or inaccuracies in records. This adds labour to the process and makes record processing increasingly complex and tedious as well. Forms cannot be kept in a laid out or efficient way

Limitations of the current system:

- It involves a lot of labour and takes more time.
- It necessitates a significant amount of documentation.
- There is no data security.
- Inadequate availability of needed authority.
- The creation of reports is difficult.

2.2 Proposed System

The web-based applications leave management system has been implemented, which is a forward-thinking online request and approval methodology that streamlines the process of seeking leave and monitoring its status throughout the institution. Easily accessible to all employees, this system streamlines the process of requesting and approving leave while minimizing the risk of data loss.

Our system provides a convenient, organized, and systematic environment for approval of leave requests by higher-level positions such as the department head (HOD) or chief executive officer (CEO). Through this user-friendly system, department directors may monitor the leave details of each member of their department, approve leave requests, and check each individual's leave statistics.

There will be no more needless paperwork or difficulties. Our system is centralised, with distinct user classifications such as Admin (Super User), Employee, and Head of Department. Administrators may establish users and departments, manage leave kinds, and keep track of all employee leave data. Employees may quickly request leave, check their leave status, and see how their leave requests are progressing. All managers of departments may examine leave requests made by their workers and take appropriate action, such as accepting or refusing requests. Our technology minimises labour and time, handles records more efficiently, and simplifies the leave administration process by offering an efficient, digital remedy.

Admin - The administrator is able to establish users and departments, as well as leave types and manage every staff member's leave data.

Employee - Employees can use the portal to ask for leave while monitoring the status of their applications for leave. **HOD** - All heads of departments can examine all requests for time off made by their department staff members and then take appropriate steps, such as acceptance or denial.

2.3 Overview of the system

The overview of the system is given in Fig. 1.

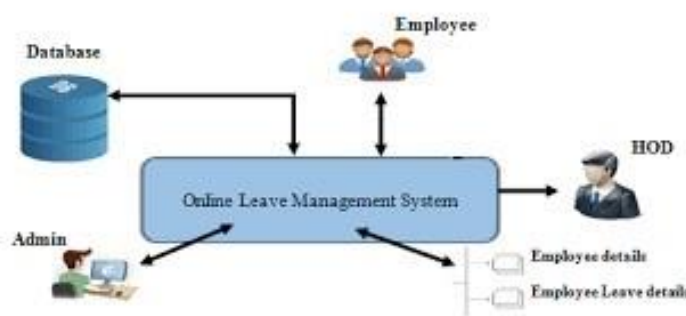


Fig. 1. Overview of the System

3. Analysis of Requirements

The computer programme specifications offer a description of the intended system's functions. It might be overt or covert, public or private, anticipated or unanticipated. A statement is often used to convey software requirements.

3.1 Functional Prerequisites

A system's specifications outline what the system must perform. The functional necessities are concerned with software functions and features such as computations, technical functions, manipulation of information, and computing.

3.1.1 Authentication

- **Login**- An individual can access the Leave Management System by entering his or her username and password.
- **Logout**- An individual can exit the Leave Management System by logging out.
- **Login failure**- An individual is unable to login if the username and password are not in the database's records.

3.1.2 Authorization

User role check- After checking the user position within the database, the interface for users will appear.

3.1.3 Leave Request/Approval

- **Leave application** - All users can fill out the permission to leave application in the appropriate areas.
- **Leave approval**- The chief executive officer and the head of department can approve leave applications for employees in their area of responsibility depending on the grounds cited and the span of absence from work.

3.1.4 Functions

Add new user - The system administrator can create an additional user in the database. The new user will be granted access to all of his or her own private data. The newly formed user will be assigned a unique ID.

Add a new user position - Administrator will delegate a new role to the newly created user, such as Employee, HOD, or CEO. Non-Functional Prerequisites Non-functional necessities will outline how an apparatus should work in a methodical and detailed manner. It is commonly assumed that the system's properties and qualities. A non-functional criterion is required to ensure the overall system's usability and effectiveness. If non-functional criteria are not met, the system's output may not meet user demands.

4. Design of a System

The design of systems is the process of establishing the architecture, components, modules, interfaces, and data for a system in order to meet certain criteria. It is a methodical and rigorous technique to designing a system that meets all real-world needs, such as adaptability, efficiency, and integrity.

4.1 Use Case Diagram

A diagram illustrating a use case depicts how a user interacts with a system. It also demonstrates the link between user interaction and various scenarios. A use case diagram includes several sorts of users and behaviours. Thus, a use case scenario is an illustrated account of how a user intends to use a system, basically encapsulating system activity from the user's perspective.

The following characteristics have been discovered in order to provide meaningful use cases for the system, and the diagram is depicted in Figs. 2 and 3.

- Employee (all employees)
- Head of Department (HOD)
- Admin (Main User)



Fig. 2. Use case diagram - Admin

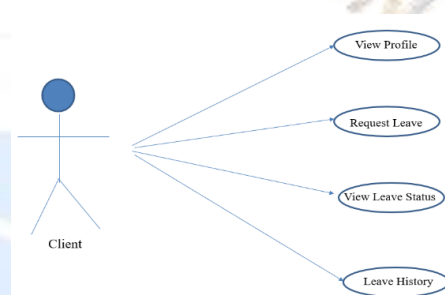


Fig. 3. Use case diagram - client

4.2 Design of a Database

A database, as the name suggests, is a structured collection of data that can be readily accessed, controlled, and modified. The programmer specifies what types of data should be saved and linked. The suggested system stored data in the MySQL database. This database contains tables, each of which relates to a different sort of data. A field is the name given to this information in the table. A field describes the type of data contained in the table. A table contains records as well. One or more fields are utilised in order to identify an entry in the table, which is referred to as the primary key.

5.Results

The Online Leave Management System project offers intuitive interfaces and well-defined processes. The main advantage of this system is that users can apply for leave and examine past leave applications using the system. This method achieves data integrity by properly storing information in the database.

User Login:

The login page is located on the home screen, and users may access the system by entering a valid username and password, as shown in Fig. 4.

Fig. 4. User Login

Create New User:

Figure 5 depicts the web page for creating new users; in this module, administrators may build user profiles by clicking the "Create New User" button. Administrator can also generate login username and password for the appropriate user.

Fig. 5. Create New User

Leave Request

Figure 8 depicts a form for requesting leave. Using this website, employees may fill out a form and seek leave from the appropriate authorities.

Request For A Leave for : Sick Leave

* Starting Date :	1	1	2023			
* No Of Leave Days :	<input type="text"/>					
* Resaon For Leave :	<input type="text"/>					

Date	Time	Semester	Division/Batch	Room No.	Subject	Staff Member Who Will Engage Class
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Fig. 8. Leave Request

Approval of leave request

HODs/CEOs can see the employee leave request and alter their decision, as illustrated in Fig. 9.

Leave Management System

Admin Home Admin Tools Logout

View Employees' Leaves

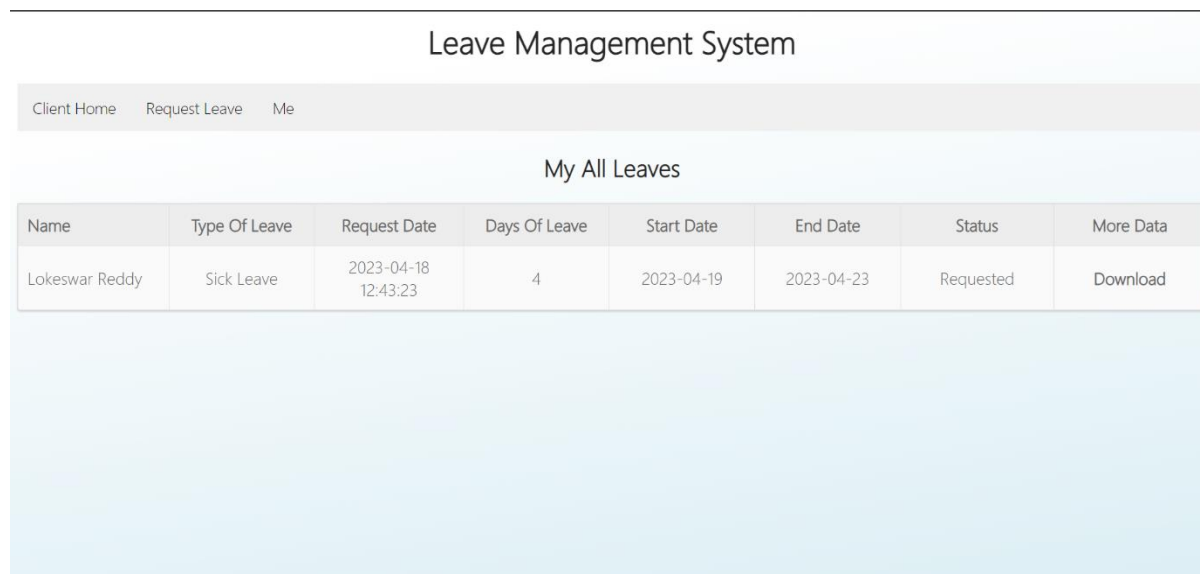
1 Leave(s)

Employee Name	Leave Type	Request Date	Leave Days	Starting Date	Ending Date	Action
Lokeswar Reddy	Sick Leave	2023-04-18 12:43:23	4	2023-04-19	2023-04-23	Accept Reject

Fig. 9. Approval of leave

My Leave History

Each user may examine information of the applied leave with date and approval stage in this section, as shown in Fig. 10.



The screenshot displays the 'Leave Management System' interface. At the top, there is a navigation bar with links for 'Client Home', 'Request Leave', and 'Me'. Below this, the user is logged in as 'Lokeswar Reddy'. The main section is titled 'My All Leaves' and contains a table with the following data:

Name	Type Of Leave	Request Date	Days Of Leave	Start Date	End Date	Status	More Data
Lokeswar Reddy	Sick Leave	2023-04-18 12:43:23	4	2023-04-19	2023-04-23	Requested	Download

Fig. 10. Leave History

6. Conclusion

An academic institution has successfully created an online leave management system to manage staff leave requests. The system was built using a two-tier software concept and implemented with web-based technologies such as CSS, HTML, MySQL, and Java full stack. This approach provides a considerable improvement in staff management by increasing accuracy and openness while also encouraging the incorporation of sophisticated technologies in faculty record and leave administration in schools.

The created system enables faculty members to seek and monitor leave at their leisure and in a timely way. The administrative department can develop leave regulations, guarantee transparency, organise ahead of time activities, and handle faculty leave requests based on availability. In general, the online leave management system is a dependable and effective option.

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