LeaveGo App

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ABSTRACT: The main objective of the proposed Leave Go App is to minimize paperwork and simplify record maintenance by providing a digital platform for managing leave requests. This system is designed specifically for hostel students, allowing seamless tracking and management of leave records within an organization. By digitizing the process, it reduces the formalities and time delays students often face while applying for leave and awaiting approvals. Built using Flutter technology, this cross-platform system ensures a consistent and responsive user experience across both Android and iOS devices. The system leverages Flutter's rich UI toolkit to provide an intuitive and user-friendly interface, making it accessible for all students of a university.A unique feature of this system is its ability to send real-time notifications to students and administrators about leave application status updates, ensuring transparent communication.Additionally, the system incorporates dynamic dashboards for hostel authorities to view, filter, and manage leave requests efficiently. This web-based and mobile-enabled Leave Management System not only streamlines the leave application process but also enhances data security and scalability, catering to the evolving needs of educational institutions.

I. INTRODUCTION

1.1. General Introduction

In today's digital era, the traditional methods of handling administrative tasks, including leave management, have become outdated and cumbersome. Paper-based processes often lead to inefficiencies, delays, and the risk of data loss. Recognizing these challenges, the Leave GoApp has been designed as a comprehensive solution to modernize and streamline the leave application process for hostel students. Managing leave requests for hostel students can be a tedious and inefficient process when handled manually. The LeaveGo App is designed as a digital solution to simplify and streamline the leave application and approval process, ensuring transparency, efficiency, and security for both students and hostel authorities. The Leave Go App enables students to submit leave requests digitally through a secure login system using their unique credentials. Upon submission, the request is automatically forwarded to the warden for review. Wardens have the authority to approve or reject leave requests based on the validity of the reason provided. Once the warden approves a request, it is further sent to the respective class coordinator (CC) or Head of Department (HOD) for final approval. The app provides real-time notifications to students regarding the status of their leave requests, keeping them informed about every stage of the process. If approved, a digitized leave approval form is generated, containing essential details such as the student's name, register number, department, room number, leave duration, reason for leave, and approval status. Students can use this form as verification when exiting the campus.

Built using Flutter technology, the Leave Go App ensures a consistent and user-friendly experience across Android and iOS platforms. By digitizing the leave management process and integrating multiple levels of authority, including wardens, CCs, and HODs, the app not only reduces administrative burdens but also enhances record-keeping and ensures streamlined communication among stakeholders.

1.2. Project Objectives

- To minimize paperwork and delays in the leave application process
- To provide real-time status updates
- To improve record management and accessibility
- To easily submit, track the leave request
- To ensure the app is accessible on both mobile and desktop platforms

1.3. Problem Statement

The manual Leave Management System in hostels presents significant challenges, including inefficiency, data loss, and delays. Students face hardships during emergencies or regular leave requests due to tedious formalities and the risk of misplaced leave records. The system's reliance on paper increases environmental concerns, while the lack of secure login methods exposes it to security threats. Additionally, manual processes lead to slow response times, high workloads for wardens, and difficulty in adapting for new staff. These shortcomings emphasize the need for a digital solution to ensure accuracy, security, and efficiency in leave management.

2. SYSTEM PROPOSAL

2.1. Existing System

The current Leave Management System is manual and inefficient, requiring students to maintain physical leave cards prone to loss and fines. It suffers from slow processing, data inaccuracies, security risks, and high paper usage, leading to environmental concerns. Wardens face heavy workloads, and communication is delayed, making the system outdated, error- prone, and unsustainable.

2.1.1. Disadvantages

- Prone to data loss
- Slow processing
- High workload for wardens
- Outdated communication

2.2. Proposed System

The Leave Go App is a digital solution designed to overcome the limitations of the existing manual system. It automates the leave application and approval process, improving accuracy and speed while eliminating paper usage. The app features secure logins, real-time notifications, and dynamic dashboards for efficient management by wardens. By digitizing the entire process, it reduces manual errors, enhances security, and streamlines communication, providing a faster, more reliable, and environmentally friendly leave management system.

2.2.1. Advantages

Efficient Leave ManagementReal-Time Notifications Scalable and User-Friendly Enhanced Security

II. LITERATURE SURVEY

Title: Employee leave management system
College: Ibrahim Badamasi Babangida University, Lapai, Niger state, Nigeria
Year: 2020
Author: Adamu A

Methodology

Finally, Employee leave management system automatically reflect the request to the relevant superior officer for approval. If the superior officers reject the leave, a reason for rejecting the leave must be entered into the system and the employee who requested the leave will be notified and if the leave request requires a higher superior officer for approval before notifying the employee, the respective officer will be notified. The system will also notify other members of staff that are required to know. This will enable administrative department to administer leave or note to the next applicant, to track and manage the employee leave. For every leave requested by an employee, the system will automatically deduct the applicant leave from total leave and notify all parties involve the total leave taken, the remaining balance and when next the leave will be taken according to policy of an institution.

Advantage

- Simplifies leave processes, improving overall employee experience. Reduces delays in approvals or confusion about policies. Helps organizations stay compliant with labor laws and regulations regarding leave entitlements.

Disadvantage

- May require significant investment in terms of time and money for implementation.
- Training for employees and managers might be need

Title: THE HR e-Leave Tour Management System at RDCIS, SAIL
Year: 2015
Author: N.K. Sinha

Methodology

Every organization is information driven and it's the employee who drives and carries out day to day activities. The P&A department train the people, organizes them, so that employees can effectively perform these activities. This requires viewing people as human assets, not costs to the organization. Looking at people as assets is part of human resource management and human capital management. For managing and automating the HR Process to maximize the productivity of the organization, the organization has to implement HRMS, a Human Resource Management System. HRMS system will help in reducing costs, saving time, integrating and aligning HR efforts with the rest of the organization. Employees will be empowered and engage with more input and control over their work life. Through HRMS one can quickly build the workflows and processes. The powerful flexibility features keep employees current and compliant, even as rules and regulations change. For competent management of business process, computerization is must in today's scenario.

Advantage

- Speeds up the approval process for leave and tour requests. Reduces paperwork and manual errors. Available online, making it easy for employees to apply for leaves or tours anytime and from anywhere.

Disadvantage

- High investment in software development, deployment, and training. Regular updates and IT support are necessary, adding to ongoing costs.

Title: Develop Leave Application using Blockchain Smart Contract.
Year: 2019
Author: Sumit kalra

Methodology

In today's time, we use Leave Application System managed by some central authority. This can lead to corruption, misuse by a single authority or unnecessary time for approval. So, in this paper, we have developed smart contract architecture for Leave Management System using Solidity and Ethereum, which is a decentralized app architecture leveraged from Blockchain Technology. We also include smartphones as IoT devices by which any client can use this app. Due to the resource-constrained nature of these devices, the smart contract app is coupled with an alternative centralized architecture which is a classic client/server architecture with an underlying Blockchain backend.

Advantage

- Blockchain uses cryptographic techniques to secure data, making it difficult forunauthorized access or manipulation. The system does not rely on a central authority, reducing the risk of a single point of failure.

Disadvantage

- Developing and deploying blockchain-based smart contracts require specialized skills, which may not be readily available. Public blockchains, in particular, may struggle with handling large volumes of transactions quickly, causing delays in processing leave applications

Title: Student leave management system
Year: 2023
Author: Ajinkya S. Pawar

Methodology

The Student Leave Management System is a web based application designed to streamline and automate the leave application and approval process for students within educational institutions. The Student Leave Management System is introduced to revolutionize leave application and approval procedures within our educational institution. This system is designed to automate and streamline the entire workflow of student leave requests, providing a welcome relief from the paperwork-intensive legacy systems. The Student Leave Management System serves as a catalyst for the institution, drastically reducing the volume of manual recordkeeping and data entry while mitigating the risk of data loss.

Advantage

- Students and staff can access leave records and approval statuses easily, ensuring a transparent process. Facilitates clear communication between students, teachers, and administrators regarding leave status and policies.

Disadvantage

- Students, teachers, and staff may need time to adapt to the new system, especially if they are not tech-savvy. Any technical failures or server downtimes can disrupt the leave management process.

Title: Leave Management System for AIKTC.

Year: 2020
Author: Nameera Choudhary

Methodology

The leave management system has been developed to override the issues prevailing within the active manual system. This software is supported to eliminate and in some cases, cut back the hardships faced by these existing systems. What is more, this technique is intended for the actual want of the corporation to hold out operations in a very swish and effective manner. The application is to reduce the maximum amount as attainable to avoid errors, whereas coming into the info. It additionally provides an error message, whereas, coming into invalid knowledge. No formal information is required for the user to use this method. Therefore, bythis all, it proves it's easy. The leave management system, as represented above, will result in error-free, secure, reliable, and quick management systems. It will assist the user to concentrate on their different activities rather consider the record keeping. Every organization, big or small, has challenges to overcome and manage the information of faculty, leave, report, notification, branch.

Advantage

- It is highly efficient because an appropriate sample size can be determined without the need of executing association rules.

Disadvantage

- The used algorithms have too many parameters for somebody non-expert in data mining and the obtained rules are far too many, most of them non- interesting and with low comprehensibility

Title: An activity management system for office workers
Year: 2022
Author: Qiqi He

Methodology

Activity management is significant for office workers who sit 77% of working hours. Recent studies on the Internet of Things spur the advent of applications for daily activity management. However, there is no activity management system collecting data unobtrusively and continuously, which provides activity recognition and assessment for office workers. Hence, this study develops a multimodal activity management system based on an infrared array sensor placed on the desk, a sensing chair, and a mobile phone. This system contains data collection, activity recognition, and activity assessment. A deep learning algorithm based onthe feature-level fusion strategy is leveraged to fuse the multimodal activity data and achieve recognition. The activity assessment considers energy expenditure and sedentary bout to reflect office workers' activity characteristics. Finally, an experiment is conducted to verify the feasibility of the proposed system.

Advantage

- Facilitates communication and task sharing among team members. Provides real-time updates on task progress. Keeps tasks, deadlines, and schedules centralized. Reduces the risk of missed deadlines or overlooked responsibilities.

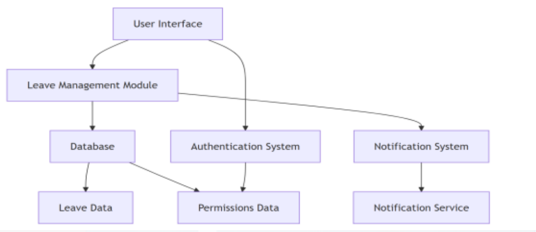
Disadvantage

- Employees may need time and training to adapt to the system. Resistance to change from traditional methods. Sensitive data stored in the system could be at risk of breaches.Employees may feel micromanaged if tracking features are too intrusive.

III. SYSTEM DESIGN

3. SYSTEM DIAGRAMS

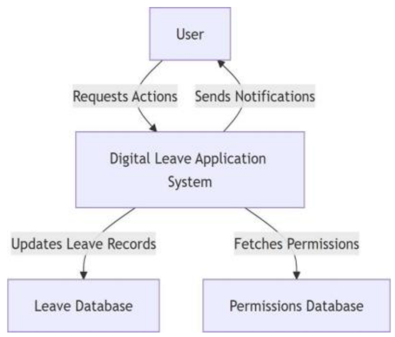
3.1. ARCHITECTURE DIAGRAM



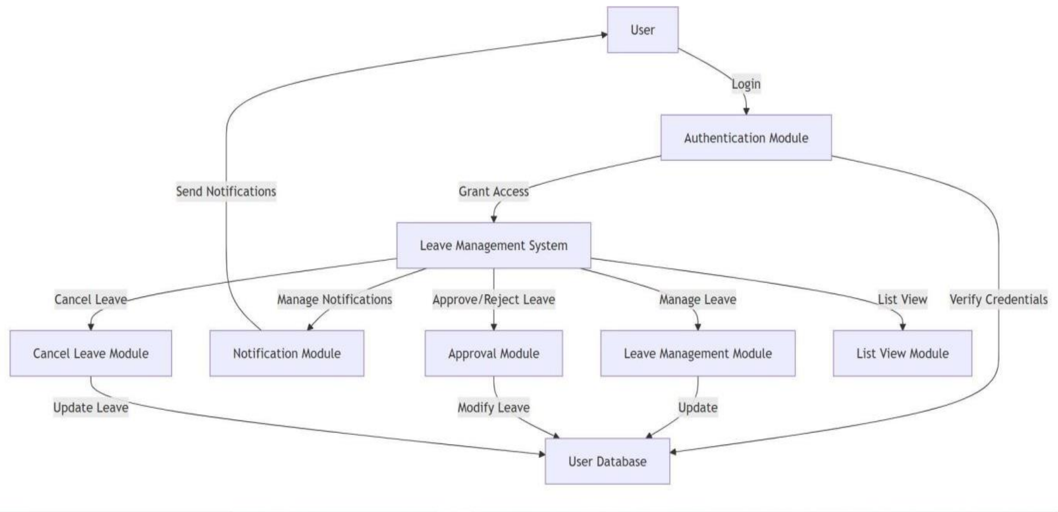
3.2 Data Flow diagram

The Data Flow Diagram (DFD) for the Digital Leave Application System represents the flow of data through the system across three levels of abstraction. At Level-0, the system is shownas a single process interacting with external entities like the User and Databases. The User interacts with the system by submitting requests such as login, leave management, or notifications. The system validates permissions by fetching data from the Permissions Database, updates leave-related records in the Leave Database, and sends notifications back to the User.

3.2.1 Level 0 DFD

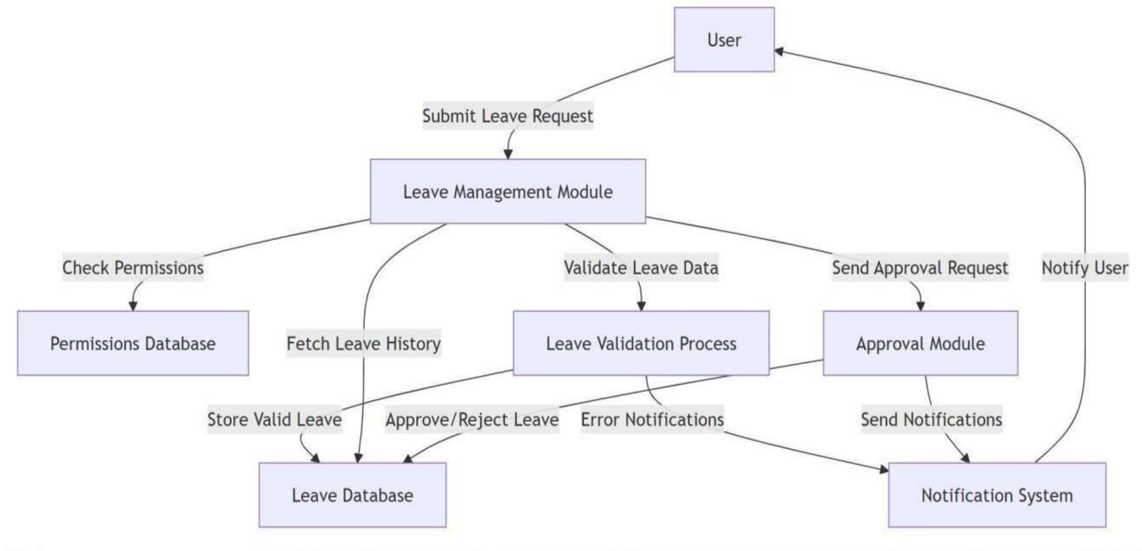


3.2.2 1- Level DFD:



At Level-1, the system is broken into key modules that handle specific processes. These include the Authentication Module, which verifies user credentials, and the Leave Management System, which consists of submodules such as Leave Management, Notification, Approval, Cancel Leave, and List View Modules. Each module performs distinct functions, such as managing leave requests, notifying users, approving or cancelling leave, and providing a list view of leave history. Data is fetched and updated in the respective databases, ensuring smooth operation and user interaction.

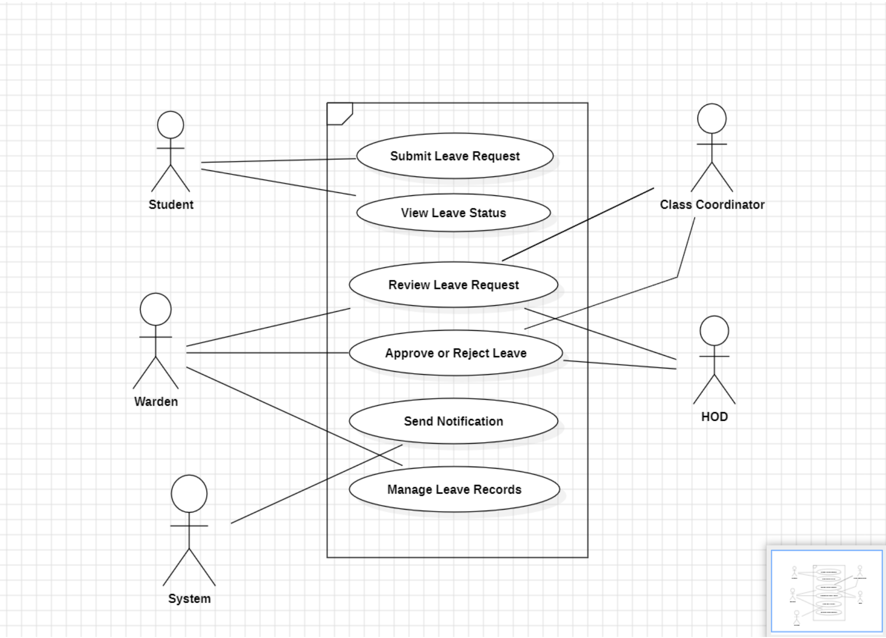
3.2.3 2-level DFD:



At Level-2, the focus shifts to a detailed breakdown of the Manage Leave process. This involves validating the leave request by checking user permissions from the Permissions Database and ensuring the correctness of leave details through a Validation Process. Approved requests are stored in the Leave Database, while errors trigger notifications to the User. Additionally, leave requests are forwarded to the Approval Module for decision-making, with real-time updates sent via the Notification System. This hierarchical approach provides acomprehensive view of the system, starting from a high-level overview and narrowing down to specific processes, ensuring clarity and efficient design.

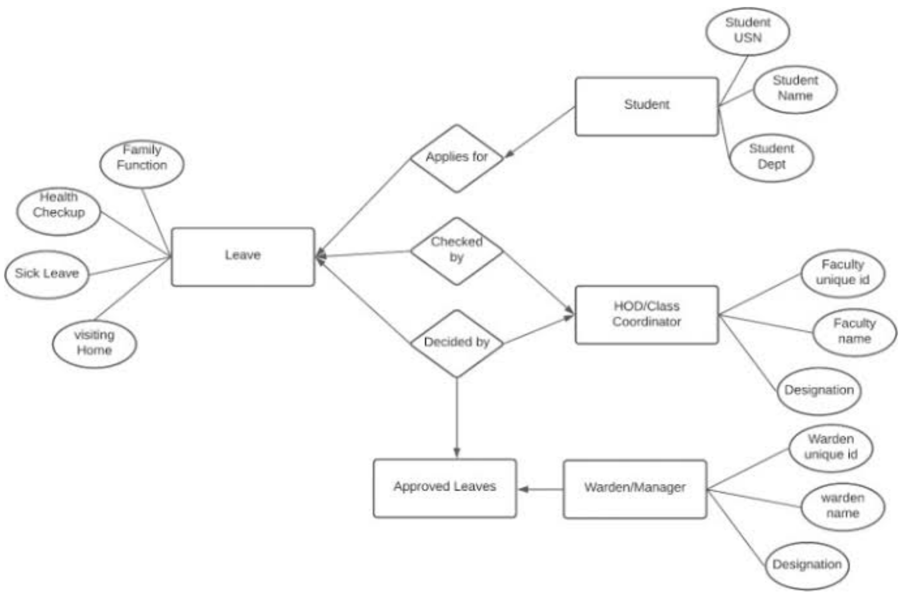
UML Diagram

3.2.4 USECASE DIAGRAM



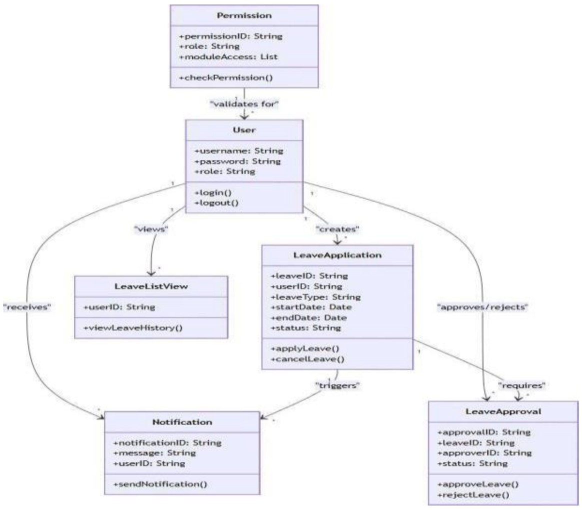
A use case diagram is used to represent the dynamic behavior of a system. It encapsulates the system's functionality by incorporating use cases, actors.
The main purpose of a use case diagram is to portray the dynamic aspect of a system. It accumulates the system's requirement, which includes both internal as well as external influences. It invokes persons, use cases, and several things that invoke the actors and elements accountable for the implementation of use case diagrams. It represents how an entity from the external environment can interact with a part of the system.

3.2.5 ER DIARAM



ER Diagram stands for Entity Relationship Diagram, also known as ERD is a diagram that displays the relationship of entity sets stored in a database. In other words, ER diagrams help to explain the logical structure of databases. ER diagrams are created based on three basic concepts: entities, attributes and relationships.

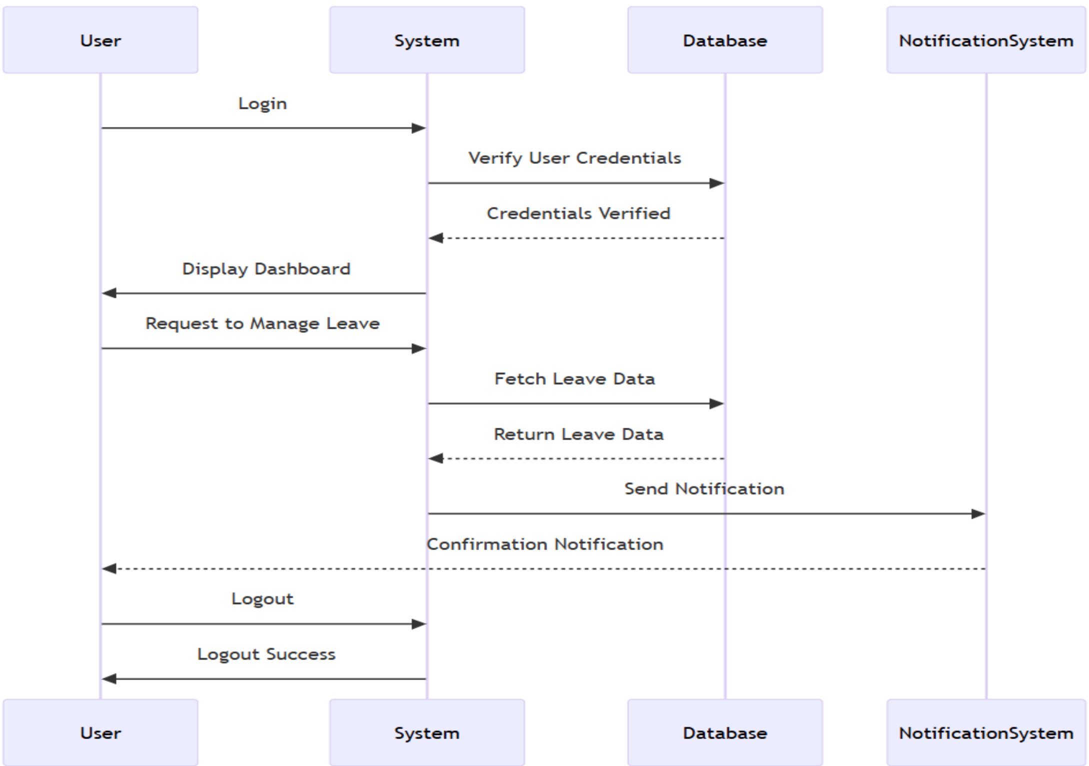
3.2.6 CLASS DIAGRAM



Class diagram is a static diagram. It represents the static view of an application. Class diagram is not only used for visualizing, describing, and documenting different aspects of a system but also for constructing executable code of the software application.

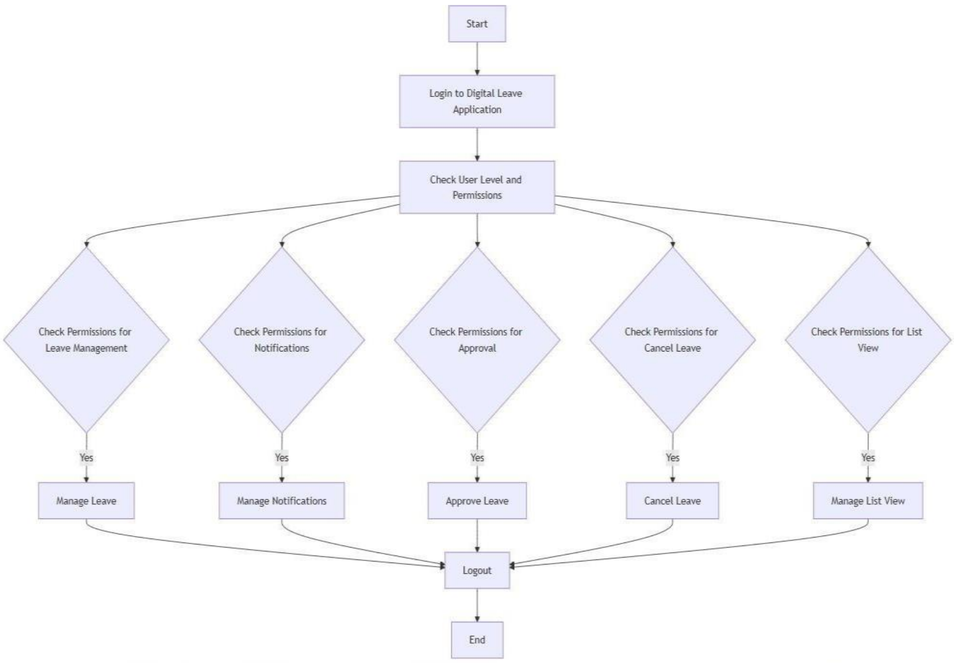
Class diagram describes the attributes and operations of a class and also the constraints imposed on the system. The class diagrams are widely used in the modeling of object oriented systems because they are the only UML diagrams, which can be mapped directly with object- oriented language.

3.2.7 SEQUENCE DIAGRAM



A sequence diagram is a Unified Modeling Language (UML) diagram that illustrates the sequence of messages between objects in an interaction. A sequence diagram consists of agroup of objects that are represented by lifelines, and the messages that they exchange overtime during the interaction.

3.2.8 ACTIVITY DIAGRAM



An activity diagram visually presents a series of actions or flow of control in a system similar to a flowchart or a data flow diagram. Activity diagrams are often used in business process modeling. They can also describe the steps in a use case diagram.

IV. CONCLUSION

The LeaveGo App revolutionizes leave management for hostel students by digitizing the application and approval process. It overcomes inefficiencies of the manual system, offering real-time notifications, enhanced accuracy, and improved security. With dynamic dashboards and automated workflows, the app reduces workload for wardens and ensures seamlesscommunication. By eliminating paper usage and providing a scalable solution, Leave Go App establishes itself as a sustainable, efficient, and user-friendly system for modern educational institutions.

V. REFERENCE

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