SOFTWARE REQUIREMENTS SPECIFICATION

For

Employee Leave Management System

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1. Introduction

1.1 Purpose

The main objective of this document is to illustrate the requirements of the project Employee leave management system. The document gives the detailed description of the both functional and non-functional requirements proposed by the client.The main purpose of this project is to efficiently manage and track employee absences, streamline leave requests, ensure policy compliance and maintain transparent communication between the employees and management regarding time-off allocation ,approvals and a mess of paper forms can be avoided. This project describes the hardware and software interface requirements using ER diagrams and UML diagrams.

1.2 Document Conventions

- Entire document should be justified.
- Convention for Main title
  - Font face: Time New Roman
  - Font style: Bold
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- Convention for Sub title
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- Convention for body
  - Font face: Time New Roman
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1.3 Scope of Development Project

The Employee Leave Management System is a crucial component that automates and streamlines the process of managing employee leaves within an organization. Its scope encompasses various aspects of leave management, and its benefits extend to both employees and employers. The Employee Leave Management System will cover the entire leave management process, including leave request submission, approval workflows, leave balance tracking, reporting, and compliance with organizational policies.

Implementing an effective Employee Leave Management System can significantly enhance organizational efficiency, improve employee satisfaction, and ensure accurate record-keeping. With a leave management system, the organization can centralize leave tracking, simplify leave approvals, process payroll accurately, and maintain a complete record of employee leave data. Employees prefer flexible work practices, and a comprehensive leave management system empowers them to apply for leave seamlessly.

1.4 Definitions, Acronyms and Abbreviations

JAVA -> platform independence
SQL-> Structured query Language
ER-> Entity Relationship
UML -> Unified Modeling Language
IDE-> Integrated Development Environment
SRS-> Software Requirement Specification

1.5 References

- Books

- Employee management Systems: Edition by Kancho Dimitrov Kanchev (Author)
- Employee Leave Management System-by Mahbub Alam.
- Employee Leave Management System-Mishal Raj, Prity Satbhaya.

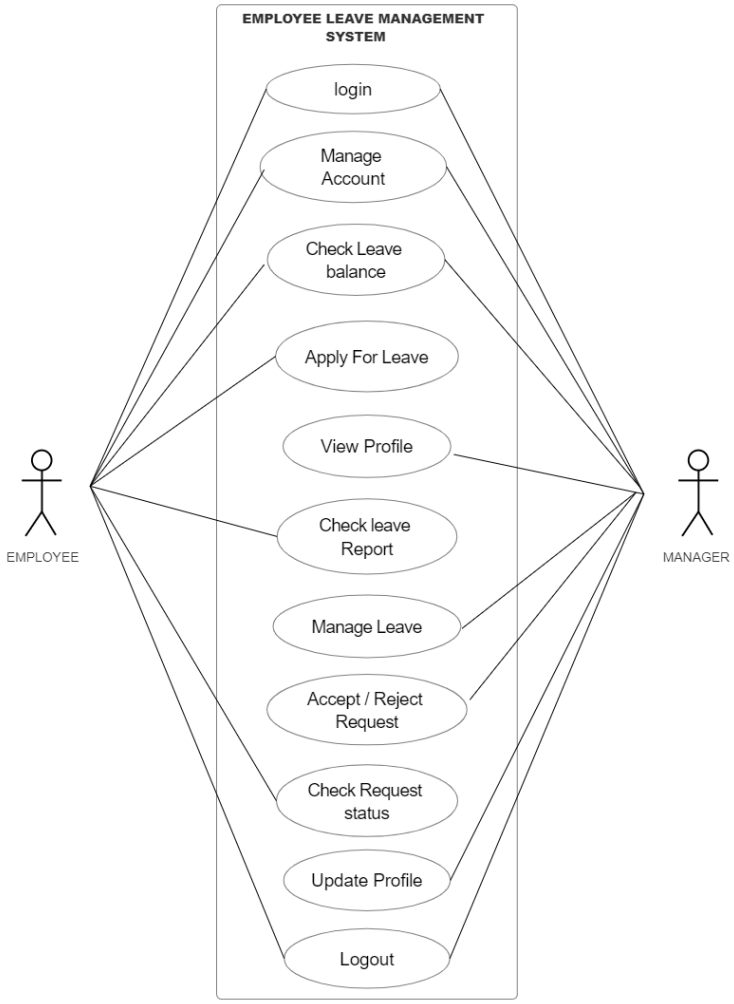
- Websites

1. https://www.spica.com/leave-management-system
2. https://www.researchgate.net/publication/342815048_EMPLOYEE_LEAVE_MANAGEMENT_SYSTEM

2.Overall Descriptions

2.1: Product Perspective

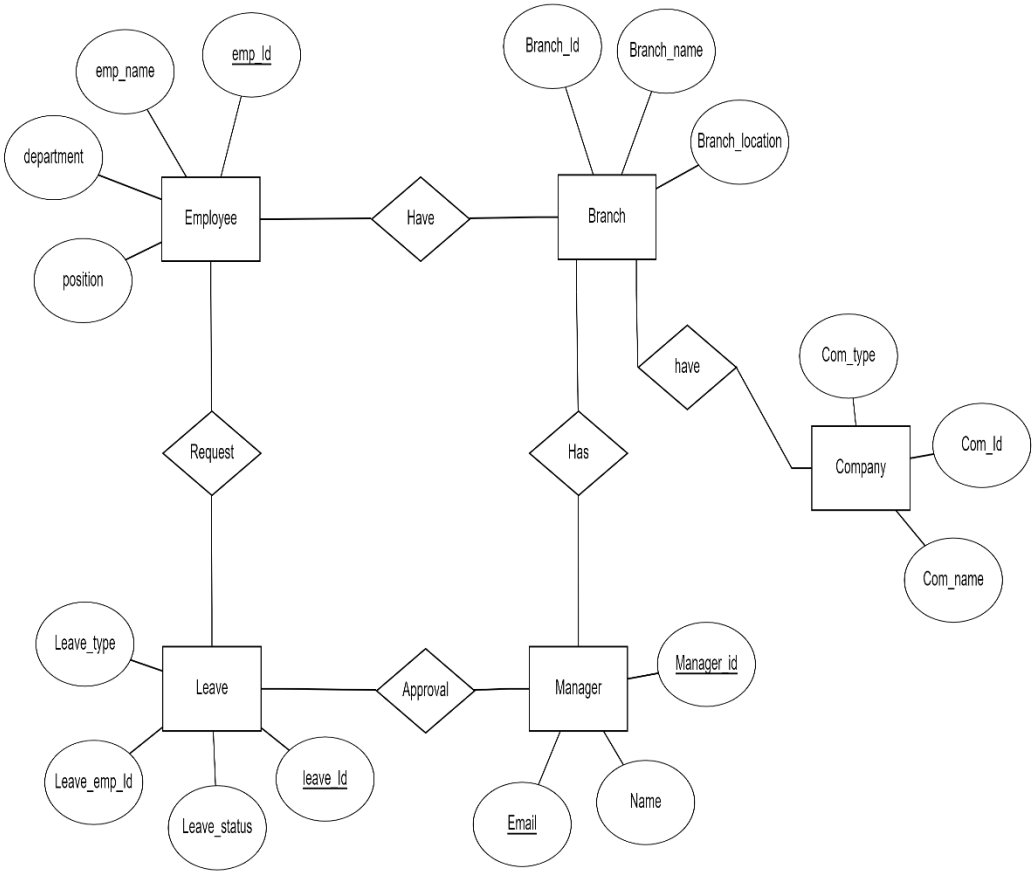
Use Case Diagram of Employee Leave Management System:



This is a broad level diagram of the project showing a basic overview. The main actors of this project are Employee and Manager. Admin can also login and logout from the system, can update profile and can change account password. The main functionalities are: simple leave requests and approvals or rejects, automatic balance calculations, updating the profile, creation of absence reports for payroll processing, tracking time and other needed are mentioned in the above use case diagram.

2.2 Product Function

Entity Relationship Diagram of Employee Leave Management System :



The Airline Reservation System provides online real time information about the seats available in the Airlines and the user information. The main purpose of this project is to reduce the manual work. This software is capable of managing seats booking, cancelling, managing offers based on the passenger requirement. The Airplane staffs will act as the administrator to control members and manage seat booking. The member's status of seat booking/cancelling is maintained in the airline database. The member's details can be fetched by the Airplane staff from the database as and when required. The valid members are also allowed to view their account information.

2.3: User Classes and Characteristics

The system provides different types of functionalities based on the type of users [Manager/Employee/Admin]. The Admin will be acting as the controller and he will have all the privileges of an administrator.

The features that are available to the Managers are: -

- Managers have the ability to review and approve or deny leave requests submitted by their team members.
- To assign a proxy or delegate authority for leave approvals during their absence.
- Providing a quick overview of the entire team's leave status, enabling managers to plan resources efficiently.
- Add User and their information to the database
- Edit the information of existing Seats
- Access to historical leave data to track leave patterns and make informed decisions about team workload and scheduling.

The features that are available to the Employee are: -

- Employees can submit leave requests through the system.
- Selection of different leave types such as vacation, sick leave, personal leave, etc.Can own an account in the Airline.
- View current leave balances, including accrued and available leaves
- Receive email or system notifications about the status of leave requests.
- Access a user-friendly portal to manage leave requests without HR intervention.

2.4 Operating Environment

The product will be operating in windows environment. Employee Leave Management System is a website and shall operate in all famous browsers, for a model we are taking Microsoft Internet Explorer, Google Chrome, and Mozilla Firefox. Also, it will be compatible with the IE 6.0. Most of the features will be compatible with the Mozilla Firefox & Opera 7.0 or higher version. The only requirement to use this online product would be the internet connection.The hardware configuration includes Hard Disk: 40 GB, Monitor: 15" Color monitor, Keyboard: 122 keys. The basic input devices required are keyboard, mouse and output devices are monitor, printer etc

2.5 Assumptions and Dependencies

The assumptions are: -

- The coding should be error free.
- The system should be user-friendly so that it is easy to access.
- The information of all employees, managers and the company must be stored in a database that is accessible by the website.
- The system should have more storage capacity and provide fast access to the database.
- The system should provide support and quick response.
- Users may access this application from any computer that has Internet browsing capabilities and an Internet connection.
- Users must have their correct usernames and passwords to enter into their online account and do actions or for creating a new account

The dependencies are: -

- The specific hardware and software due to which the product will be run quickly.
- On the basis of listing requirements and specification the project will be developed and run.
- The end users (Employees, Managers and Admin) should have proper understanding of the product
- The system should have the general report stored.
- The information of all the employees and managers must be stored in a database that is accessible by admin.
- Any update regarding the leave is to be recorded to the database and the data entered should be correct.

2.6 Requirement

Software Configuration:-
This software package is developed using java as front end which is supported by sun microsystem. My SQL Server as the back end to store the database.

Operating System: Windows 11, macOS, Linux.
Integrated Development Environment(IDE):IntelliJ IDEA,
NetBeans or Eclipse for JavaFX development.

JavaFX Library: JavaFX SDK for building the graphical user interface.

Database: My SQL Server (back end)

Hardware Configuration:-
Processor: Intel Core i5
Hard Disk: 20GB
RAM: 1GB or more

2.7 Data Requirement

In the Leave Management System, the input comes from the employee which consist of leave request, type of leave, start and end dates and reasons for leave. The approval action is done by either the Manager or the HR. The output shows whether the leave request has been approved or denied by the relevant authority. The employees can query the system to retrieve details about their leave balances The data requirements ensures accurate tracking, effectively managing employee absences, and ensuring adherence to company leave policies and regulatory standards.

3.External Interface Requirement

3.1 GUI

The software provides good graphical interface for the employee and the manager can operate on the system, performing the required task such as sending request, accepting or denying the request.

It enables employee to access swift reports detailing leave taken or approved within specific time intervals

- Employees can access rapid reports displaying leave issued or returned within specific time frames.
- Facility for leave stock verification and diverse criteria-based search options.
- Administrators can personalize the interface to suit organizational preferences.
- All software modules seamlessly integrate into the graphical user interface, adhering to predefined standard
- The interface interacts with the user management module, with a dedicated section for login or logout functionalities.

Login Interface:-

Employee registration involves entering details followed by subsequent logins using a designated employee name and password. Incorrect entries during login prompt error messages to ensure accurate authentication within the Employee Leave Management System.

Search:-

The employees can swiftly search for available leave options based on particular criteria such as leave type or duration, streamlining the process of finding suitable leave options within the system

Categories View:-

The category involves displaying various types of leave and allowing admin to add, modify, or delete these categories as needed. This functionality ensures efficient classification and management of different types of leave within the system, catering to the diverse leave policies and requirements of the organization.

Administrative' s Control Panel:-

The control panel serves as an administrative interface allowing designated personnel, like HR, to oversee and manage various aspects of leave-related operations. It essentially acts as the centralized hub for efficient and effective management of the leave system within the organization.

4.System Features

The users of the system should be provided the surety that their account is secure. This is possible by providing:-

- Authentication and validation of employees using their unique member ID
- Proper monitoring by the admin which includes updating leave status, showing a popup if leave request is approved or denied.
- Proper accountability which includes not allowing a employee to see other employees account. Only admin and manager will see and manage all employee accounts.

5.Other Non-functional Requirements

5.1Performance Requirement

The proposed system that we are going to develop will be used as the Chief performance system within the different airlines which interacts with the airline staffs and passenger. Therefore, it is expected that the database would perform functionally all the requirements that are specified by the airline.

- The performance of the system should be fast and accurate
- Airline Reservation System shall handle expected and non-expected errors in ways that prevent loss in information and long downtime period. Thus it should have inbuilt error testing to identify invalid username/password
- Fast data updates and retrieval from the database will enable effective administration of flight schedules, seat availability, customer information, and transactional data.
- The system should be able to handle large amount of data. Thus it should accommodate high number of data and users without any fault

5.2 Safety Requirement

The database may get crashed at any certain time due to virus or operating system failure. Therefore, it is required to take the database backup so that the database is not lost. Proper UPS/inverter facility should be there in case of power supply failure.

5.3 Security Requirement

- System will use secured database
- System will have different types of users and every user has access constraints
- Proper user authentication should be provided
- No one should be able to hack employees password
- There should be separate accounts for employees and managers such that the Managers can log in to the Leave Management System. Access to the various subsystem will be protected by a user log in screen that requires a valid UserId.

5.4 Requirement attributes

- The platform must be scalable to handle a growing number of employees and increased leave requests without compromising performance or efficiency.
- The system ensures 99.9% uninterrupted access to the system for leave request, approvals, and inquiries.
- The system should allows for seamless updates and maintenance activity without disrupting ongoing leave management processes.
- The response time of the platform will be quick.

5.5 Business Rules

The Employee Leave Management System adheres to essential business rules, ensuring a Reliable framework for managing employee absences. The system mandates that leave requests must be submitted in advance specifying the type of leave and reasons. Managers are required to approve or deny requests within the specific days. The approved leaves must not exceed the employee's remaining leave balance for the specific type of leave.

5.6 User Requirement

The User requirements for the Employee Leave Management System emphasize a seamless interaction between the employee and the Manager. It encompass the need for a user-friendly interface facilitating easy leave request submissions, access to leave balances and request status tracking, ensuring seamless interactions across devices. The system strictly enforces the policies or regulations related to leave management, ensuring compliance and adherence to predefined guidelines for leave requests, approvals and overall management processes.
Thes admin provides certain facilities to the users in the form of:-

- Backup and Recovery
- Forgot Password
- Data migration i.e., whenever user registers for the first time then the data is stored in the server.
- Data replication i.e., if the data is lost in one branch, it is still stored with the server
- Auto Recovery i.e., frequently auto saving the information
- Maintaining Transaction.
- The server must be maintained regularly and it has to be updated from time to time

6. Other Requirements

6.1 Data and Category Requirements

The Employee Leave Management System encompass the employee input request for leave, approval or denial of leave requests. The categories include employee details, leave records, leave balances, and compliance-related information. It guarantees streamlined storage, retrieval, and analysis, enabling smooth interaction between the employee and the manager

6.2 Appendix

A: Admin, Abbreviation, Acronym, Assumptions; B: Books, Business rules; C: Class, Client, Conventions; D: Data requirement, Dependencies; G: GUI; K: Key; L: Leave; M: Member; N: Non-functional Requirement; O: Operating environment; P: Performance, Perspective, Purpose; R: Requirement, Requirement attributes; S: Safety, Scope, Security, System features; U: User, User class and characteristics, User requirement;

6.3 Glossary

The following are the list of conventions and acronyms used in this document and the project as well:

- Administrator: A login id representing a user with user administration privileges to thesoftware
- User: A general login id assigned to most users
- Client: Intended users for the software
- SQL: Structured Query Language; used to retrieve information from a database
- SQL Server: A server used to store data in an organized format
- Layer: Represents a section of the project
- User Interface Layer: The section of the assignment referring to what the user interactswith directly
- Application Logic Layer: The section of the assignment referring to the Web Server. Thisis where all computations are completed
- Data Storage Layer: The section of the assignment referring to where all data is recorded
- Use Case: A broad level diagram of the project showing a basic overview
- Class diagram: It is a type of static structure diagram that describes the structure of a system by showing the system's cases, their attributes, and the relationships between the classes Interface: Something used to communicate across different mediums
- Unique Key: Used to differentiate entries in a database

5.4: Class Diagram

A class is an abstract, user-defined description of a type of data. It identifies the attributes of the data and the operations that can be performed on instances of the data. The class diagram illustrates the key entities and their relationships within the Employee Leave Management System. The main classes include Company, Branch, Manager, Employee, Leave each encapsulating efficient system design by illustrating their interactions and data flow.