**SOFTWARE**

**REQUIREMENTS SPECIFICATION**

**For**

**Employee Leave Management System**

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**1. Introduction**

**1.1 Purpose**

The primary goal of this document is to outline the specifications for the Employee Leave Management System project. The document provides a comprehensive overview of both functional and non-functional requirements as outlined by the client. The objective of the project is to create a user-friendly platform for managing employee leave details. The main focus is on establishing a streamlined leave application system through computerized processes and generating various reports. The document also articulates the hardware and software interface requirements utilizing ER diagrams and UML diagrams.

**1.2 Document Conventions**

* Entire document should be justified.
* Convention for Main title

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* Convention for Sub title

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* Convention for body

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**1.3 Scope of Development Project**

An employee leave management system has a wide scope and offers numerous benefits to organizations. This sophisticated system provides a comprehensive solution for leave planning, scheduling, reporting, and leave approval. It allows companies to effectively handle various types of leaves, such as vacation, sick, maternity/paternity, and more. Moreover, the scope of an employee leave management system extends to enhancing employee satisfaction and engagement. Providing employees with a user-friendly platform to request and manage their leaves promotes transparency, fairness, and work-life balance. This, in turn, boosts morale and productivity within the workforce. It enables managers to analyze leave patterns, identify trends, and make informed decisions regarding resource allocation and workforce planning and then approve the leave. By having access to accurate and up-to-date information, organizations can optimize their operations and ensure efficient staffing levels. In summary, the scope of an employee leave management system (ELMS) encompasses leave planning, scheduling, reporting, and approval. It is a sophisticated tool that contributes to the overall efficiency, productivity, and well-being of an organization.

**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

Software Requirements and Specifications: A Lexicon of Practice, Principles and

Prejudices (ACM Press) by Michael Jackson

Software Requirements (Microsoft) Second EditionBy Karl E. Wiegers

Software Engineering: A Practitioner’s Approach Fifth Edition By Roger S. Pressman

* Websites [**https://www.slideshare.net/abhilashalahigude/srsforleavemgmtfinalprint**](https://www.slideshare.net/abhilashalahigude/srsforleavemgmtfinalprint) [**https://www.researchgate.net/publication/342815048\_EMPLOYEE\_LEAVE\_MANAGEMENT\_SYSTEM**](https://www.researchgate.net/publication/342815048_EMPLOYEE_LEAVE_MANAGEMENT_SYSTEM)

**2. Overall Descriptions**

**2.1 Product Perspective**

Use Case Diagram of Employee Management System



The system offers a user-friendly interface for administrators to efficiently monitor real-time attendance data and generate insightful reports. Employees can easily log in, record attendance, and request leaves, promoting self-service and reducing administrative burden . The ELMS integrates seamlessly with HR systems, ensuring accurate and secure data management

**2.2 Product Function**

Entity Relationship Diagram of Employee Leave Management System



The Employee Leave Management System streamlines workforce management through secure user authentication and efficient attendance tracking. Employees can request leave through the system, and administrators have a straightforward process for reviewing and approving these requests Generate insights into attendance patterns, leave trends, and workforce metrics, aiding in strategic decision-making.

**2.3 User Classes and Characteristics**

The system provides different services based on user roles [Administrator/Employee]. The Administrator acts as the controller with full administrative privileges. Employees, including various roles within the organization, use the system to manage attendance efficiently online.

The features that are available to the Manager are:-  Review and process leave requests submitted by employees

* Can Add, modify, or deactivate user accounts as needed.
* Add, modify, or deactivate employee accounts as needed.
* Access real-time attendance data for all employees.
* Employees can submit leave requests through the system.
* System generates notifications for leave approval or rejection.
* Access real-time attendance data for all employees.

The features that are available to employees are:-

* Employees can submit leave requests through an intuitive and user-friendly interface

 Provide a calendar view to help employees choose leave dates easily.

* Get reminders for upcoming approved leaves.
* Enable employees to modify or cancel pending leave requests before approval.
* Assure employees about the security of their personal data within the system

**2.4 Operating Environment**

The product will be operating in windows environment. The Employee Attendance 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 include 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 use for the users
* The information of all employee leave details, and approvals 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 search facility and support quick transactions
* Users must have their correct usernames and passwords to enter into their online accounts and do actions Users may access 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 accounts and do actions

The dependencies are:-

* The specific hardware and software due to which the product will be run
* On the basis of listing requirements and specification the project will be developed and run
* The end users (admin) should have proper understanding of the product
* The system should have the general report stored
* The system should have a simultaneous update of the leave taken

The information of all the employees must be stored in a database that is accessible by the manager.

**2.6 Requirement**

Software Configuration:-

This software package is developed using java as front end which is supported by sun micro system. Microsoft SQL Server as the back end to store the database. Operating System: Windows NT, windows 98, Windows XP

Language: Java Runtime Environment, Net beans 7.0.1 (front end)

Database: MS SQL Server (back end)

Hardware Configuration:-

Processor: Pentium(R)Dual-core CPU

Hard Disk: 40GB

RAM: 256 MB or more

**2.7 Data Requirement**

The inputs consist of the query to the database and the output consists of the solutions for the query. The output also includes the user receiving the details of their accounts. In this project the inputs will be the queries as fired by the users like create an account, selecting books and putting into account. Now the output will be visible when the user requests the server to get details of their account in the form of time, date and which books are currently in the account.

**3. External Interface Requirement**

**3.1 GUI**

The software offers an intuitive graphical interface, allowing both administrators and employees to efficiently perform tasks such as attendance tracking, leave management, and data analysis. Key features include.

* Admins can create, update, and view attendance details for employees.
* Implement stock verification for attendance records, ensuring accuracy.
* The user interface must be customizable by the administrator
* All the modules provided with the software must fit into this graphical user interface and accomplish to the standard defined
* The design should be simple and all the different interfaces should follow a standard template
* The user interface should be able to interact with the user management module and a part of the interface must be dedicated to the login/logout module

Login Interface:-

In case the user is not yet registered, he can enter the details and register to create his account. Once his account is created he can ‘Login’ which asks the user to type his username and password. If the user entered either his username or password incorrectly then an error message appears.

Search:-

The employee can specify the type of leave they are seeking and the particular dates they are interested in. Subsequently, they can initiate a search for the requested leave by entering the relevant leave details.

Categories View:-

Categories view shows the categories Leave request available and provides ability to the approve or reject the leave request from the employee.

Administrator’s Control Panel:-

This panel enables administrators to manage users (add/remove), oversee attendance resources (add/edit/remove), and configure lending options for efficient control of the Employee Attendance Management System.

**4. System Features**

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

* User authentication and validation of members using their unique member ID
* The administrator can monitor and update employee account statuses, including activation, deactivation, or modification of accounts.
* Proper accountability which includes not allowing a member to see other member’s account. Only administrator will see and manage all member accounts

**5. Other Non-functional Requirements**

**5.1 Performance Requirement**

The proposed Employee Attendance Management System aims to serve as the primary performance tracking tool across university campuses, interacting seamlessly with staff and students.

* Ensure fast and accurate system performance for tracking employee attendance effectively.
* Implement robust error handling mechanisms to prevent data loss and minimize downtime. Include inbuilt error testing for invalid credentials to enhance system security.
* Design the system to handle a large volume of data, accommodating extensive records of attendance and user information without any operational faults

**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
* Normal users can just read information but they cannot edit or modify anything except their personal and some other information.
* 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 users’ password

There should be separate accounts for managers such that no member can access the database and only the manager has the rights to update the database

**5.4 Requirement attributes**

* There may be multiple admins creating the project, all of them will have the right to create changes to the system. But the members or other users cannot do changes
* The project should be open source
* The Quality of the database is maintained in such a way so that it can be very user friendly to all the users of the database
* The user be able to easily download and install the system

**5.5 Business Rules**

A business rule is anything that captures and implements business policies and practices. A rule can enforce business policy, make a decision, or infer new data from existing data.This includes the rules and regulations that the System users should abide by. This includes the cost of the project and the discount offers provided. The users should avoid illegal rules and protocols. Neither manager nor employee should cross the rules and regulations.

**5.6 User Requirement**

The users (employees) of the system are members and managers of the university who act as administrators to maintain the system. The employees are assumed to have basic knowledge of computers and internet browsing. The administrators of the system should have more knowledge of the internals of the system and be able to rectify the small problems that may arise due to disk crashes, power failures, and other catastrophes to maintain the system. The proper user interface, user manual, online help and the guide to install and maintain the system must be sufficient to educate the users on how to use the system without any problems.

The 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 files i.e. File Organization
* The server must be maintained regularly and it has to be updated from time to time

**6. Other Requirements**

**6.1 Data and Category Requirement**

Data and Category Requirement

There are different categories of users namely employees and managers. Depending upon the category of user the access rights are decided. It means if the user is an administrator then he can be able to modify the data, delete, append, etc. All other users except the manager only have the right to retrieve the database information. According to the selected employee, their relevant data should be displayed.

**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: Office, employee; 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 the software
* 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 interacts with directly
* Application Logic Layer: The section of the assignment referring to the Web Server. This is 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

**6.4 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 (i.e. objects) of the data. A class of data has a name, a set of attributes that describes its characteristics, and a set of operations that can be performed on the objects of that class. The classes’ structure and their relationships to each other frozen in time represent the static model. In this project there are certain main classes which are related to other classes required for their working. There are different kinds of relationships between the classes as shown in the diagram like normal association, aggregation, and generalization. The relationships are depicted using a role name and multiplicities. Here ‘Employee’, ‘Manager’ and ‘Approval status’ are the most important classes which are related to other classes.