Software Requirements Specification

for

Empoloyee Management System

Version 1.0

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1.Introduction

* 1. Purpose

The main purpose of the Employee Management System is to create an online portal for employees in the company and provide access to all the system features.

1.2 Document Conventions

* This whole document is written in Times New Roman
* Size of title: 12
* Size of other heading: 12
* Size of the content: 12
  1. Intended Audience and Reading Suggestions

This document consists of the purpose, overall outline, structure, functional and non-functional requirements, and development phases for all the team members contributing to this project.

1.4 Project Scope

Most small-scale startups cannot afford an employee management software and tally their payroll, time-sheet records manually using pen and paper. This affordable Employee Management Software allows the company to organize their staff and record on an individual level. This application consists of an employee registration page which is accessible only to HR and team. Whenever a new employee is hired, HR will record and save their details into the database. Then comes the login page which enables the users to login and access their profile. This system also contains a payroll check, time-sheet record which is used to record their billing hours, leave management system and much more. This product can be custom made for any startup individually.

1.5 References

<https://unt.instructure.com/courses/53288/files/13644332?module_item_id=3552108/>

# 2. Overall Description

## 2.1 Product Perspective

Employees are a company's most precious asset. With organized business practices and solutions, such as employment management software. Employee management system is a distributed application, designed to keep track of the information on the company's employees. It keeps records of all of the employees' personal and professional information, which streamlines and automates a company's HR tasks, companies can attract and retain the best talent. They can use these systems to recruit effectively and train personnel, as well as maintain a variety of data, including personal information, pay, and more.

## 2.2 Product Features

The major functionalities included in this system are:

* + - Payroll Management- A paycheck is created and mailed to the employee based on the employee's billing hours and applied leaves.
    - Time Sheet- Depending on the project, employees can log their billing hours.
    - Leave Management- Employees can use this tool to request time off, and their supervisor or manager can approve or deny their request.
    - Project Management- When an employee searches for a project by name, a hierarchy is produced. Depending on it, the employee can contact the project manager.

## 2.3User Classes and Characteristics

* + 1. Admin :
  + Can create new employee record into the system.
  + Admin users have all the rights to access.
  + Admin can have access to modify the employee information.
  + They can change the salary information, approve leave requests, assign projects.
  + Can know if employee is free to take up a new task or not.
  + Can keep a track on assigned tasks.

2.3.2 Employee :

* + Employee can login into the application with their own credentials.
  + The employee will be having restricted functionalities.
  + Can raise leave requests and submit their timesheets.
  + Can generate and download the pay slips.
  + Can view hierarchy based on the projects.

## 2.4 Operating Environment

* Java
* SpringBoot
* HTML
* MySQL
* CSS
* Typescript
* Angular8

## Diagram Description automatically generated

Figure 1: High level flow of EMS

## 2.5 Design and Implementation Constraints

When a new employee needs to use this web application he needs to register as new user to login and use the system features. After logging in, employee will be redirected to the employee dashboard page, and this consists of employee details such as project assigned, hierarchy, work hours, timesheets and leave request. Admin can create new employee record into the system, modify the employee info, approve, or reject a leave application, assign a project to employee and admin can remove an employee record if needed.

2.6 User Documentation

On the login page of the application, using the help icon in the navigation bar, user can find the flow of the application and understand it.

## 2.7 Assumptions and Dependencies

* + - It's always possible that users will dislike the design that's been presented to them, and in that case, the entire design will need to be redesigned so, we have chosen the incremental model as our SDLC (Software Development Life Cycle).
    - To eliminate any ambiguity or irregularity in the coding standards, we'll use a universal set of coding standards, as well as suitable git processes to avoid version control issues.
    - Every Users should have at least basic computer knowledge to order from web application.
    - User information will be protected, admin details are not shared with anyone and protected for security purpose.

# 3. System Features:

3.1 Employee registration:

* This feature is enabled for HR and HR team officials
* It is also known as the registration page, which enables users/organizations to independently create new users into the application.
* This page contains fields like First Name, Last Name, Mobile Number, Email Id, Password Address.
* System will check for the mandatory fields and inform users with the validation messages if any mandatory field is missing.
* Once it is completed, the user details will be saved and stored in the database.

3.2 Log-in:

* It allows the user to enter their credentials and login into the application.
* It contains two fields username and password.
* It authenticates the user credentials and redirects them to a specific page.

3.3 Leave Management:

* Users can apply for leaves depending on their billing hours and their manager’s approval.

3.4 Payroll Management:

* It contains the information related to the employee payslips.
* It contains two dropdown values one for the month and another one for selecting the year.
* Once the user submits the request, the application will send out an email with the payslip attachment to the registered email address.

3.5 Project Management:

* This feature is enabled for HR users.
* A HR has privileges to add, edit and drop projects and its associated employees.
* It contains information regarding a particular project when looked for and it’s respective managers and employees working in it are displayed.

3.6 Time-Sheet Records:

* In this feature a user can record their billing hours excluding applied leaves, public holidays and etc.
* HR will approve the time sheet or reject the time sheet if it is not submitted accurately.

4.External Interface Requirements

4.1 User Interface

The main aim is to build an online portal for employees and managers so that they can access their required features online whenever and wherever needed without asking their higher officials.

4.2 Hardware Requirements

* Processor-Intel 5th Generation or latest version
* Ram- minimum of 4gb

4.3 Software Requirements

* Front End Languages – CSS, HTML, JavaScript, jQuery
* Back End Languages – JAVA, PHP
* Database - MySQL
* Testing – JUNIT
* Operating System – Windows
* Server – Apache Tomcat

4.4 Software Interface

* Employee Management System consists of 3 modules:

1.) Login

2.) Signup

3.) Home

* Already existing employees can login using their credentials created by their manager during their earliest stage of work.
* Signup page is for the new employees of the company who don't have a profile to access the portal. Manager creates and allocates the credentials to the new employees, where further they can login and access the portal using those credentials.
* Employees after logging in or signing up will be redirected to the home page where they will be able to browse into the system features like accessing
  1. Payroll Management – Paycheck is mailed to the employee based on their billing hours and leaves applied.
  2. Time Sheet – Employee can log their billing hours in timesheet based on their current project.
  3. Leave Management – Employee can request for leave to their manager use this Leave management but accepting or rejecting the leave is up to the manager.
  4. Project Management – Every employee can see what projects other employees are working on.
  5. Communications Interfaces

Employee Management system will use a http protocol for communication over the internet.

# 5.Other Nonfunctional Requirements

## 5.1 Performance Requirements

* Increase response time by reducing all duplicate API request calls or implement any caching technique if needed.
* Increasing the efficiency by applying indexes to database tables or collection such that it will reduce the read and write operations.

## 5.2 Safety Requirements

* We have followed safety measures for every phase of this project , nonetheless there are times where we cannot predict the threat, so in order to accomplish this we would be having a risk assessment portfolio where we will be going through the risk analysis, evaluation and risk control techniques.
* Participating in software safety analysis activities would reduce the risks or any unknown threats involved with in the project.

## 5.3 Security Requirements

* Security threat for a software is like a uninvited guest, we wouldn’t know when such threats will happen , so keeping this in mind our team had follwoed secure coding practices.
* Implementing access controls would actually reduce the data loss or data theft.
* Running the code through code analysis tools will monitor the code and float any unwanted vulnerabilties in the project.

## 5.4 Software Quality Attributes

* Software quality attributes are something through which we can measure the software performance. Following proper quality attributes will ensure the software will perform as required.
* Maintainability : Software should be easy to maintain and uphold any changes that occur in the future. It should be able to support changes with in a cost-effective way.
* Reusability : Software are often reused by other teams or groups based on the requirement, if the clients ask is justified reusing the existing modules is followed to reduce the code and save time.
* Reliability: Software reliability completely depends on the coding standards that are followed while implementing the software, the more the coding standards , higher is the reliability.

# 6. Development Phases :

6.1 Phase 1:

* Building Project Structure with Git
* Initialize frontend and backend applications and establish connections
* Create tables
* Build Login pages and add users to the system

6.2 Phase 2:

* Build UI homepage, navigation menu
* Develop SQL procedures to fetch required data from database
* Build HR user features which includes project management and employee management
* Build Leave management feature and timesheet feature

6.3 Phase 3:

* Generate Payslips monthly for employees
* Build Payroll module
* Testing

6.4 Phase 4:

* Integration Testing
* Deployment

7. System Flow

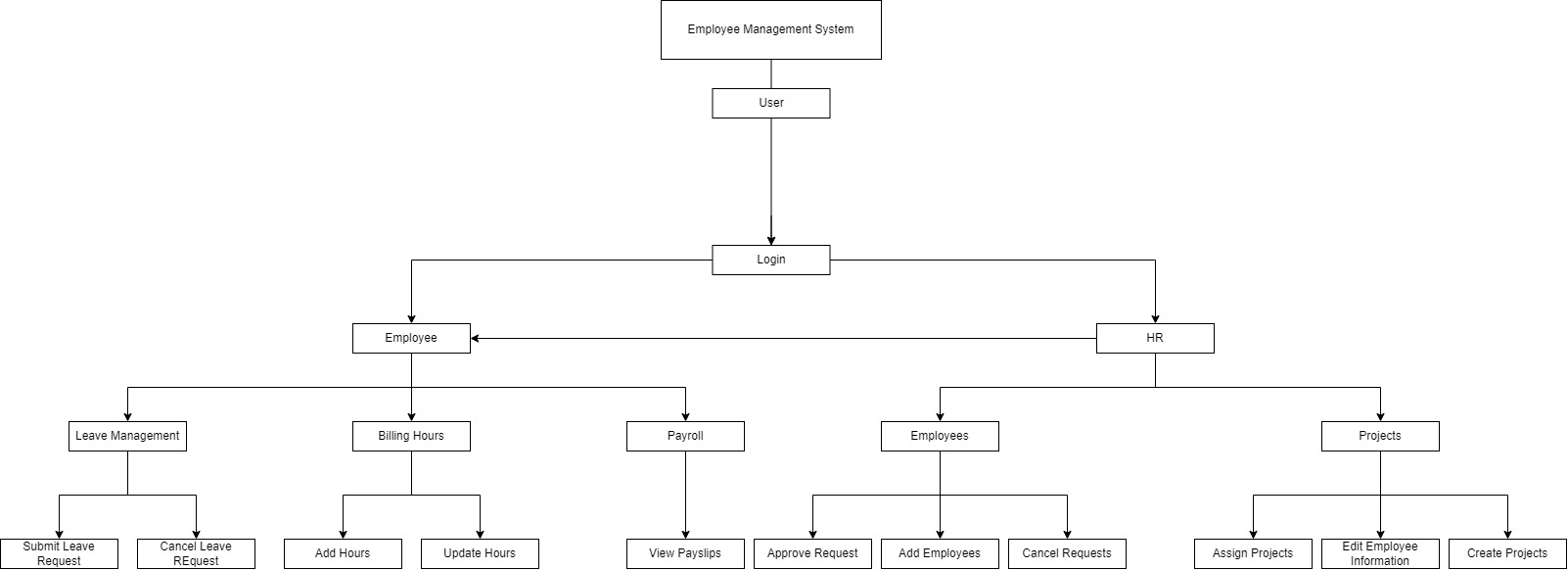


Figure 2: System flow of EMS

# Member contribution table

|  |  |  |
| --- | --- | --- |
| **Member Name** | **Contribution description** | **Overall contribution** |
| Amarendhar Reddy Chevula | Functional Requirements/Non Functional Requirements | 12.5% |
| Subbarao Sanka | Introduction, Requirement Specification | 12.5% |
| Vaishnavi Choppalli | System Features, Overall Description | 12.5% |
| Kalyani | Updated MinutesOfMeeting,  Flow of the system | 12.5% |
| Narasimha | External Interface Requirements | 12.5% |
| Aparna | Flow of the system, Development Phases | 12.5% |
| Keerthi | Overall Description | 12.5% |
| Neha | Other Nonfunctional Requirements, Development Phases | 12.5% |