

**IT 309 SOFTWARE ENGINEERING**

PROJECT DOCUMENTATION

EMPLOYEE MANAGEMENT SYSTEM

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# 1. Introduction

This document contains basic information about our project, we recorded a video where more explanation happened.

(https://drive.google.com/drive/folders/1LTemL8RQfz4ihd\_duvaaF2sEOH4sw6j8?usp=sharing)

## 1.1. About the Project

The employee management application is a comprehensive software solution that automates and simplifies various HR processes within organizations. It features a user-friendly interface for efficient employee onboarding, attendance tracking, performance evaluation, and leave management. Built with Java Spring Boot for the backend, HTML/CSS for the frontend, and MySQL for the database, the application enhances productivity and communication, enabling businesses to effectively manage their workforce.

## 1.2. Project Functionalities and Screenshots

Describe or list the main features of the application and provide a few screenshots of your project.

# 2. Project Structure

## 2.1. Technologies

Backend:

Java: The backend of the application was developed using Java programming language.

Spring Boot: The Spring Boot framework was utilized to create a robust and scalable backend infrastructure.

MySQL: MySQL was chosen as the database management system for storing and retrieving data.

Frontend:

HTML: HTML (Hypertext Markup Language) was used to structure the content and elements of the user interface.

CSS: CSS (Cascading Style Sheets) was employed to handle the visual presentation and styling of the application's frontend.

Integration:

AJAX: AJAX (Asynchronous JavaScript and XML) was utilized for seamless communication between the frontend and backend, enabling dynamic updates without page refreshes.

## Coding standards:

Backend: Java code in the backend follows industry-standard coding conventions, such as those prescribed by Oracle's Java Code Conventions or Google's Java Style Guide. Consistent indentation, proper naming conventions, and meaningful comments are examples of coding practices adhered to in the backend development.

Frontend: HTML and CSS code in the frontend were structured following best practices and maintainable coding standards, including consistent indentation, clear naming conventions, and commenting where necessary.

## Third-party tools:

Maven: Maven was used as a build automation and dependency management tool for the Java backend.

Apache Tom Cat Server

Spring JPA

## 2.2. Database Entities

Our database for this project is called employees and here are the tables in this database:

payroll

attendance

employee

department

employee\_password

## 2.3. Design Patterns

We used REST API.

## 2.4. Tests

We used JUnit testing in our web application. We tested Api methods from our controllers. Our tests are located in test folder.

# 3. Conclusion

In conclusion, the implementation of the employee management application using Java Spring Boot for the backend, HTML/CSS for the frontend, and MySQL for the database has been a rewarding experience. The application successfully addresses the core requirements of streamlining employee management processes, centralizing data, and enhancing communication within the organization.

Overall, We are satisfied with the implementation as it fulfills the intended functionalities and provides a user-friendly interface. The use of Java Spring Boot facilitated rapid development and ensured a robust backend infrastructure. HTML and CSS were effective in creating an intuitive and visually appealing frontend. The integration of AJAX further improved the user experience by enabling seamless data exchange between the frontend and backend. The deployment part is the only which we are not happy with since we were able to deploy only backend for now. But we did learn a lot of new things during all of this and we are happy with that.