

Software Engineering

Deliverable 2

Employee Payroll and Leave Management System

Team Name: **Triovate**

Team Members:

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Abdur-Raheem Shaikh	22i 0777
Afrah Syed	22i 1008

Product Backlog:

ID	As a...	I want to be able to...	So that...	Priority	Sprint	Status
1	Employee	Register in the system	I can access my relevant features	Must	1	Done
2	User	Log in to the system	I can access the system	Must	1	Done
3	Employee	Access my dashboard	I can view leave balance and payroll summary	Must	1	Done
4	Manager	Access manager dashboard	I can manage leave requests and team details	Must	1	Done
5	Employee	Apply for leave	My request is submitted to my manager	Must	1	Done
6	Manager	Approve or reject leave requests	I can manage employee leave effectively	Must	1	Done
7	Employee	View leave balance	I can plan my future leaves accordingly	Must	1	Done
8	Manager	Track employee leave history	I can make informed leave approval decisions	Should	2	Done
9	Manager	Configure leave policies	Employee leave requests follow policies	Must	2	Done
10	Employee	View payroll summary	I can understand my salary breakdown	Must	3	To be started
11	Manager	Process payroll	Employees receive salaries on time	Must	3	To be started
12	Manager	Calculate taxes and deductions	Employee salaries are	Must	3	To be started

			correctly processed			
13	Manager	Manage salary structure	Employees have a standardized payroll	Must	3	To be started
14	System	Integrate payroll with attendance	Salaries are based on actual working hours	Must	3	To be started
15	Manager	Generate payroll reports	I can track salary distributions	Must	3	To be started

ID: 1

Name: Employee and Manager Registration

Priority: Must

User Story:

As a new user (employee or manager), I want to register in the system so that I can access my relevant features.

Acceptance Criteria:

- Users can sign up with their name, email, and password.
 - Users must select their role (Employee or Manager) during registration.
 - After successful registration, users are redirected to the login page.
-

ID: 2

Name: Login

Priority: Must

User Story:

As a registered user, I want to log in to the system so that I can access the system.

Acceptance Criteria:

- Employees see leave balance and payroll summary on their dashboard.
 - Managers see pending leave requests and team details on their dashboard.
 - Users are redirected to their respective dashboards after login.
 - Secure logout functionality is available.
-

ID: 3

Name: Employee Dashboard

Priority: Must

User Story:

As an employee, I want to log in and access my dashboard so that I can view my leave

balance and payroll summary.

Acceptance Criteria:

- Employees see their leave balance on the dashboard.
 - Employees can view their payroll summary, including salary details and deductions.
 - Employees are redirected to their dashboard after successful login.
 - Secure logout functionality is available.
-

ID: 4

Name: Manager Dashboard

Priority: Must

User Story:

As a manager, I want to log in and access my dashboard so that I can view and manage employee leave requests and team details.

Acceptance Criteria:

- Managers see all pending leave requests on their dashboard.
 - Managers can view team details, including employee leave status.
 - Managers are redirected to their dashboard after successful login.
 - Secure logout functionality is available.
-

ID: 5

Name: Apply for Leave (For Employees)

Priority: Must

User Story:

As an employee, I want to apply for leave through the system so that my request is submitted to my manager for approval.

Acceptance Criteria:

- Employees can select the leave type (Annual, Sick, Casual).
 - Employees enter the start and end date of their leave.
 - Employees receive a confirmation after applying for leave.
 - Employees are notified when their leave request is approved or rejected.
-

ID: 6

Name: Approve or Reject Leave Requests (For Managers)

Priority: Must

User Story:

As a manager, I want to approve or reject leave requests submitted by employees so that I can manage employee leave effectively.

Acceptance Criteria:

- Managers can view all pending leave requests.
 - Managers can see employee leave history before making a decision.
 - Managers must provide a reason when rejecting a leave request.
 - Managers can filter leave requests by employee name and leave type.
-

ID: 7

Name: View Leave Balance (For Employees)

Priority: Must

User Story:

As an employee, I want to check my remaining leave balance so that I can plan my future leaves accordingly.

Acceptance Criteria:

- Employees can see a breakdown of their leave balance.
 - Employees can view used and remaining leaves categorized by type.
-

ID: 8

Name: Track Employee Leave History (For Managers)

Priority: Should

User Story:

As a manager, I want to view the leave history of employees so that I can make informed leave approval decisions.

Acceptance Criteria:

- Managers can view historical leave data of employees.
 - System displays leave patterns and trends over time.
-

ID: 9

Name: Configure Leave Policies (For Managers)

Priority: Must

User Story:

As a manager, I want to configure leave policies so that employee leave requests follow company policies.

Acceptance Criteria:

- Managers can set leave limits for employees.
 - System enforces policy rules when leave requests are made.
-

ID: 10

Name: View Payroll Summary (For Employees)

Priority: Must

User Story:

As an employee, I want to view my payroll summary so that I can understand my salary breakdown.

Acceptance Criteria:

- Employees can see their monthly salary details, including deductions and bonuses.
 - Salary data is updated automatically at the end of each month.
-

ID: 11**Name: Process Monthly Payroll (For Managers)****Priority: Must****User Story:**

As a manager, I want to process payroll for employees so that they receive accurate salaries on time.

Acceptance Criteria:

- Payroll is processed automatically based on attendance data.
 - Managers can manually adjust salary components if needed.
-

ID: 12**Name: Tax Calculation and Deductions****Priority: Must****User Story:**

As a system, I want to calculate taxes and deductions so that employee salaries are correctly processed.

Acceptance Criteria:

- System calculates taxes based on salary and applicable tax rates.
 - Tax deductions appear in payroll reports.
-

ID: 13**Name: Manage Employee Salary Structure****Priority: Must****User Story:**

As a manager, I want to define salary structures so that employees have a standardized payroll system.

Acceptance Criteria:

- Managers can define salary structures for different roles.
 - Employees are assigned a salary structure during onboarding.
-

ID: 14**Name: Integrate Payroll with Attendance****Priority: Must****User Story:**

As a system, I want to integrate payroll with attendance so that salaries are calculated based on actual working hours.

Acceptance Criteria:

- Employee salary calculations include attendance and overtime.
 - System automatically deducts pay for unapproved absences.
-

ID: 15**Name: Generate Payroll Reports for Managers****Priority: Must****User Story:**

As a manager, I want to generate payroll reports so that I can track salary distributions and deductions.

Acceptance Criteria:

- Managers can generate payroll reports for any month.
- Reports include salary details, tax deductions, and bonuses.

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Sprint Backlog

Sprint 1: Employee Leave Management

Sprint Goal: Implement core functionalities for employees to apply for leave and track their leave balance.

ID	User Story	Tasks	Owner	Status	Estimated Effort	Day 1	Day 2	Day 3	Priority
US001	Employee and Manager Registration	Implement registration form	Abdullah	Completed	4	2	2	0	Must
US002	Login	Setup authentication system	Abdullah	Completed	2	0	1	1	Must
US003	Employee Dashboard	Design and develop dashboard UI	Abdur Raheem	Completed	2	0	2	0	Must
US004	Apply for Leave	Develop leave application functionality	Abdullah	Completed	4	0	2	2	Must
US005	View Leave Balance	Display leave balance on dashboard	Abdur Raheem	Completed	2	0	2	0	Must

Sprint 2: Manager Leave Management

Sprint Goal: Enable managers to review, approve, and manage leave requests.

ID	User Story	Tasks	Owner	Status	Estimated Effort	Day 1	Day 2	Day 3	Priority
US006	Manager Dashboard	Develop manager dashboard UI	Abdur Raheem	To Do	10	5	3	2	Must
US007	Approve or Reject Leave Requests	Implement approval system	Afrah	To Do	12	6	4	2	Must
US008	Track Employee Leave History	Create leave history module	Abdullah	To Do	8	4	2	2	Should
US009	Configure Leave Policies	Develop policy configuration settings	Afrah	To Do	10	5	3	2	Must

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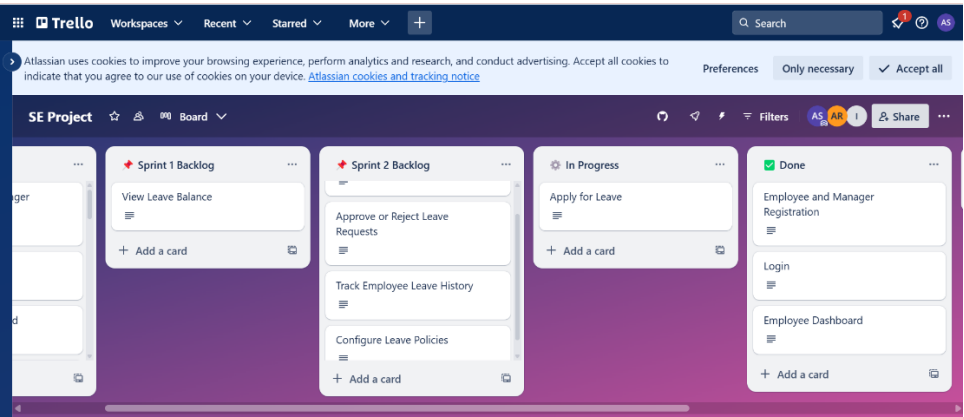
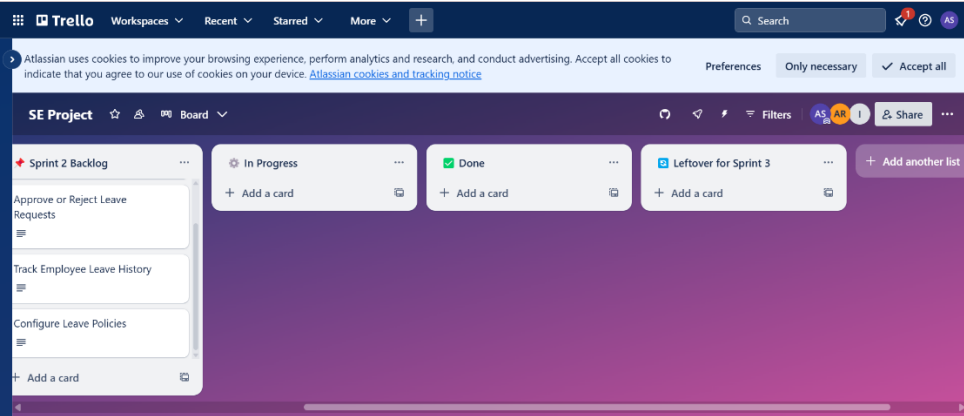
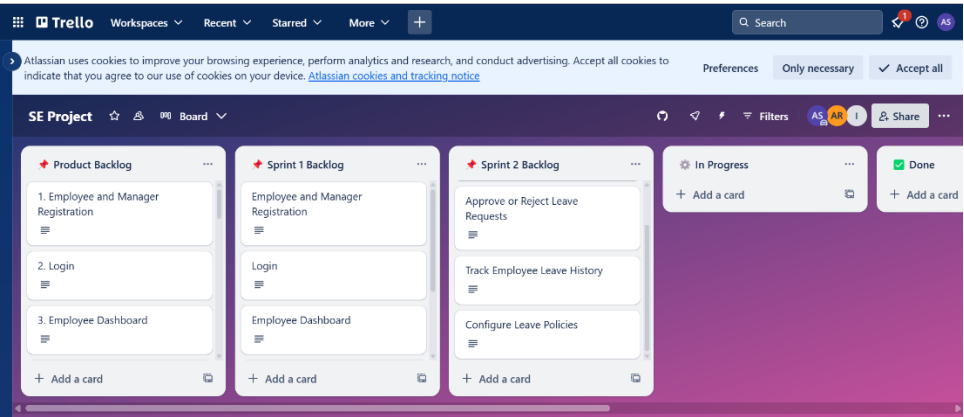
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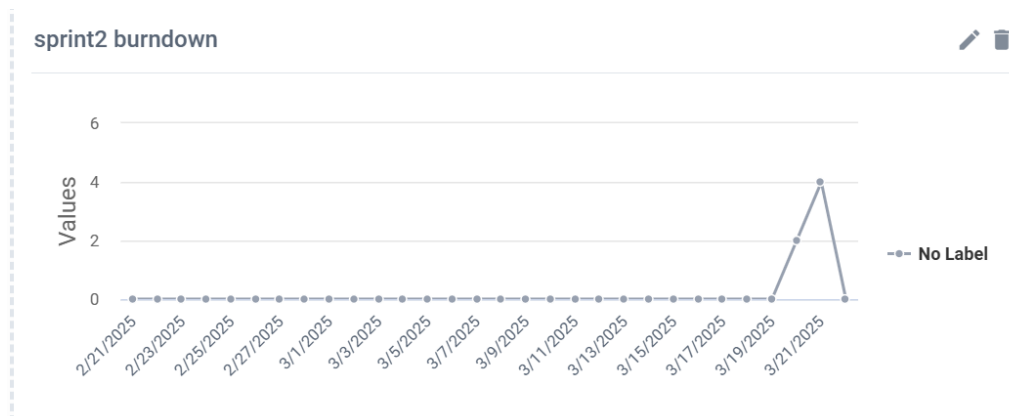
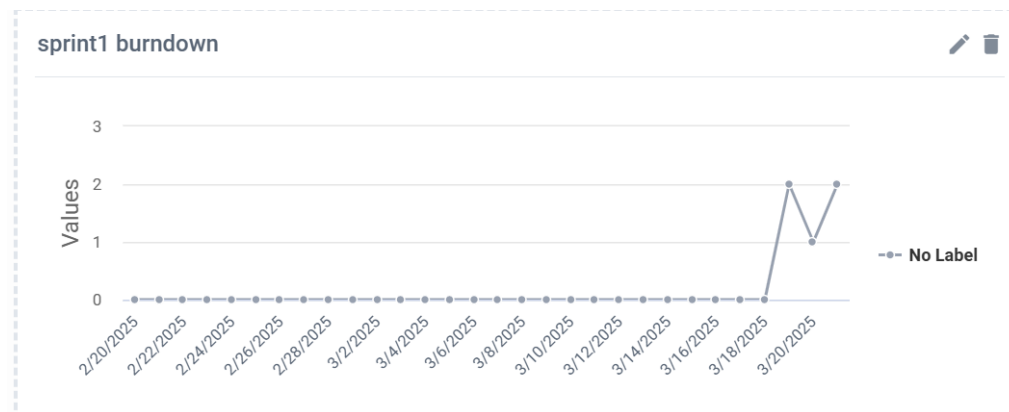
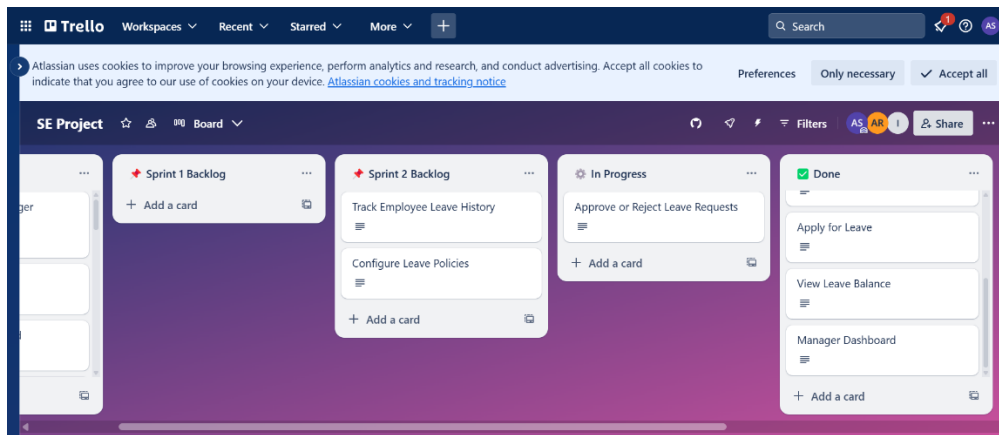
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README.md	Update README.md	yesterday
Software Requirements Specification.pdf	Add files via upload	now
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Software Requirements Specification
for
ASTRA HR

Version 3.0

Prepared by Afrah Syed, Abdur Raheem & Abdullah

22-March-2025

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Revision History

Name	Date	Reason for changes	Version
Abdur Raheem	19-March-2025	Minor edit in use case diagram	1.0
Abdullah Aslam	20-March-2025	Edit in class diagram according to implementation	2.0
Afrah Syed	22-March-2025	Edit in document format according to the IEEE format	3.0

1. Introduction

1.1 Purpose

The purpose of the Employee Payroll and Leave Management System is to automate and streamline payroll processing, leave management, and employee attendance tracking. It ensures accuracy in salary calculations, tax deductions, and leave policies, reducing manual effort and administrative workload.

1.2 Product Scope

The system is designed for organizations to manage payroll, leave applications, and employee records efficiently. It provides role-based access for employees, managers, and HR personnel, enabling self-service leave requests, payroll summaries, and policy configurations. The system aims to enhance transparency, improve decision-making through reporting, and ensure compliance with company policies.

1.3 Glossary

- **Payroll** – The process of calculating and distributing salaries, including tax deductions and bonuses.
- **Leave Balance** – The number of remaining leave days available for an employee within a specified period.
- **Tax Deduction** – The process of deducting applicable taxes from an employee's salary.
- **Payroll Summary** – A detailed report of an employee's salary, including earnings, deductions, and net payable amount.
- **Leave Policy** – Organizational rules that define the leave entitlement, approval process, and restrictions for employees.

1.4 Overview

The **Employee Payroll and Leave Management System** is a comprehensive platform designed to streamline payroll processing and leave management within an organization. It provides an efficient and automated approach for employees, managers, and HR personnel to manage payroll, leave requests, and employee records.

The system ensures:

- Seamless payroll calculations, including salary distribution and tax deductions.
- Efficient leave management, allowing employees to apply for leave and track their leave balance.
- Role-based access for employees, managers, ensuring secure and structured workflows.

This system improves accuracy, reduces administrative effort, and ensures compliance with company policies.

2. General Description

2.1 Product Perspective

The **Employee Payroll and Leave Management System** is designed as an integrated platform that automates payroll processing, leave management, and employee attendance tracking. It operates within an organization's existing HR framework, ensuring seamless interaction with payroll systems, tax authorities, and company policies.

2.2 System Interfaces

The system interacts with:

- Internal HR databases for employee records, payroll, and leave data.
- Payroll processing modules for salary computation, tax deductions, and benefits allocation.
- Email and notification systems for leave approval alerts and payroll updates.

2.3 User Interfaces

The system provides:

- A web-based dashboard for HR personnel to manage payroll and leave requests.
- A self-service portal for employees to apply for leave and view salary details.
- A web-based interface for managers to approve/reject leave requests on the go.

2.4 Hardware Interfaces

The system requires:

- A standard computer or server for hosting the payroll and leave management application.
- Secure cloud storage or on-premises databases for storing employee records.

2.5 Software Interfaces

The system integrates with:

- Database Management Systems for data storage.
- Payroll processing software for salary calculations and tax deductions.
- Web frameworks (React.js) for an interactive front-end experience.

3. Functional Requirements

The functional requirements define the core functionalities of the system, ensuring smooth payroll processing and leave management.

REQ-1.1: The system shall allow employees and managers to register with their name, email, password, and role selection.

REQ-1.2: The system shall provide a secure login/logout functionality.

REQ-1.3: The system shall allow role-based access control, restricting features based on user roles (Employee or Manager).

REQ-1.4: Employees shall be able to view their payroll summary and salary details.

REQ-1.5: Employees shall be able to check their leave balance categorized by leave type (Annual, Sick, Casual).

REQ-1.6: Employees shall be able to apply for leave by selecting leave type, start date, and end date.

REQ-1.7: Employees shall receive notifications when their leave request is approved or rejected.

REQ-1.8: Managers shall be able to view and manage pending leave requests.

REQ-1.9: Managers shall be able to approve or reject leave applications.

REQ-1.10: Managers shall be able to configure leave policies and set leave limits for employees.

REQ-1.11: Managers shall be able to track employee leave history to analyse leave trends.

REQ-1.12: The system shall calculate, and process employee salaries based on attendance and leave records.

REQ-1.13: The system shall automatically compute tax deductions and other salary components.

REQ-1.14: The system shall provide real-time notifications for leave request status updates and payroll processing and ensure secure accounts.

4. Non-Functional Requirements

2.1 Product Requirements

NF-1.1: The system shall have a user-friendly and responsive UI for easy navigation.

NF-1.2: The system shall ensure data consistency and integrity to prevent payroll miscalculations.

NF-1.3: The system shall support multiple users concurrently without performance degradation.

NF-1.4: The system shall store payroll and leave records for a minimum of five years for auditing purposes.

2.2 Organizational Requirements

NF-2.1: The system shall comply with company HR policies and government tax regulations.

NF-2.2: The system shall be maintainable, allowing easy updates for tax policies and leave rules.

NF-2.3: The system shall provide role-based training for employees and managers to use the system effectively.

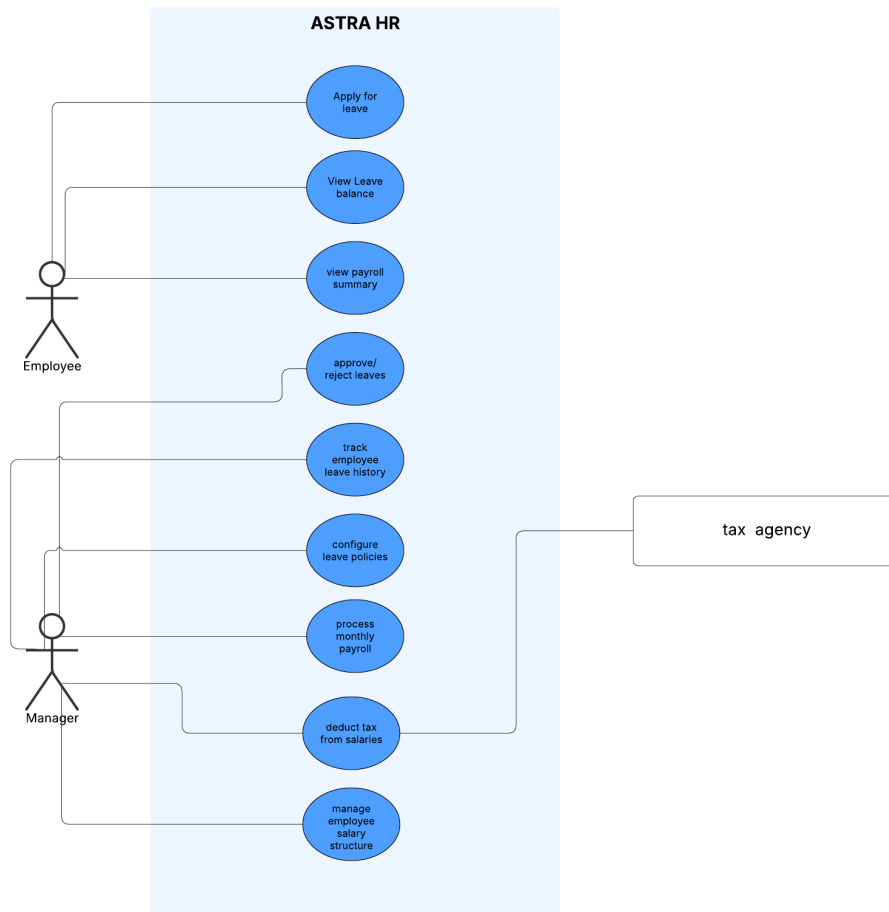
2.3 External Requirements

NF-3.1: The system shall comply with data protection laws to secure employee information.

NF-3.2: The system shall be accessible via web browsers and mobile devices.

5. Use Case Diagram

Following use case diagram represents the functionalities of the Employee Payroll and Leave Management System:



6. User Stories

1. View Payroll Summary

- **User Role:** Employee
- **Goal:** View payroll summary.
- **Reason:** Helps employees check their salary breakdown, deductions, and tax calculations.

As an employee, I want to view my payroll summary so that I can check my salary breakdown, deductions, and tax calculations.

Pre-conditions:

- The employee is logged into the system.

- Payroll data is already processed for the given period.

Post-conditions:

- The payroll summary is displayed to the employee.
-

2. Apply for Leave

- **User Role:** Employee
- **Goal:** Apply for leave.
- **Reason:** Enables employees to request time off without paperwork.

As an employee, I want to apply for leave through the system so that I can request time off without paperwork.

Pre-conditions:

- The employee is logged into the system.
- The employee has available leave balance.

Post-conditions:

- The leave request is recorded in the system.
 - A notification is sent to the manager for approval.
-

3. Approve/Reject Leave

- **User Role:** Manager
- **Goal:** Review and approve/reject leave requests.
- **Reason:** Helps managers manage their team's availability effectively.

As a manager, I want to review and approve/reject leave requests so that I can manage my team's availability effectively.

Pre-conditions:

- The manager is logged into the system.
- There are pending leave requests to review.

Post-conditions:

- The employee is notified of the approval/rejection status.
 - The leave balance is updated if approved.
-

4. Track Employee Leave History

- **User Role:** Manager
- **Goal:** Track employees' leave history.
- **Reason:** Helps in managing attendance effectively.

As a manager, I want to track employees' leave history so that I can manage attendance effectively.

Pre-conditions:

- The manager is logged into the system.
- The system has records of employee leave history.

Post-conditions:

- The manager can view and analyse employees' leave trends.
-

5. Configure Leave Policies

- **User Role:** Manager
- **Goal:** Configure leave policies.
- **Reason:** Ensures company leave rules are updated and applied correctly.

As a manager, I want to configure leave policies so that company leave rules are updated and applied correctly.

Pre-conditions:

- The manager is logged into the system.
- The system has an option to update leave configurations.

Post-conditions:

- Updated leave policies are saved and applied to all employees.
-

6. Process Monthly Payroll

- **User Role:** Manager
- **Goal:** Process employee payroll.
- **Reason:** Ensures accurate and timely salary processing, including tax deductions and bonuses.

As a manager, I want to process employee payroll so that salaries, tax deductions, and bonuses are calculated accurately and on time.

Pre-conditions:

- The manager is logged into the system.
- Employee attendance and leave records are up-to-date.

Post-conditions:

- Payroll is processed and saved in the system.
 - Employees can view their updated payroll summary.
-

7. Deduct Tax from Salaries

- **User Role:** Manager
- **Goal:** Ensure tax compliance in payroll processing.
- **Reason:** Helps automate tax calculations and deductions.

As a manager, I want the system to automatically deduct taxes from salaries so that payroll complies with tax regulations.

Pre-conditions:

- Employee salary and tax rules must be configured in the system.

Post-conditions:

- Tax deductions are applied to employee salaries.
 - Employees can view tax deductions in their payroll summary.
-

8. Manage Employee Salary Structure

- **User Role:** Manager
- **Goal:** Manage the salary structure of employees.
- **Reason:** Allows updating of salaries, bonuses, and deductions.

As a manager, I want to manage the salary structure of employees so that I can update salaries, and deductions when needed.

Pre-conditions:

- The manager must have salary modification permissions.

Post-conditions:

- The updated salary structure is saved and reflected in payroll calculations.

9. View Leave Balance

- **User Role:** Employee
- **Goal:** Check remaining leave balance.
- **Reason:** Helps employees plan their future leaves accordingly.

As an employee, I want to check my remaining leave balance so that I can plan my future leaves accordingly.

Pre-conditions:

- The employee is logged into the system.
- Leave records are updated in the system.

Post-conditions:

- The leave balance is displayed to the employee.
- Employees can plan their leaves based on the available balance.

7. Sequence Diagrams

8. Class Diagram

