Darshan University

A Project Report on

“Employee Management System”

Under the subject

Software Engineering (2301CS405)

B. Tech, Semester – IV

Computer Science & Engineering Department

Submitted By

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Academic Year

(2024-2025)

Internal Guide

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DECLARATION

We hereby declare that the SRS, submitted along with the **Software Engineering (2301CS405)** for entitled **"Employee Management System"** submitted in partial fulfilment for the Semester-5 of **Bachelor Technology (B. Tech)** in **Computer Science and Engineering (CSE)** Department to Darshan University, Rajkot, is a record of the work carried out at **Darshan University, Rajkot** under the supervision of R. B. Gondaliya and that no part of any of report has been directly copied from any students' reports, without providing due reference.

(Ida Gaurav R.)

Student's Signature

Date: _____

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CERTIFICATE

This is to certify that the SRS on **"Employee Management System" has** been satisfactorily prepared by **Ida Gaurav R. (24010101637)** under my guidance in the fulfillment of the course **Software Engineering (2301CS405)** work during the academic year 2024-2025.

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Thus, in conclusion to the above said, I once again thank the faculties and members of **Darshan University** for their valuable support in completion of the project.

Thanking You

Ida Gaurav R.

ABSTRACT

The Employee Management System is a system designed to computerize and streamline the daily administrative and managerial tasks related to employee management within an organization. This system aims to transition traditional manual processes into a fully digital solution. The project includes features that are often missing in manual systems, such as secure user login for employees, managers, and admins, real-time task assignment and tracking, and leave management.

It also provides an admin login facility, enabling the admin to manage employee records, assign managerial roles, and update privileges. Managers can oversee tasks, roles, and department assignments for employees, while employees can log in to view tasks, update their status, check salary details, and apply for leaves.

The system is designed with essential features such as adding, viewing, updating, and deleting employee details, granting or revoking user permissions, and generating leave and task reports. Its primary purpose is to reduce human effort, enhance accuracy, and increase the efficiency of employee management operations.

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1 Introduction

1.1 Product perspective

The **Employee Management System** is designed to streamline and digitize the management of employee-related tasks and processes. This system replaces manual processes with a comprehensive internet-based application that supports multiple user roles, ensuring efficiency and accuracy in managing employees' information, tasks, and privileges. It provides functionality for administrators, managers, and employees, catering to small and medium-sized organizations.

1.2 Product features

1.2.1 User Roles:

- Admin: Responsible for managing employee records and system privileges.
- Manager: Oversees employees, their roles, tasks, and leave management.
- Employee: Performs assigned tasks, applies for leaves, and checks salary details.

1.2.2 Features for Admin:

- Add new employee records to the system.
- Edit employee details, such as contact information and department.
- Grant or revoke privileges for employees.
- Assign an employee as a manager.
- Deallocate a manager back to a standard employee role.
- View and manage the list of all employees.
- Secure login and logout functionality.

1.2.3 Features for Manager:

- Approve or deny leave requests submitted by employees.
- Assign roles and responsibilities to employees.
- Assign tasks and monitor their progress.
- Update the department assignment of an employee.
- View leave records of their team members.
- Secure login and logout functionality.

1.2.4 Features for Employees:

- View assigned tasks and update their status.
- Apply for leaves and track their approval status.
- Check salary details and payment history.
- Secure login and logout functionality.

1.3 Functional Requirement

1.3.1 Admin:

- Add Employee: The system shall allow the admin to input employee details such as name, role, and department.
- Edit Employee Details: The system shall enable the admin to update employee information when required.
- Grant Privileges: Admin can assign specific access permissions to employees.
- Revoke Privileges: Admin can remove specific permissions from employees.
- Assign Manager: Admin can designate an employee as a manager

- Deallocate Manager: Admin can revoke managerial roles and assign them back as standard employees.
- Manage Employee Records: Admin can view, search, and manage the database of all employees.
- Authentication: Admin must log in securely before accessing the system.

1.3.2 Manager:

- Approve/Deny Leave Requests: Managers can view and respond to leave applications from employees.
- Assign Roles: Managers can assign or update employee roles within their department.
- Assign Tasks: Managers can allocate tasks and set deadlines for employees.
- Update Employee Department: Managers can reassign employees to other departments.
- View Leave Records: Managers can track and view approved leaves for their team.
- Authentication: Managers must log in securely before accessing the system.

1.3.3 Employee:

- Task Status Update: Employees can update their task status (e.g., "In Progress," "Completed").
- Apply for Leaves: Employees can submit leave requests for managerial approval.
- View Salary Details: Employees can check salary breakdowns and payment history.
- Authentication: Employees must log in securely before accessing the system.

1.4 Non-Functional Requirement

1.4.1 Usability:

- The UI should be simple enough for everyone to understand and get the relevant information without any special training. Different languages can be provided based on the requirements.

1.4.2 Accuracy:

- The data stored about the books and the fines calculated should be correct, consistent, and reliable.

1.4.3 Availability:

- The System should be available for the duration when the library operates and must be recovered within an hour or less if it fails. The system should respond to the requests within two seconds or less.

1.4.4 Maintainability:

- The software should be easily maintainable and adding new features and making changes to the software must be as simple as possible. In addition to this, the software must also be portable.

2 Design and Implementation Constraints

2.1 Use case diagram

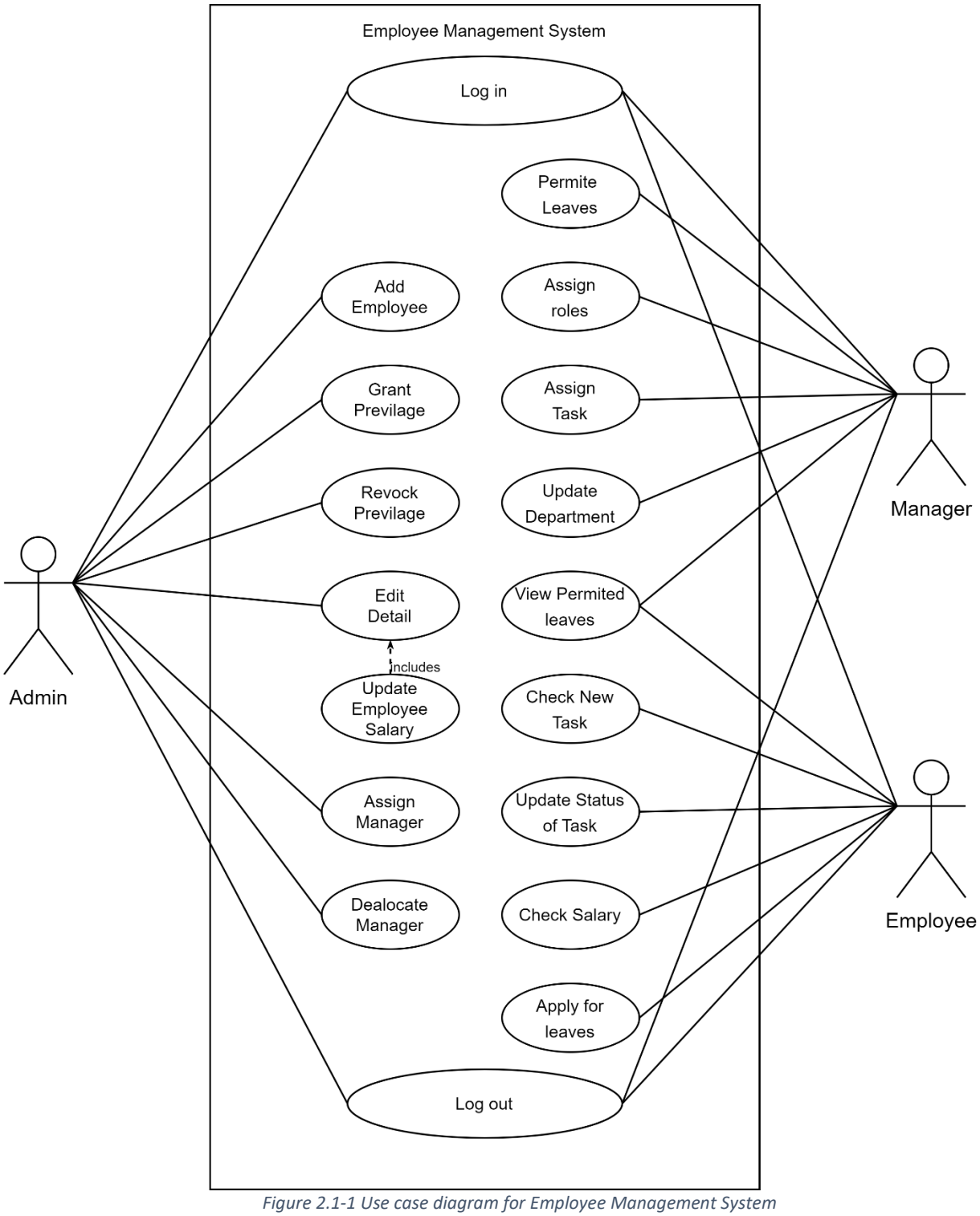

Figure 2.1-1 Use case diagram for Employee Management System

2.2 Activity diagram and Swimlane diagram

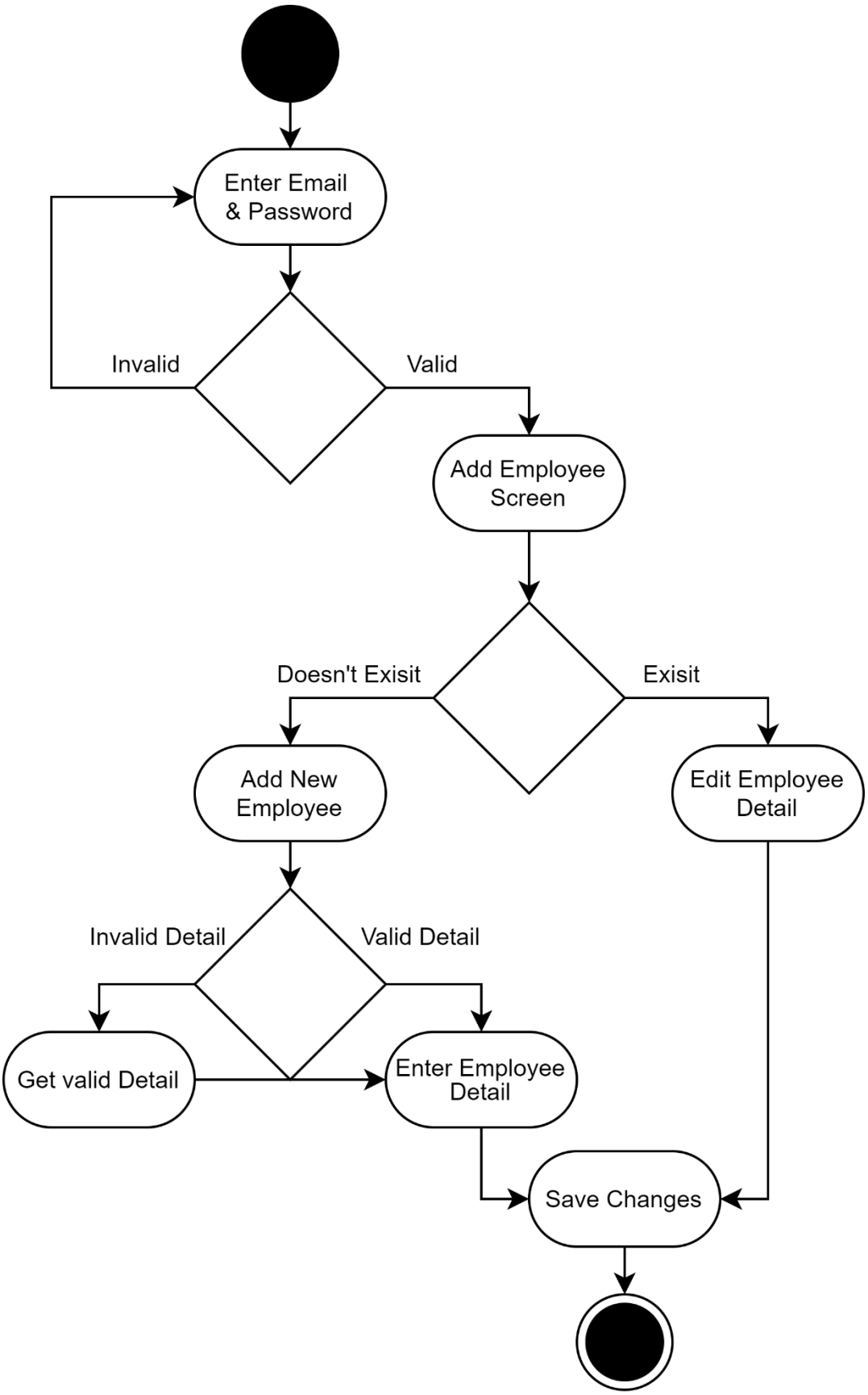

Figure 2.2-1 Activity diagram for Add Employee

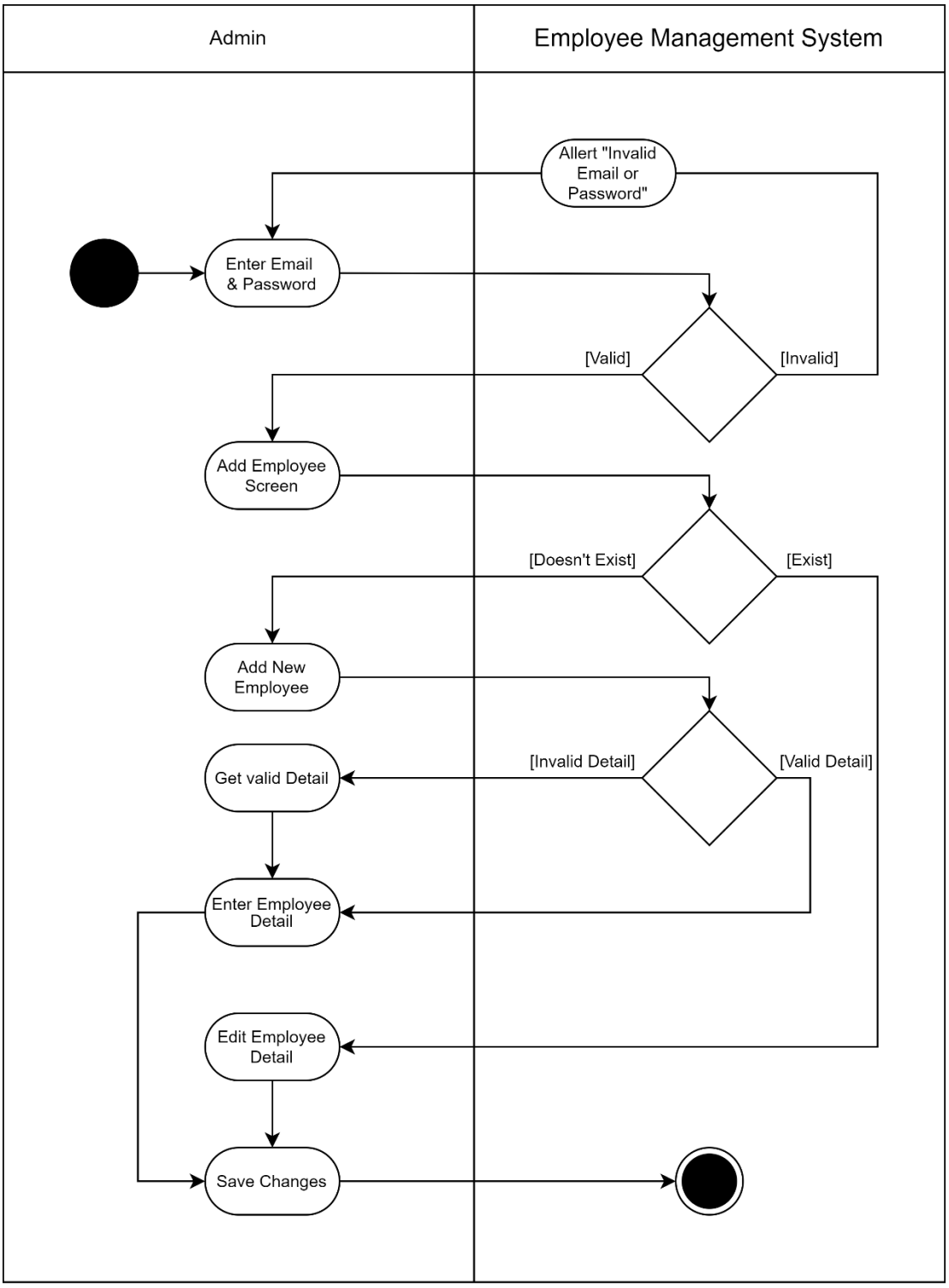

Figure 2.2-2 Swimlane diagram for Add User

2.3 Sequence diagram

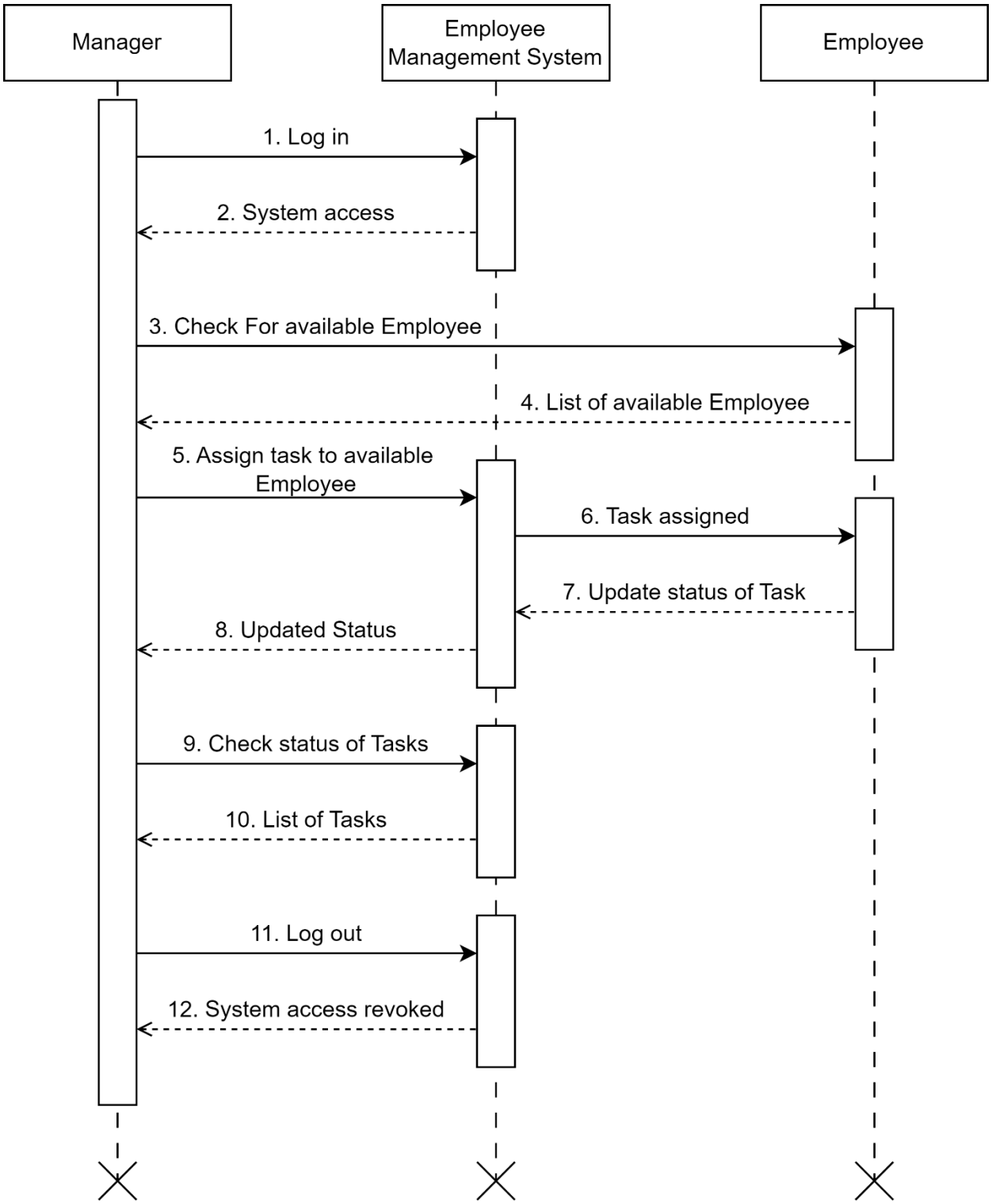

Figure 2.3-1 Sequence diagram for Assigning Task

2.4 State diagram

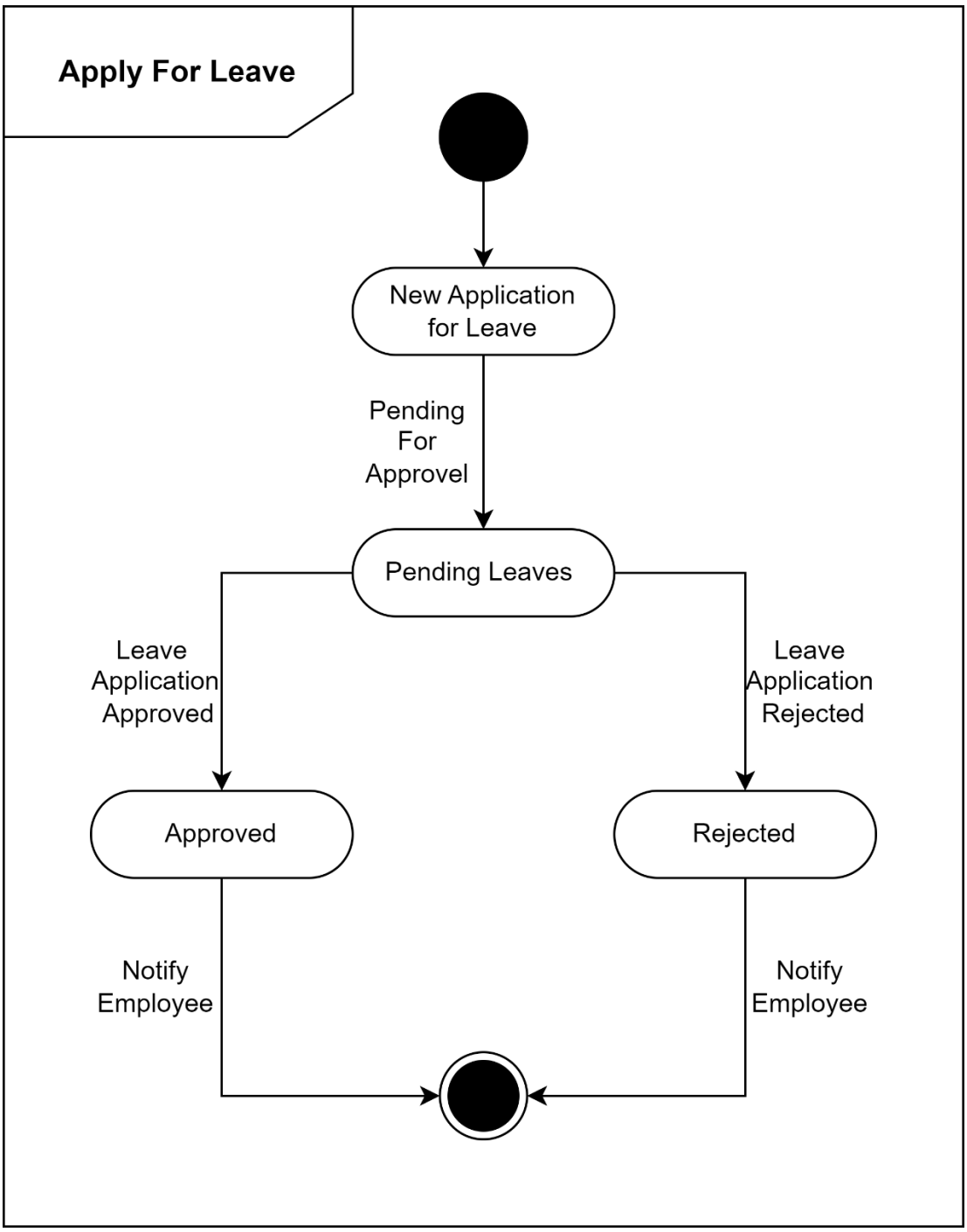

Figure 2.4-1 State diagram of Leave

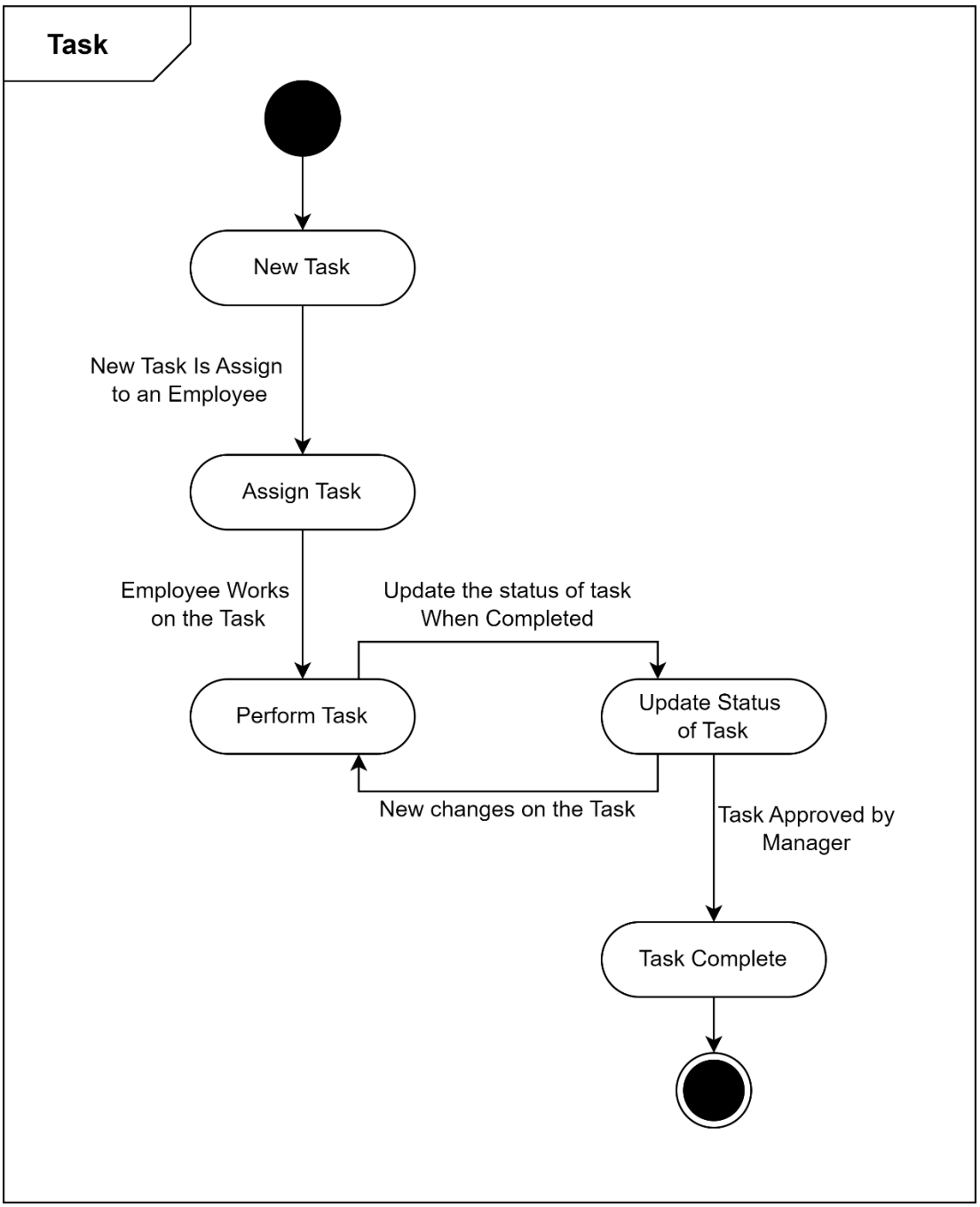

Figure 2.4-2 State diagram for Task

2.5 Class diagram

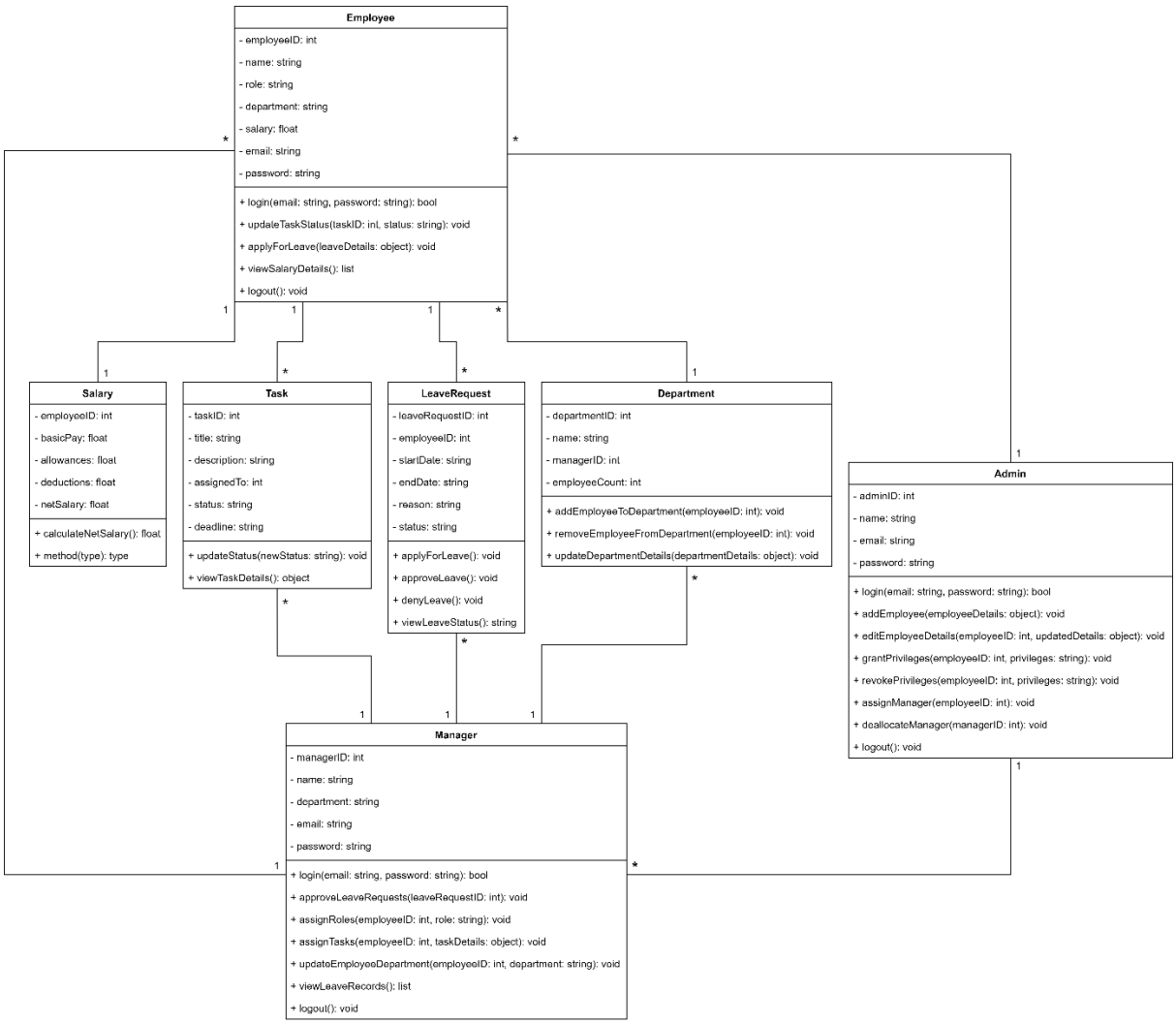

Figure 2.5-1 Class diagram for Employee Management System

2.6 Data flow diagram

2.6.1 Context diagram (level-0)

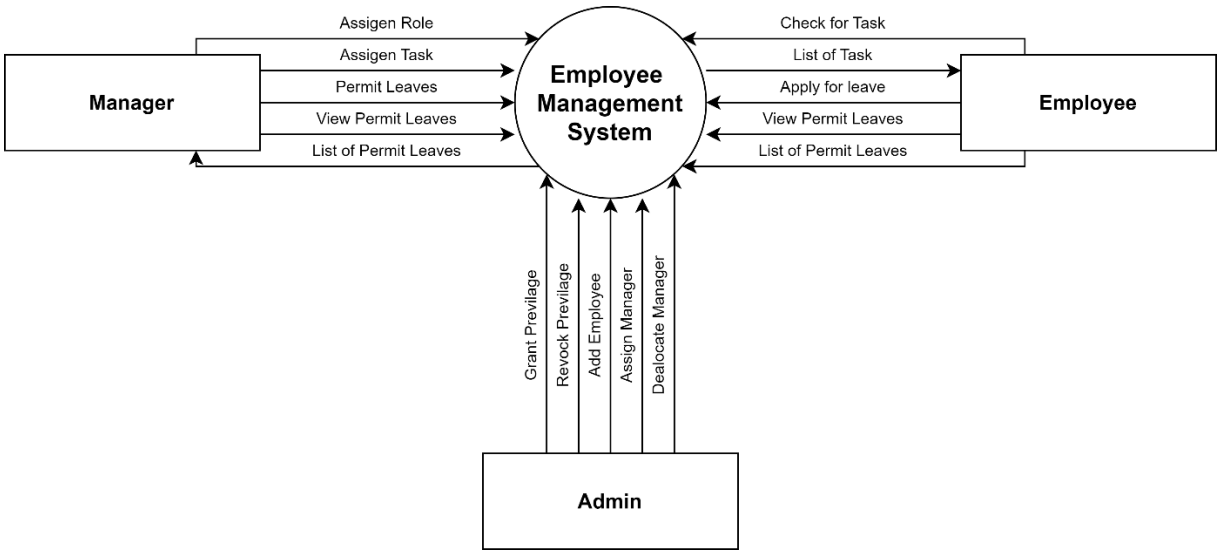

Figure 2.6-1 Context diagram for Employee Management System

2.6.2 DFD Level-1

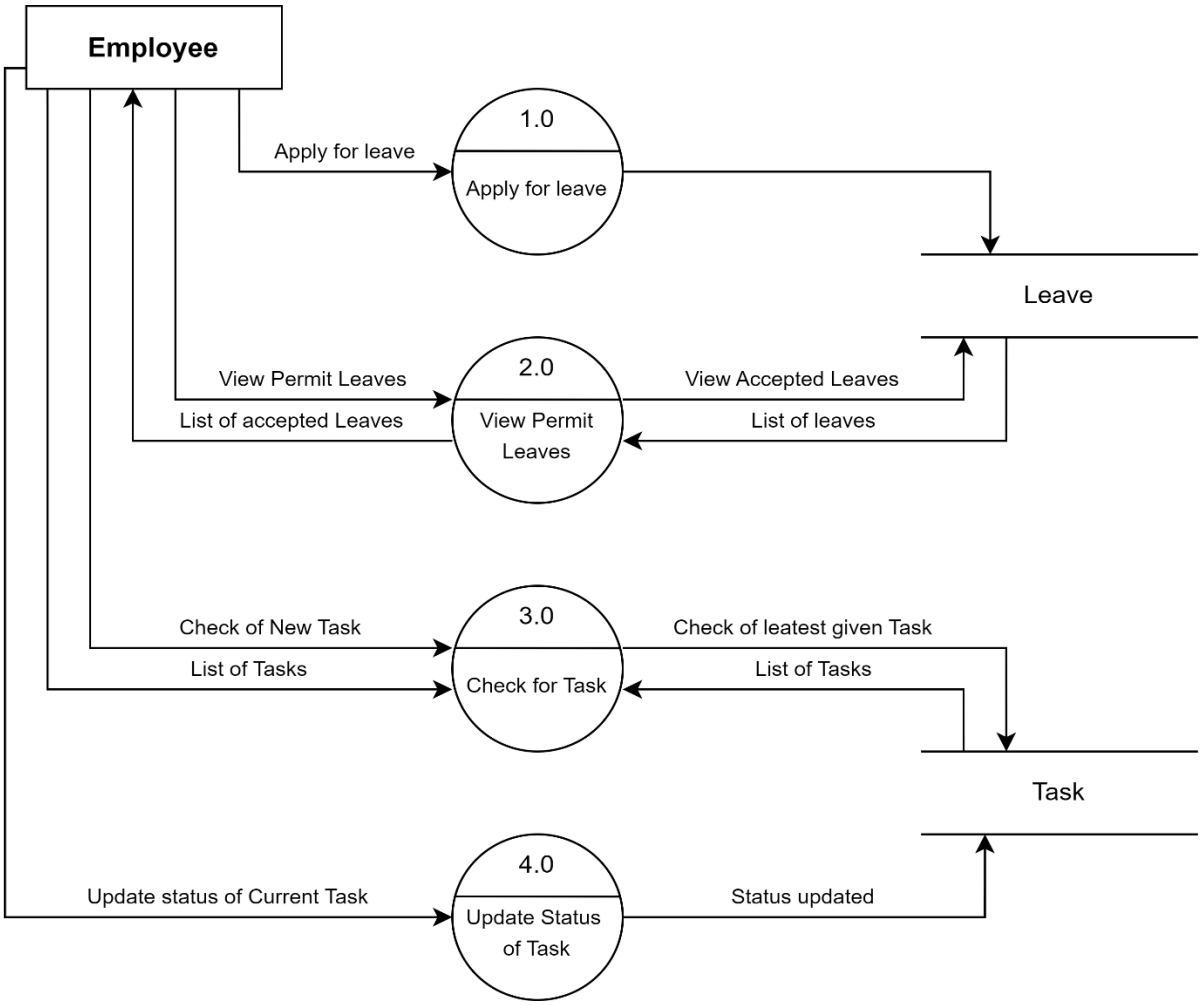

Figure 2.6-2 DFD level-1 for Employee Management System

3 External interface requirement (Screens)

3.1 Screen-1: Assigning Task

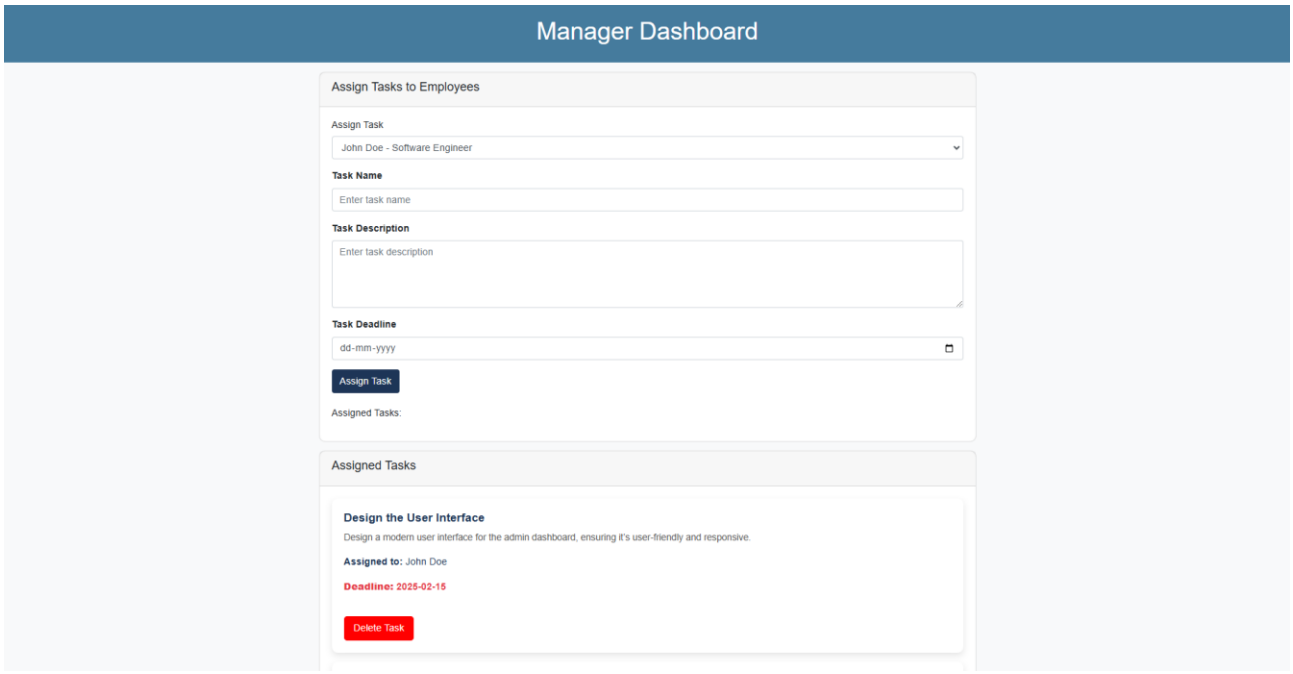

Figure 3.1-1 Screen-1: Assigning Task

Purpose: This screen will allow manager to assign tasks to specified employee through system. To assign task, the following information will be encoded in the system.

Table 3.1-1 Screen element of Assigning Task

Sr.	Screen Element	Input Type	O/M	1/N	Description
1	Employee name	Dropdown	M	1	Employee dropdown should be editable change or select Employee.
2	Task name	Textbox	M	1	Task name field should be editable and accept the task name.
3	Task description	Text area	M	1	Task description should be editable and accept the detailed task description.
4	Task deadline	Date	M	1	Task deadline field should be editable and accept the deadline date of the task.
5	Assign task	Button	------	------	Assign task is a button for assign task to the specified employee.

3.2 Screen-2: Change Department

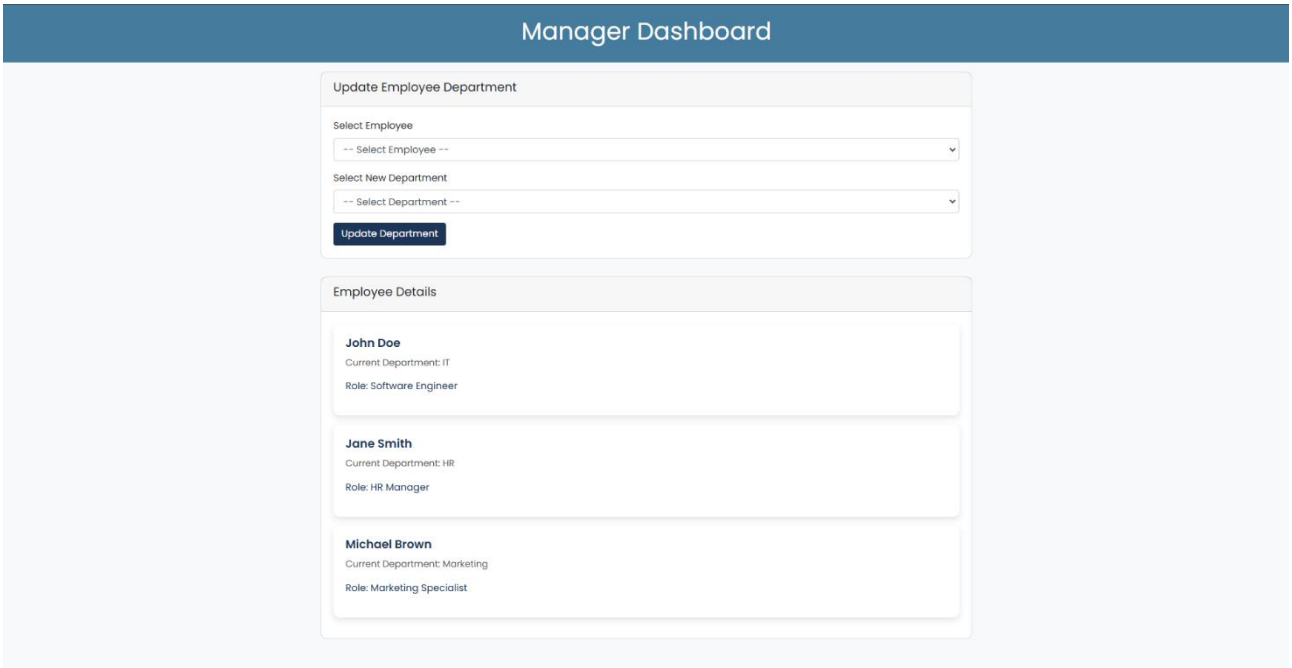

Figure 3.2-1 Screen-2: Change Department

Purpose: This screen will be used by the manager to change department of an employee from the system. The manager will select the correct combination of employee name and new department of employee to change their department from the system.

Table 3.2-1 Screen element of Change Department

Sr.	Screen Element	Input Type	O/M	1/N	Description
1	Employee name	Dropdown	M	1	Employee dropdown should be editable to change or select Employee.
2	Department name	Dropdown	M	1	Department name should be editable to change or select department.
3	Update department	Button	------	------	Update department is a button for changing department of specified employee.

3.3 Screen-3: Get Salary Detail

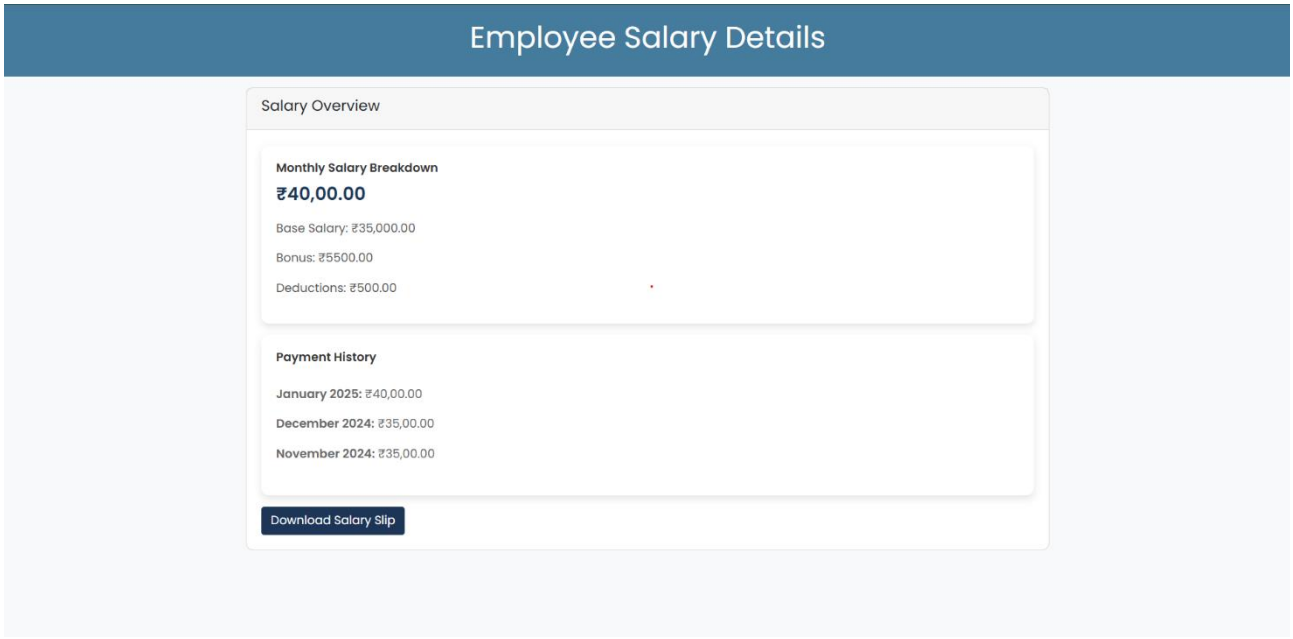

Figure 3.3-1 Screen-3: Get Salary Detail

Purpose: This module will allow the employees to get/download their salary slip.

Table 3.3-1 Screen element of Get Salary Detail

Sr.	Screen Element	Input Type	O/M	1/N	Description
1	Download salary slip	Button	-----	-----	Download salary slip is a button to download current months salary slip of an employee.

4 Database design

4.1 List of Tables

- Admin
- Manager
- Employee
- Salary
- Task
- Leave
- Department

Table 4.1-1 Table: Admin

Column	Data Type	Null	Keys & Constrains	Default Value & Description
AdminID	int	NN	PK (Auto Increment)	
AdminName	varchar(100)	NN		
AdminEmail	varchar(100)	AN		
AdminPassword	varchar(100)	AN		

Table 4.1-2 Table: Manager

Column	Data Type	Null	Keys & Constrains	Default Value & Description
ManagerID	int	NN	PK (Auto Increment)	
ManagerName	varchar(100)	NN		
ManagerEmail	varchar(100)	AN		
ManagerPassword	varchar(100)	AN		
EmployeeId	int	NN	FK	Reference of Employee from Employee Table.

Table 4.1-3 Table: Employee

Column	Data Type	Null	Keys & Constrains	Default Value & Description
EmployeeId	int	NN	PK (Auto Increment)	
EmployeeName	varchar(100)	AN		
EmployeeEmail	Boolean	AN		
EmployeePassword	varchar(100)	AN		
ManagerId	int	AN	FK	Reference of Manager from Manager Table.
DepartmentId	int	NN	FK	Reference of Department from Department Table.

Table 4.1-4 Table: Salary

Column	Data Type	Null	Keys & Constrains	Default Value & Description
SalaryID	int	NN	PK (Auto Increment)	
NetSalary	Int	AN		
BasicPay	int	AN		
Allowances	int	AN		
Deduction	int	AN		
EmployeeId	int	NN	FK	Reference of Employee from Employee Table.

Table 4.1-5 Table: Task

Column	Data Type	Null	Keys & Constrains	Default Value & Description
TaskId	int	NN	PK (Auto Increment)	
TaskTitle	varchar(100)	AN		
TaskDescription	Boolean	AN		
TaskDeadline	varchar(100)	AN		
Status	Boolean	AN		
ManagerId	int	NN	FK	Reference of Manger from Manager Table.
EmployeeId	int	NN	FK	Reference of Employee from Employee Table.

Table 4.1-6 Table: Leave

Column	Data Type	Null	Keys & Constrains	Default Value & Description
RequestId	int	NN	PK (Auto Increment)	
RequestReason	varchar(100)	AN		
StartDate	DateTime	AN		
EndDate	DateTime	AN		
Status	Boolean	AN		
ManagerId	int	AN	FK	Reference of Manager from Manager Table.
EmployeeId	int	NN	FK	Reference of Employee from Employee Table.

Table 4.1-7 Table: Department

Column	Data Type	Null	Keys & Constrains	Default Value & Description
DepartmentId	int	NN	PK (Auto Increment)	
DepartmentName	varchar(100)	NN		
EmployeeCount	int	AN		

5 Stories and Scenario

5.1 Story-1: Add New Employee in Employee catalogue.

*Story # **S1***	:	**As a** Admin, **I want to** add a new Employees in Employee catalogue **So that** manager can keep track of all employee details and manage them effectively.
Priority	:	High
Estimate	:	XL
Reason	:	The addition of a new Employee to the Employee catalogue is crucial for ensuring that the Employee's collection is up-to-date and accessible to manager.

5.1.1 Scenario# S1.1

*Scenario# **S1.1***	:	Adding a New Employee with Valid Information
Prerequisite	:	Admin is logged in to the Employee Management System.
Acceptance Criteria	:	**Given:** The Admin is navigated to the employee catalogue management page. Valid employee information, including name, email, department, and other relevant details is added. **When:** The Admin selects the "Add New Employee" option and The Admin enters valid book details. The Admin clicks the "Add" button to add the employee to the catalogue. **Then:** The system successfully adds the employee to the catalogue and the Admin receives a confirmation message with the employee's identification number.

5.1.2 Scenario# S1.2

*Scenario# **S1.2***	:	Adding a New Employee with Invalid Information
Prerequisite	:	The Admin is logged in to the Employee Management System.
Acceptance Criteria	:	**Given:** The Admin is navigated to the employee catalogue management page. Invalid employee information, including name, email, department, and other relevant details is added. **When:** The Admin selects the "Add New Employee" option and the Admin enters an incomplete or incorrect employee details and Admin clicks the "Add" button to add the employee to the catalogue. **Then:** The system displays error messages for the incorrect or missing information and the employee is not added to the catalogue.

5.2 Story-2: Change Department

*Story # **S2***	:	**As a** Manager, **I want to** change the department of an employee, **So that** I can ensure their role and responsibilities align with the right team and department.
Priority	:	High
Estimate	:	M
Reason	:	Implementing a change department functionality is essential for enhancing the employee experience, as it allows employees to ensure their role and responsibility align with the right team.

5.2.1 Scenario# S2.1

*Scenario# **S2.1***	:	Changing employee department with valid or existing department
Prerequisite	:	Manager is logged in to the Employee Management System.
Acceptance Criteria	:	**Given:** The Manager is navigated to the employee catalogue management page. Valid employee and department are selected. **When:** The Manager selects the "Change Department" option and The Manager enters valid details. The Admin clicks the "Change" button to change the employee department from the catalogue. **Then:** The system successfully changes the employee department from the catalogue and the Manager receives a confirmation.

5.2.2 Scenario# S2.2

*Scenario# **S2.2***	:	Changing employee department with Invalid or non-existing department
Prerequisite	:	The Admin is logged in to the Employee Management System.
Acceptance Criteria	:	**Given:** The Manager is navigated to the employee catalogue management page. Invalid employee and department are selected. **When:** The Manager selects the "Change Department" option and The Manager enters invalid details. The Manager clicks the "Change" button to change the employee department from the catalogue. **Then:** The system displays error messages for the incorrect information and the employee department is not changed from the catalogue.

5.3 Story-3: Request for Leave

*Story # **S3***	:	**As** Employee, **I want** to send request for my leave **So that** I can take time off when needed and ensure my absence is properly recorded.
Priority	:	High
Estimate	:	M
Reason	:	Allowing employees to request leave is important for managing time off effectively, ensuring their absence is properly recorded and approved.

5.3.1 Scenario# S3.1

*Scenario# **S3.1***	:	Valid leave request
Prerequisite	:	Employee is logged in to the Employee Management System.
Acceptance Criteria	:	**Given:** The Employee is navigated to the leave catalogue management page. Valid information is provided. **When:** The Employee selects the "Leave Request" option and The Employee enters valid details like reason, description, start date, end date. The Employee clicks the "Submit" button to submit the leave request. **Then:** The system confirms the leave request has been successfully submitted. The employee receives a notification that the leave request has been sent for approval.

5.3.2 Scenario# S3.2

*Scenario# **S3.2***	:	Invalid Leave Request
Prerequisite	:	Employee is logged in to the Employee Management System.
Acceptance Criteria	:	**Given:** The Employee is navigated to the leave catalogue management page. Invalid information is provided. **When:** The Employee selects the "Leave Request" option and The Employee enters invalid details. The Employee clicks the "Submit" button to submit the leave request. **Then:** The system displays an error message detailing the issue. The leave request is not submitted.

6 Test cases

Project Name:	**EMI Calculator**	**Test Designed by:**	**P. U. Jadeja**
Module Name:	**Login**	**Test Designed date:**	01-10-2023
Release Version:	**1.0**	**Test Executed by:**	**R. B. Gondaliya**
		Test Execution date:	15-01-2023

Pre-condition: **Web application should be accessible**				
Test Case ID	**Test Title**	**Test Type**	**Description**	**Test Case ID**
TC_001	Login to web application with valid credential	Functional	Login to Library management system web application through valid credential	TC_001
TC_002	Login to web application with invalid credential	Functional	Login to Library management system web application through invalid credential	TC_002
TC_003	Varify login page elements	GUI	varify that all elements are availabe on login page	TC_003

Test Case Title	Login to web application with valid credential
Test Type	Functional
Test Priority	High
Pre-condition	Web application should be accessible

Test Step	Test Case Description	Expected Result	Actual Result	Status	Comment	Data	BUG ID
1	Access Web application URL	The site launched properly	Site launched successfully	Pass		https://accounts.google.com/ServiceLogin	
2	Enter valid Username in username field	Username field should be editable and accept the Username	Username input accepted	Pass		Username: Rbgondaliya@gmail.com	
3	Enter valid Password in Password field	Password field should be editable and accept the password and display as star or dot	Password input displayed in dot and accepted	pass		Password: rbgondaliya	
4	Enter valid captcha code in captch field	Captch field should editable and accept captcha and captcha is case sensitive	Captcha input accepted	Pass	Step required when human action validation	get captcha from image which is near by captcha field	

					perfor m		
5	Click on login button	User should login into site and navigated to dashboard	User navigated to dashboard and username should br display in top of the right side.	pass			

Test Case Title	Login to web application with invalid credential
Test Type	Functional
Test Priority	Medium
Pre-condition	Web application should be accessible

Test Step	Test Case Description	Expected Result	Actual Result	Status	Comment	Data	Bug ID
1	Verify that User is not able to Login with invalid Username and invalid Password	Should be display an error message enter wrong username or password	Display an error of wrong username and password	Pass			
2	Verify that User is not able to Login with Valid Username and invalid Password	Should be display an error message enter wrong password	Display an error of wrong password	Pass			
3	Verify that User is not able to Login with	Should be display an error message	Display an error Username not found	Pass			

	invalid Username and Valid Password	User not found					
4	Verify that User is not able to Login with blank Username or Password	Set required field validation message for Username and Password	Display an error of wrong username and password	Fail	Not performa a validation function fix it		Bug_002

Test Case Title	Varify login page elements
Test Type	GUI
Test Priority	Medium
Pre-condition	Web application should be accessible

Test Step	Test Case Description	Expected Result	Actual Result	Status	Comment	Data	Bug ID
1	Launch application with the given url	The site launched properly	Site launched successfully	Pass		https://accounts.google.com/ServiceLogin	
2	Verify that the login screen contains elements such as Username, Password, Sign in button, Remember password check box, Forgot password link, and Create an account link.	All listed control displayed properly on the page	Login page loaded successfully	Pass			

3	Verify that cursor is focused on "Username" text box on the page load	Cursor is focused in Username textbox	Cursor focus in Username textbox	Pass			
4	Verify that tab functionality is working properly or not	When tab pressed cursor move in next control	Cursor moving in next control	Pass			
5	Verify that all the fields such as Username, Password has a valid placeholder	All text fields have proper placeholder	All text fields have proper placeholder	Pass			
6	Verify that the labels float upward when the text field is in focus or filled (In case of floating label)	When field is focused or filled, label display on top of the filled	When field is focus or filled, label display on top of the filled	Pass	step required when fields with floating label		
7	verify that forgot password link working properly	when click on forgot password load forgot passworg page	forgot password link not working	Fail			

7 References

- http://www.w3schools.com/html/html_intro.asp
- https://www.w3schools.com/php/default.asp
- https://www.javatpoint.com/uml