



# INSTITUTE FOR ADVANCED COMPUTING AND SOFTWARE DEVELOPMENT AKURDI, PUNE

**Documentation On** 

# EMPLOYEE ADMINSTRATION SYSTEM

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# **ABSTRACT**

An Employee Administration System Project in Spring Boot and React empowers administrators to efficiently manage departments, administrators, employees, and salary information. This project delves into the functionalities of an Employee Administration System (EAS) wherein administrators can effortlessly add departments and assign administrators liable for overseeing employee administration. Additionally, the system allows the recording and monitoring of salary information for each employee. Discover how this comprehensive solution enhances organizational efficiency, simplifies administrative tasks, and guarantees accurate control of employee records and compensation. Streamline your employee administration tactics and optimize productivity with an Employee Administration System tailored to satisfy the specific desires of your agency.

An Employee Administration System is developed using Spring Boot Microservices, React JS & MySQL. By using this application, Admins can add Managers in the application based on the departments, and Managers can administer the Employee Data, including their Salary and complete details.

# **ACKNOWLEDGEMENT**

I would like to express my special thanks of gratitude to All my teachers and staff members as well as our co-ordinator who gave me the golden opportunity to do this wonderful project on the topic **Employee Administration System**, which also helped me in doing a lot of Research and I came to know about so many new things I am really thankful to them. Secondly i would also like to thank my parents and friends who helped me a lot in finalizing this project within the limited time frame.

# **SRS Document for Employee Administration System**

#### 1.Introduction

The Employee Administration System is a comprehensive software solution that aims to streamline employee-related operations within an organization. Developed using Spring Boot for the backend and React for the frontend, the system facilitates user authentication, department management, manager registration, employee management, and salary administration. This document outlines the requirements, features, and specifications of the system.

#### 2. Purpose:

The purpose of the Employee Administration System is to provide an efficient and user-friendly platform for managing employee-related tasks. The system offers a range of functionalities including user authentication, department management, manager registration, employee records management, and salary administration. By automating and centralizing these operations, the system improves organizational efficiency and reduces administrative overhead.

#### 3. Scope:

The system encompasses the following key modules:

#### 3.1 User Authentication Module:

- Secure registration and login functionality for users (Admin, Manager, Employee).
- Role-based authorization to ensure that users can access only their relevant functionalities.
- Password recovery and reset options for users.

#### 3.2 Department Module:

- Ability to add new departments with relevant details.
- Update department details such as name, description, or manager.
- Deletion of departments when needed.
- View a list of all departments within the organization.

#### 3.3 Manager Module:

- Register new managers with personal details and department assignments.
- Update manager information, including personal and contact details.

- Delete manager records as needed.
- View a list of all managers.

#### 3.4 Employee Module:

- Register new employees with personal information, contact details, and department assignments.
- Update employee records with relevant changes.
- Delete employee records when necessary.
- View a list of all employees within the organization.
- Employees can view their own profiles for personal information.

#### 3.5 Employee Salary Module:

- Add salary details for employees, including salary amount, payment mode, and bank details.
- Update salary information when necessary.
- Fetch and display employee salary details.
- Employees can view their own salary details.

# 4. Functional Requirements:

#### 4.1 User Authentication Module:

- 1. Secure Registration and Login:
  - Users can register with valid credentials.
  - Secure login process with authentication checks.
- 2. Role-Based Authorization:
  - Admins can access all modules and functionalities.
  - Managers can manage employees and salary details.
  - Employees have access to their own profiles and salary information.
- 3. Password Management:
  - Password recovery through email.
  - Password reset functionality.

#### **4.2 Department Module:**

- 1. Department Management:
  - Admins can add new departments with relevant details.
  - Admins can update or delete existing departments.
  - List of departments displayed with their details.

#### 4.3 Manager Module:

- 1. Manager Registration:
  - Admins can register new managers with personal and department information.
  - Admins can update or delete manager records.
- 2. Manager Details:
  - Managers can view their own profiles.
  - Admins can view a list of all managers.

#### 4.4 Employee Module:

- 1. Employee Registration:
  - Managers can register new employees with personal, contact, and department information.
  - Managers can update or delete employee records.
- 2. Employee Details:
  - Employees can view their own profiles.
  - Managers can view a list of all employees within their departments.

#### 4.5 Employee Salary Module:

- 1. Salary Administration:
  - Managers can add salary details for employees.
  - Managers can update salary information.
  - Employees can view their own salary details.

#### **5. Non-Functional Requirements:**

- 1. User Interface:
  - Intuitive and user-friendly design.
  - Responsive and consistent across modules.

#### 2. Security:

- Strong authentication and authorization mechanisms.
- Passwords stored securely using hashing.

#### 3. Performance:

- Fast response times for user interactions.
- Efficient database queries for data retrieval.

#### 4. Scalability:

- The system should handle a growing number of users and records.
- 5. Data Backup and Recovery:
  - Regular database backups to prevent data loss.
  - Mechanisms for data recovery in case of system failures.

#### 6. Constraints:

- 1. The system should be compatible with modern web browsers.
- 2. Backend: Spring Boot Microservices.
- 3. Frontend: React JS.
- 4. Database: MySQL.

#### 7. Glossary:

- Admin: User with administrative privileges to manage all system functionalities.
- Manager: User responsible for managing employees and their data.
- **Employee:** A user within the organization.
- **Department:** A division within the organization structure.
- Salary: Compensation provided to employees for their work.

#### 8. References:

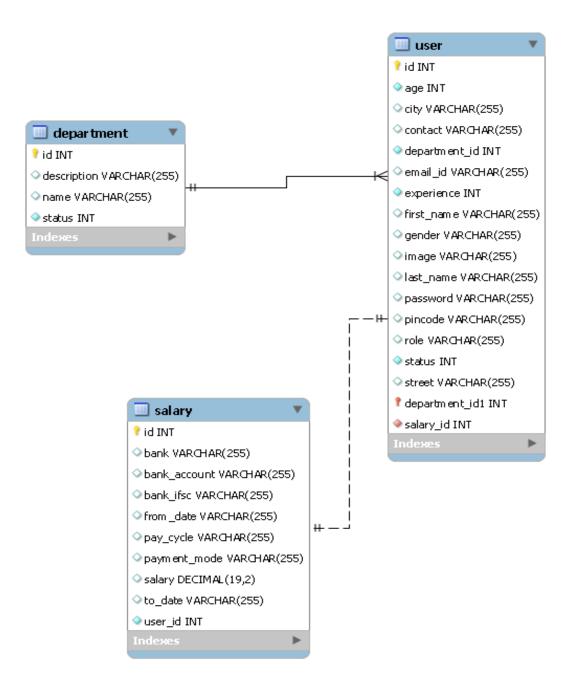
- Spring Boot Documentation
- React JS Documentation

• MySQL Documentation

# 9. Revision History:

This Software Requirements Specification provides an in-depth overview of the
features, functionality, and requirements of the Employee Administration System. It
serves as a blueprint for development, ensuring a comprehensive understanding of the
system's purpose, scope, and key components

#### 10.TABLE STRUCTURE / SCREEN-SHOTS:



#### 10.1. department table:

#### 10.2. salary:

```
mysql> use employee_salary_detail;
Database changed
mysql> show tables;
| Tables in employee salary detail |
salary
1 row in set (0.00 sec)
mysql> desc salary;
+----+
| Field | Type | Null | Key | Default | Extra
+-----
bank_ifsc | varchar(255) | YES |
from_date | varchar(255) | YES |
pay_cycle | varchar(255) | YES |
payment_mode | varchar(255) | YES |
                                 NULL
                                 NULL
                                 NULL
                                 NULL
 salary | decimal(19,2) | YES
                                 NULL
to_date
          | varchar(255) | YES |
                                 NULL
user_id | int
                      NO NULL
10 rows in set (0.01 sec)
```

#### 10.3. user

mysql> use employee\_user\_detail;
Database changed
mysql> show tables;

1 row in set (0.00 sec)

#### mysql> desc user;

Field	Туре	Null	Key	Default	Extra
id	int	NO NO	PRI	NULL	auto increment
age	int	NO		NULL	_
city	varchar(255)	YES		NULL	
contact	varchar(255)	YES		NULL	
department_id	int	NO		NULL	
email_id	varchar(255)	YES		NULL	
experience	int	NO		NULL	
first_name	varchar(255)	YES		NULL	
gender	varchar(255)	YES		NULL	
image	varchar(255)	YES		NULL	
last_name	varchar(255)	YES		NULL	
password	varchar(255)	YES		NULL	
pincode	varchar(255)	YES		NULL	
role	varchar(255)	YES		NULL	
status	int	NO		NULL	
street	varchar(255)	YES		NULL	

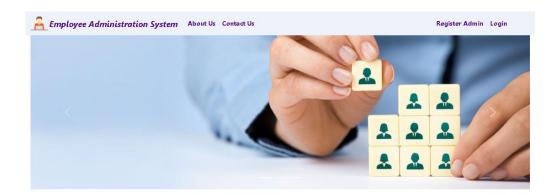
# **11.Project Closure Report:**

# 11.1.Employee Administration System Project using React JS + Spring Boot Microservices + MySql

An Employee Administration System Project in Spring Boot and React empowers administrators to efficiently manage departments, administrators, employees, and salary information. This project delves into the functionalities of an Employee Administration System (EAS) wherein administrators can effortlessly add departments and assign administrators liable for overseeing employee administration. Additionally, the system allows the recording and monitoring of salary information for each employee. Discover how this comprehensive solution enhances organizational efficiency, simplifies administrative tasks, and guarantees accurate control of employee records and compensation. Streamline your employee administration tactics and optimize productivity with an Employee Administration System tailored to satisfy the specific desires of your agency.

An Employee Administration System is developed using Spring Boot Microservices, React JS & MySQL. By using this application, Admins can add Managers in the application based on the departments, and Managers can administer the Employee Data, including their Salary and complete details.

#### **HOME PAGE**



# **Welcome to Employee Administration** System

The Employee Administration System is a comprehensive solution for managing employees and their information in an organization. It helps streamline various HR processes, such as employee onboarding, attendance tracking, performance management, and more.

With our system, administrators can efficiently manage employee records, assign roles and permissions, generate reports, and oversee the overall employee management workflow. Employees can access their profiles, view their schedules, request leave, and communicate with their managers. Managers can easily track employee performance, approve requests, and ensure smooth operations within their teams.



# Manage Employees and Managers



Simplify the process of managing employee data along with their salary information. The Employee Management System allows you to easily store and update employee details such as personal information, contact details, job positions, and salary records. Keep track of employee compensation,

 $\label{thm:efficiently manage managers and employee departments with our Employee Management System. \\$ Assign managers to specific departments, delegate responsibilities, and oversee the performance of both managers and their respective teams. Streamline communication, collaboration, and decisionmaking within departments for improved productivity and coordination.

EMPLOYEE	ADMINISTRATION
SYSTEM	

The Employee Administration System is a comprehensive solution for managing employees and their information in an organization.

ABOUT US Link 1 Link 2

Link 3

Link 4

CONTACT US Link 1 Link 2

CAREERS Link 1 Link 2 Link 3 Link 4

LINKS Link 1 Link 2 Link 3 Link 4

Login from here Log in

Link 3

Link 4

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#### 11.2.Technologies Used in Employee Administration Systems

The key technologies for developing the Employee Administration System include Spring Boot Microservices, React JS, MySQL, Maven, Bootstrap, and Java.

- 1. **Java Spring Boot Microservices**: For the Backend Development of the Employee Administration System project, Spring Boot Microservices have been used.
- 2. **React JS**: React JS is a popular Javascript Library used for the development of the project's frontend.
- 3. **MySQL**: MySQL is a widely used relational database management system used for storing employee data.
- 4. **Maven**: Maven has been used for simplifying the project and dependency management.
- 5. **BootStrap**: Bootstrap, a popular CSS framework, has been used for styling the project's frontend to create a responsive user interface.

#### 11.3.Software Used

- 1. **STS** (**Spring Tool Suite**): For developing the backend of the Employee Administration System project using Spring Boot Microservices.
- 2. **VS Code (Visual Studio Code)**: For developing the frontend of the Employee Administration System project using React JS.
- 3. MySQL Workbench: For efficient querying and manipulation of employee information.

#### 12.User Modules in Employee Administration System

The project has three user modules:

#### 12.1.ADMINISTRATOR MODULE

#### 12.2.MANAGER MODULE

#### 12.3.EMPLOYEE MODULE

#### 13.Functional Modules

#### **13.1.User Authentication Module**:

- User Authentication and Authorization with Spring Boot and React.
- Registration and Login systems have been implemented so that only authenticated users (Admin, Manager, or Employee) can perform their functionalities.

#### **13.2.Department Module**:

• Add Department, Update Department & Delete Department, View Departments.

#### **13.3.Administrator Module**:

 Register Administrator, Update Administrator, Delete Administrator, View Administrators.

#### **13.4.Employee Module**:

 Register Employee, Update Employee, Delete Employee, View Employees, View My Profile.

#### 13.5.Employee Salary Module:

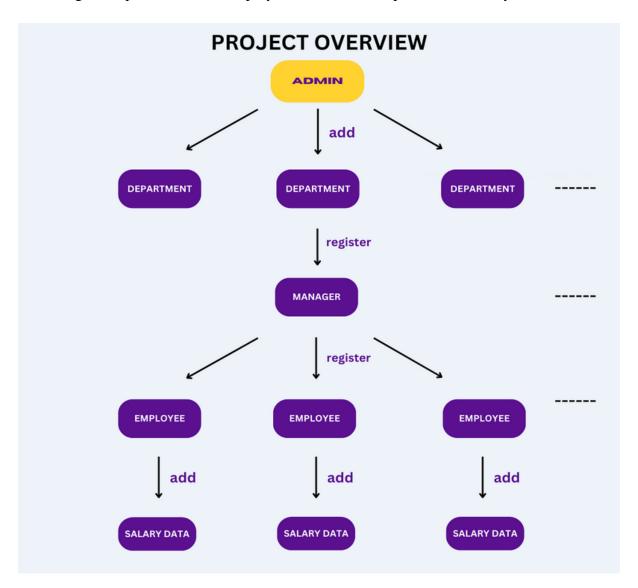
 Add Employee Salary, Update Salary, Fetch Employee Salary Details, View My Salary Detail.

# 14.Overview

The Employee Administration System Project consists of three modules:

- **14.1.Department Administration**: Admins can add and manage departments.
- **14.2.Manager Administration**: Admins can add and manage managers.
- **14.3.Employee Administration**: Managers can register and manage employees, including salary information.

The Admin is responsible for managing the overall structure, Managers oversee employees within their assigned departments, and Employees can view their profiles and salary details.



#### 15. The Project Structure

**15.1.BACKEND**: For the development of the backend, Spring Boot Microservices have been used. There are five microservices in the backend.

#### **Employee Administration System Spring Boot Microservices:**

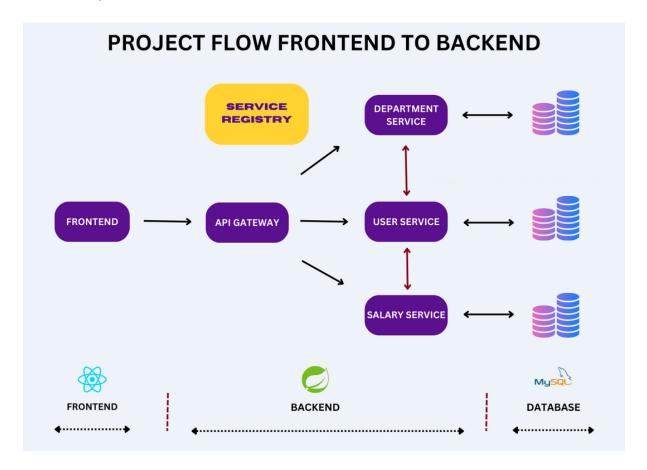
- 1. **API Gateway Service**: An API Gateway acts as a single entry point for client applications to interact with various microservices within the system.
- 2. **Service Registry Service**: A Service Registry facilitates service discovery and allows microservices to locate and communicate with each other dynamically.
- 3. **Employee User Service**: This microservice handles all user-related operations.
- 4. **Employee Department Service**: This microservice handles all department-related operations.
- 5. **Employee Salary Service**: This microservice handles all employee salary-related operations.

The request first goes to the API Gateway Service during the request initialization from the frontend. The microservices communicate with each other to form the required response, which is then sent to the frontend. Each microservice connects to a database (e.g., MySQL, Postgres, Oracle) to retrieve and store data.

**FRONTEND**: The frontend of the Employee Administration System is developed using React Js.

**DATABASE**: For the Database, MySQL Server has been used for storing the data. Other databases like Postgresql, Oracle, etc., can be configured based on requirements.

#### 16. The Project Flow



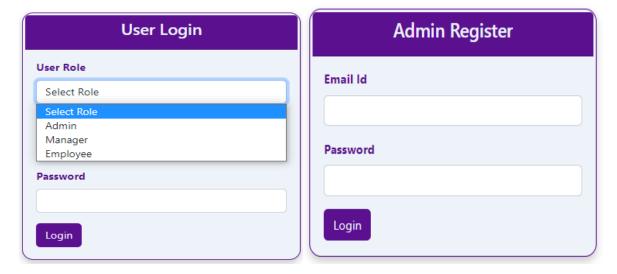
- 1. All microservices are registered in the SERVICE REGISTRY.
- 2. Requests flow from the Frontend to the Backend.
- 3. In the Backend, the request goes to the API GATEWAY.
- 4. The API GATEWAY routes the request to the required SERVICE (user service, department service, or salary service).
- 5. Each microservice communicates with one another to retrieve data.
- 6. Each microservice connects to a database for data retrieval and storage.

#### 17.ROLE OF USERS

#### 17.1) Admin Role

#### i) Admin Register & Login

Admin can register into the system by using email and password as shown below.



Admin can log in to the system by using email, password, and his role as shown below. So basically this is role-based login that means, by using the same login page, Admin, Manager & Employee can log in by selecting their role as shown below.

#### ii) Add Department

Admin can add the departments in the system as shown below.



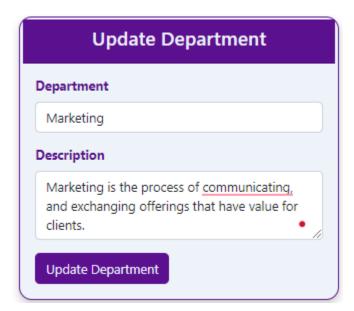
#### iv) View All Departments

Admin can view all the departments as shown below.



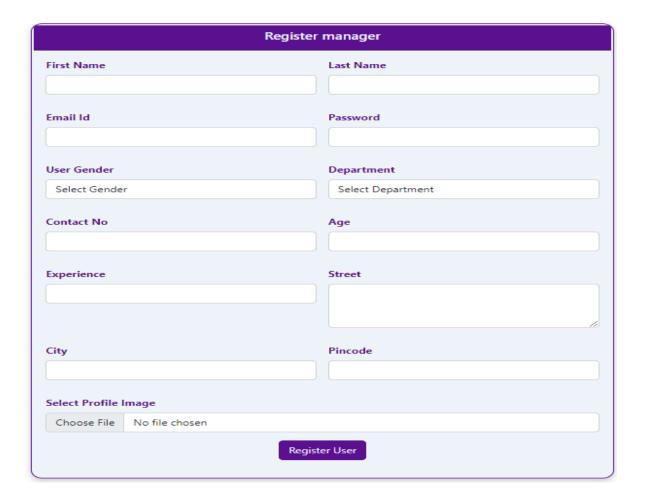
#### v) Delete or Update Department

Admin can delete the departments by clicking on the remove button as shown above. And also he can update the Departments by clicking on the update button, after clicking on the update button, the admin will be able to see the below page.



# vi) Manager Register

Admin can register manager for the department in employee management system application



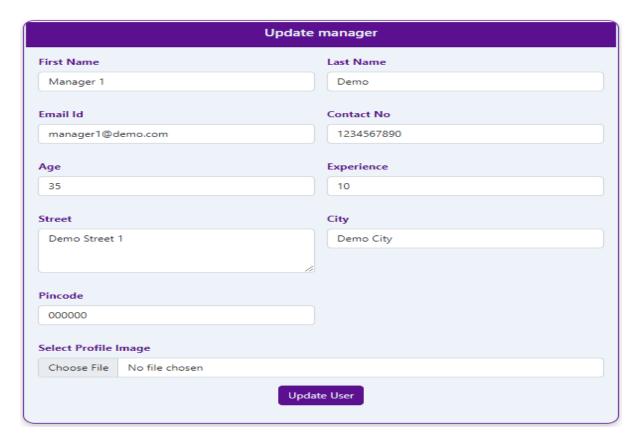
#### vii) View All Managers

Admin can view all the managers present in the EMS application as shown below.



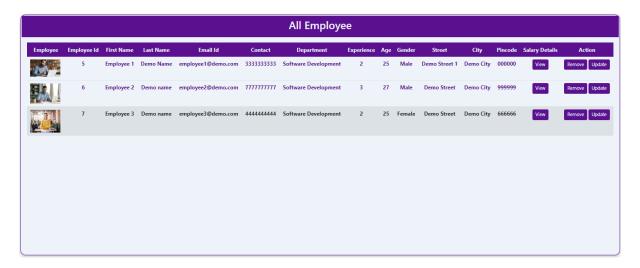
# viii) Delete or Update Managers

Admin can delete the Managers by clicking on the remove button as shown above. And also he can update the Managers by clicking on the update button, after clicking on the update button, the admin will be able to see the below page.



#### ix) View All Employees

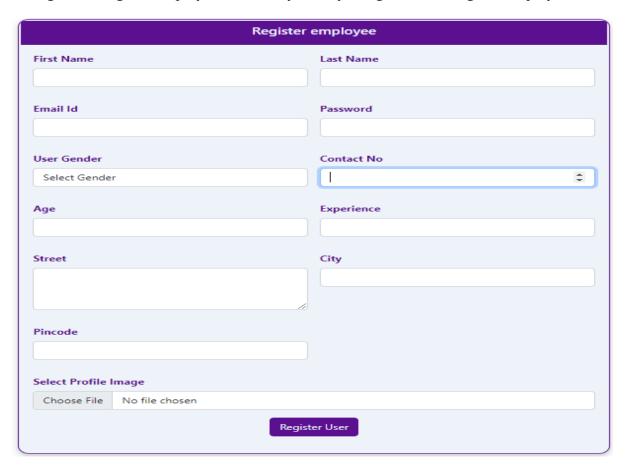
Admin can view all the employees in the departments present in the EMS application as shown below.



#### 17.2) Manager Role

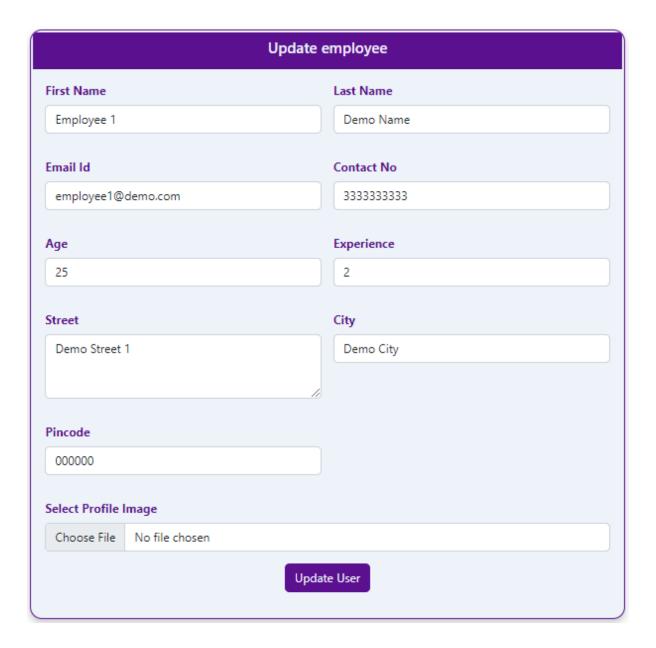
#### i) Register Employee

Managers can register employees into the system by using the below register employee form.



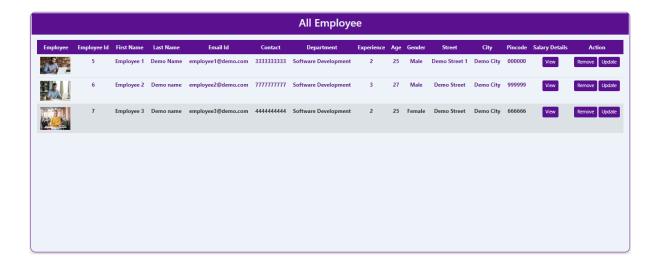
# ii) Delete & Update Employees

Managers can delete the Employees by clicking on the remove button as shown above. And also he can update the Employees by clicking on the update button, after clicking on the update button, the managers will be able to see the below page.



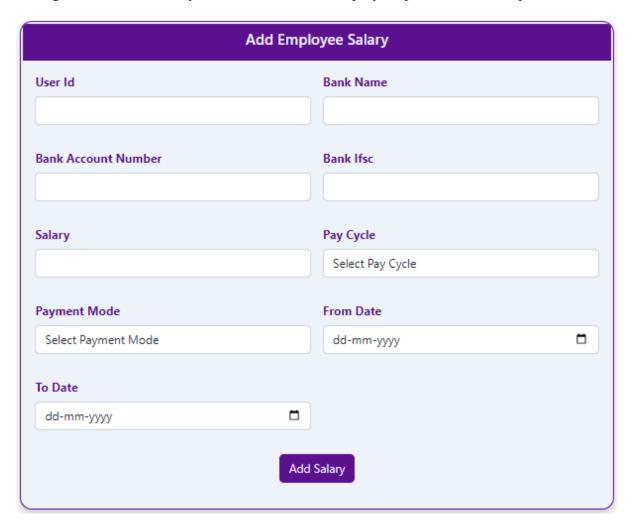
# iii) View Department Employees

Managers can view all the active employees present in his department in the EMS application.



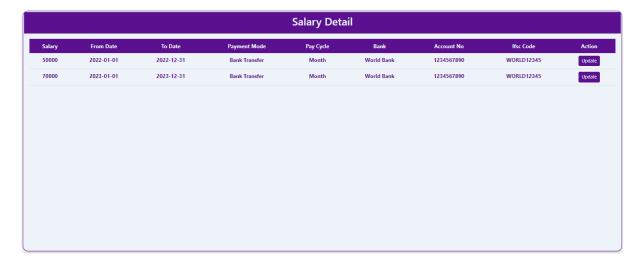
# iv) Add Employee Salary

Managers can add the salary details for the active employees present in their department in EMS.



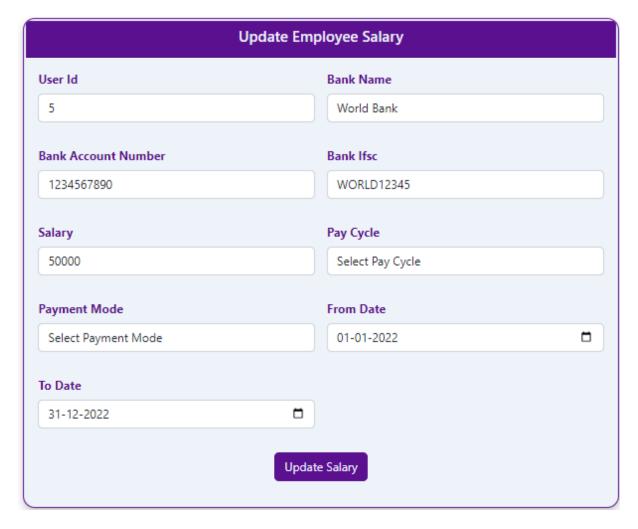
# v) View Employee Salary

Managers can view their departments with any employee's salary details as shown below.



# vi) Update Employee Salary

Managers can update their departments with any employee's salary details as shown below.



#### 17.3) Employee Role

# i) View Profile

After logging in to the EMS system, Employee can see their profile as shown below.

# **Employee Salary Details**



Employee Name: Employee 1 Demo Name

Age:25

Gender:Male

Email Id:employee1@demo.com

Contact:33333333333

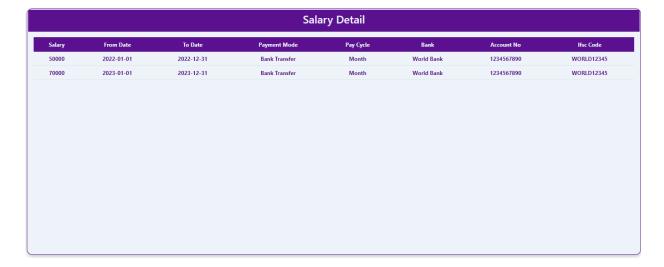
Address: Demo Street 1, Demo City, 000000

Department:Software Development

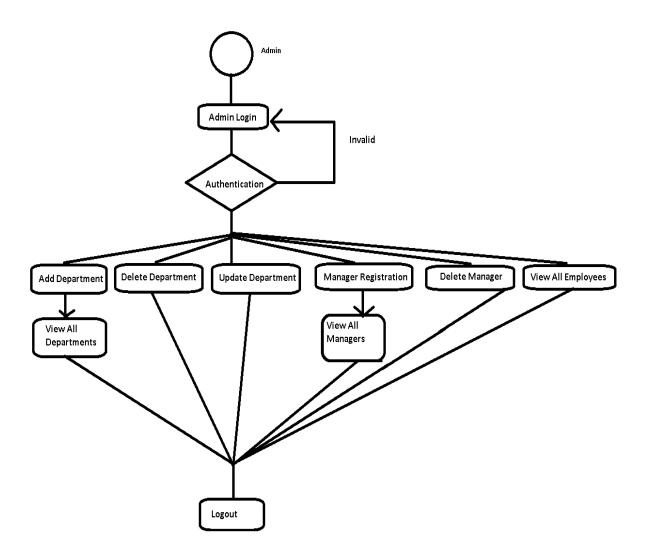
Experience:2 years

# i) View Salary Details

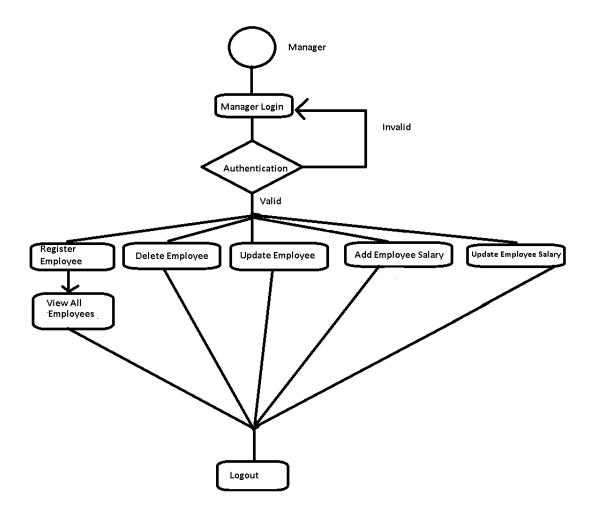
An employee can see their salary details from start to end after logging into the EMS application as shown below.



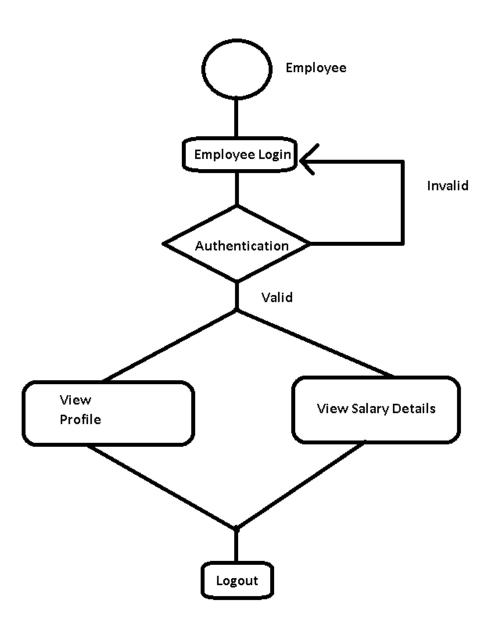
# 18. DIAGRAMS



18.1 Admin Activity Diagram



18.2. Manager Activity Diagram



**18.3** Employee Activity Diagram

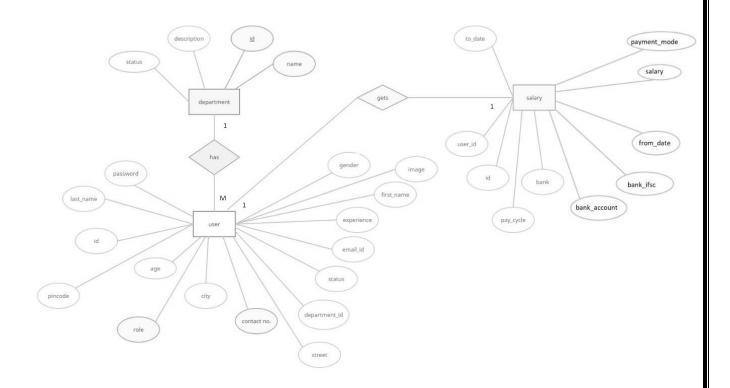
**IACSD** 🔲 user 💡 id INT age INT city Varchar(255) contact VARCHAR(255) department department\_id INT 💡 id INT description VARCHAR(255) experience INT name VARCHAR(255) status INT gender VARCHAR(255) password VARCHAR(255) pincode VARCHAR(255) orole VARCHAR(255) status INT street VARCHAR(255) 📍 department\_id1 INT salary salary\_id INT 💡 id INT ♦ bank VARCHAR(255) bank\_account VARCHAR(255) ◇ bank\_ifsc VARCHAR(255) from \_date VARCHAR(255) pay\_cycle VARCHAR(255). ⊋payment\_mode VARCHAR(255) 

to\_date VARCHAR(255)

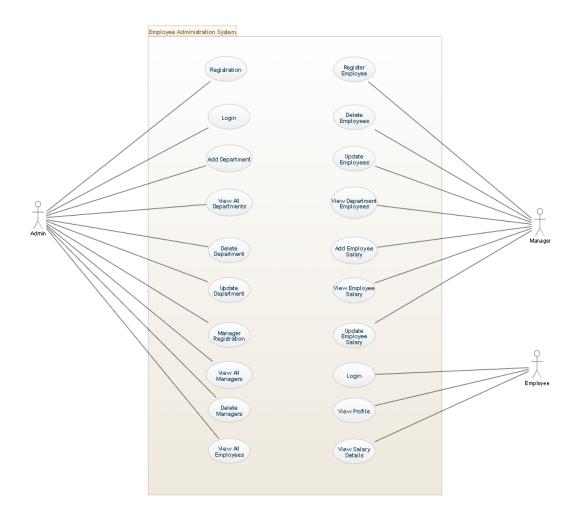
user\_id INT

**EAS** 

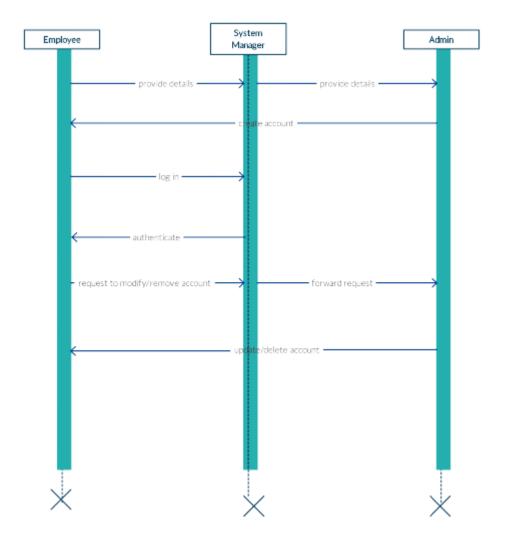
18.4 Class Diagram



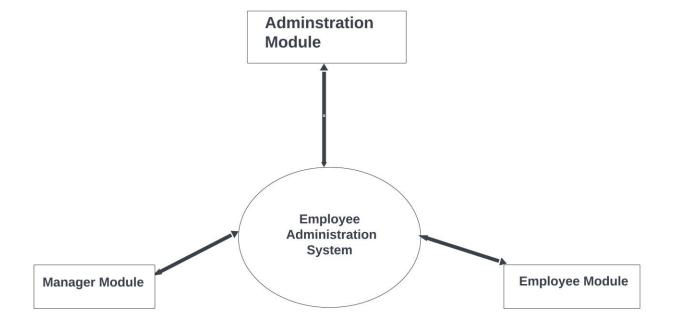
18.5 E-R Diagram



18.6 Use Case Diagram

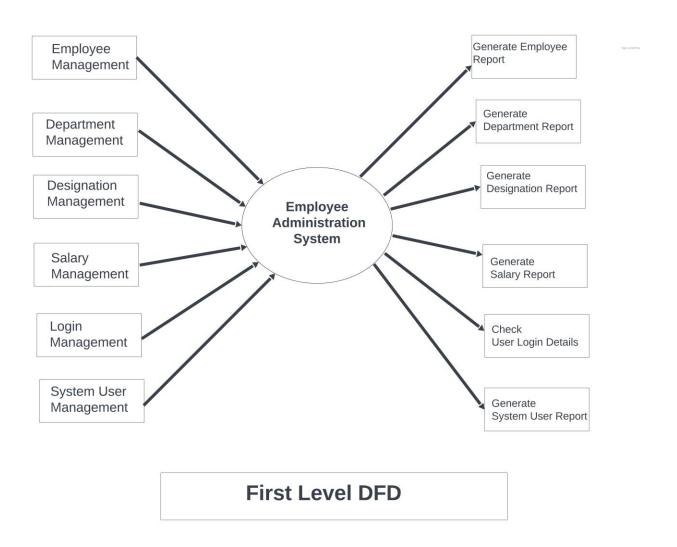


18.7 Sequence Diagram

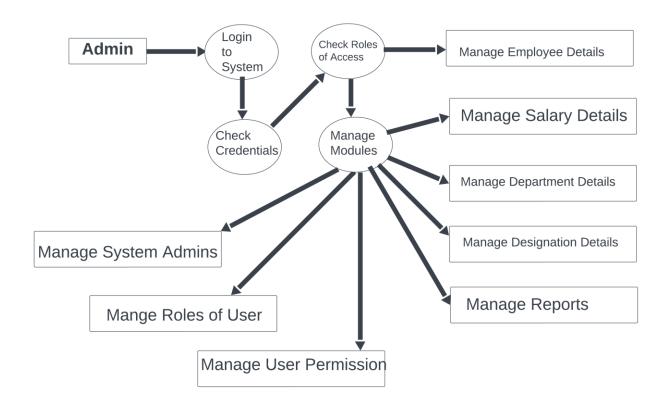


**Zero Level DFD** 

18.8 Zero Level DFD



18.9 First Level DFD



# Second Level DFD

18.10 Second Level DFD

#### 19 .CONCLUSION

The project entitled **Employee Administration System** was completed successfully.

An Employee Administration System Project in Spring Boot and React empowers administrators to efficiently manage departments, administrators, employees, and salary information. This project delves into the functionalities of an Employee Administration System (EAS) wherein administrators can effortlessly add departments and assign administrators liable for overseeing employee administration. Additionally, the system allows the recording and monitoring of salary information for each employee. Discover how this comprehensive solution enhances organizational efficiency, simplifies administrative tasks, and guarantees accurate control of employee records and compensation. Streamline your employee administration tactics and optimize productivity with an Employee Administration System tailored to satisfy the specific desires of your agency.

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# 20. BIBLOGRAPHY / REFRENCES:

1. Spring Boot Documentation. (https://spring.io/projects/spring-boot)

Reference for Spring Boot framework used in the backend development.

2. React JS Documentation. (<a href="https://legacy.reactjs.org/docs/getting-started.html">https://legacy.reactjs.org/docs/getting-started.html</a>)

Reference for React JS framework used in the frontend development.

3.MySQL Documentation. (https://dev.mysql.com/doc/)

Reference for the MySQL database management system used in the project