A
PROJECT REPORT
ON

Payroll Management System

Submitted in the partial fulfillment for the
award of
**Post Graduate Diploma in Advance
Computing
(PG-DAC) from**

**INSTITUTE OF EMERGING
TECHNOLOGIES**

Authorized Training Centre

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CERTIFICATE

This is to certify that the project report entitled **Payroll Management System** is a bonfire workcarried out by **1.Piyush Rajeshinde 2. Omkar Patil 3.Akshat Bhanu 4.Prashant Harikrishna** Submitted in the partial fulfillment of the requirement for the CDAC ACTS DAC Course in the Institute of Emerging Technology in the batch of March 2023.

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Mr.Saleel Bagade

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Abstract:

The "Payroll Management System" is a comprehensive software solution designed to streamline and automate the process of managing employee compensation within an organization. This project aims to simplify the intricate tasks associated with payroll processing, including salary calculation, tax deductions, benefits administration, and reporting. The system offers an efficient and error-free approach to ensure accurate and timely salary disbursement to employees.

__Index__

1. **Introduction:**

In today's dynamic business landscape, effective management of employee compensation has become a critical factor for organizational success. The intricacies of payroll processing, involving intricate calculations, meticulous record-keeping, and compliance with legal regulations, demand a reliable and efficient solution. The "Payroll Management System" is a sophisticated software project designed to address these challenges by providing organizations with a streamlined and automated approach to managing their payroll operations.

The Payroll Management System project is developed to revolutionize the way organizations handle employee compensation. Gone are the days of manual calculations, paperwork, and the potential for errors that could result in financial discrepancies and dissatisfied employees. This project aims to simplify the entire payroll process, from capturing employee work hours to generating accurate payslips, all while ensuring adherence to tax laws and regulations.

By offering a comprehensive suite of features, the Payroll Management System provides a holistic solution that encompasses every aspect of payroll administration. From the central repository of employee information to automated calculations, the system alleviates the administrative burden on HR and finance departments, enabling them to focus on more strategic initiatives.

The integration of the Payroll Management System with various organizational departments, such as attendance tracking and accounting, ensures a seamless flow of information. This not only reduces manual data entry but also enhances data accuracy, thus contributing to the organization's financial transparency and compliance with reporting standards.

One of the key advantages of this project is its employee-centric approach. With a secure self-service portal, employees gain access to their payroll information, payslips, and tax forms, fostering transparency and empowerment. Notifications and alerts keep employees informed about important dates and changes to their payroll, enhancing overall satisfaction and reducing the workload of HR personnel.

In essence, the Payroll Management System project envisions a future where the complexities of payroll management are transformed into a streamlined and efficient process. By leveraging technology to automate tasks, eliminate errors, and ensure compliance, this project empowers organizations to focus on strategic growth while ensuring that their most valuable asset—their employees—is compensated accurately and on time. As we delve deeper into the functionalities and features of this project, its significance in optimizing organizational efficiency and employee satisfaction becomes increasingly apparent.

2. __Problem statement:__

In the current landscape of organizational operations, the management of employee payroll presents significant challenges that often lead to inefficiencies, errors, and dissatisfaction among employees. The traditional methods of manual payroll calculations, paper-based record-keeping, and disjointed systems for attendance and tax compliance result in a range of problems that hinder organizational growth and employee contentment. These problems include:

Lack of Transparency: Employees often lack transparency into their pay structures, making it challenging to understand how their compensation is determined and leading to frustration and mistrust.

Compliance Challenges: Navigating the complex landscape of tax regulations, legal deductions, and reporting requirements can be overwhelming, increasing the risk of non-compliance and penalties.

Inefficient Record-Keeping: Managing employee records, tax forms, and historical payroll data in physical formats or disparate systems creates inefficiencies and difficulties in retrieving information.

Limited Employee Access: Employees lack an accessible platform to view their payslips, tax information, and make necessary updates to personal details, leading to unnecessary administrative inquiries.

Data Security Concerns: Storing sensitive payroll information in manual or disparate systems raises concerns about data security, privacy breaches, and unauthorized access.

Integration Issues: Lack of integration between attendance systems, accounting software, and payroll processing results in redundant data entry and increased chances of errors.

Inadequate Reporting: The absence of automated reporting capabilities hampers the ability to generate accurate and timely reports for audits and decision-making.

Employee Dissatisfaction: Inaccuracies in payroll and delays in disbursement lead to employee dissatisfaction, affecting morale, motivation, and overall productivity.

To address these pressing challenges, the "Payroll Management System" project aims to develop a comprehensive software solution that automates and streamlines the entire payroll management process. By leveraging technology to offer accurate calculations, integration with various systems, self-service capabilities for employees, and robust security measures, this project seeks to eliminate the problems associated with manual and disjointed payroll management approaches. Through this endeavor, the project aims to enhance organizational efficiency, accuracy, compliance, and employee satisfaction, paving the way for a more streamlined and effective payroll management process.

2.2 __Objectives of the project:__

The objectives of this project are:

➢ To develop a web based Service that will help manage the payroll of employees

➢ Create an accessible self-service portal where employees can securely view their pay slips, tax forms, and make necessary updates to personal information, reducing administrative inquiries..

Specific project goals:

Project Goals for the "Payroll Management System" Built with Spring and React:

➢ Technology-Driven Efficiency: Develop a robust and efficient payroll management system that leverages the power of Spring and React to streamline payroll processes, reducing manual effort and enhancing accuracy.

➢ Comprehensive Dashboard: Create an intuitive dashboard that provides administrators with a centralized view of important payroll information, enabling them to quickly access key data and make informed decisions.

➢ Employee and Salary Management: Implement features that allow administrators to efficiently manage employee profiles, track changes, and handle salary-related information, leading to smoother HR operations.

➢ Enhanced Financial Management: Equip the system with tools that help administrators handle employee finances effectively, including salary calculations, deductions, bonuses, and tax management.

➢ Detailed Reporting: Develop a reporting module that generates insightful and detailed reports, giving administrators a clear overview of payroll trends, costs, and patterns for strategic decision-making.

➢ User-Friendly Interface: Design a user-friendly interface using React that simplifies user interactions, making it easy for administrators to navigate the system and perform tasks without a steep learning curve..

Scope of the project:

The scope of this project is as follows:

Develop functionalities for adding, updating, and managing employee profiles, including personal information, job roles, and contact details.

Create algorithms to calculate salaries based on various factors, such as work hours, overtime, bonuses, and deductions.

Create a secure self-service portal using React, enabling employees to view their payslips, tax information, and update personal details.

Ensure seamless integration with existing HR systems, accounting software, and attendance tracking tools.

Prioritize user experience by designing an intuitive and responsive interface, allowing administrators to perform tasks efficiently.

Project Overview Statement:

The "Payroll Management System" project is a cutting-edge software solution aimed at revolutionizing the way organizations handle their payroll processes. Developed using the powerful combination of Spring for the backend and React for the frontend, this system enhances efficiency, accuracy, and transparency in managing employee compensation.

The project encompasses the design, development, and implementation of a comprehensive system that streamlines every aspect of payroll management. From employee information management to salary calculation, tax handling, and reporting, the system offers a holistic approach to ensure accurate and timely compensation for employees

2.3 Major Constraints:

Technology Compatibility: The project's success hinges on the compatibility and integration of Spring and React technologies. Ensuring seamless communication between the backend and frontend components is crucial for a cohesive and functional system.

Data Security and Privacy: Protecting sensitive payroll data is paramount. The project must implement robust security measures to prevent unauthorized access, breaches, and data leaks, ensuring compliance with data protection regulations.

Regulatory Compliance: Adhering to local tax laws, labor regulations, and reporting standards is critical. The system needs to be flexible enough to accommodate various legal requirements while ensuring accurate calculations and reporting.

User Experience: Balancing technical complexity with user-friendliness is a challenge. The interface must be intuitive and accessible to administrators and employees alike, ensuring a positive and efficient user experience.

Integration with Existing Systems: Seamlessly integrating the new system with existing HR, accounting, and attendance systems is crucial to prevent data discrepancies and ensure a streamlined flow of information.

Expected Outcomes:

Enhanced Efficiency: The system aims to significantly reduce manual effort and time dedicated to payroll calculations, processing, and record-keeping. This leads to a more streamlined and efficient payroll management process.

Accuracy and Reduced Errors: Through automated calculations, the project seeks to drastically minimize the margin for errors in salary calculations, tax deductions, and overall compensation.

Transparency and Empowerment: The introduction of a self-service portal empowers employees to access their own payroll information, instilling transparency and reducing the need for constant HR inquiries.

Data-Driven Decision-Making: The system's detailed reporting and insights provide administrators with valuable data to make informed decisions regarding payroll management and financial planning.

Compliance Assurance: By automating tax calculations and adhering to legal regulations, the project ensures accurate tax deductions and reporting, reducing the risk of non-compliance and penalties.

User Satisfaction: A user-friendly interface and self-service capabilities contribute to improved user satisfaction among administrators and employees, enhancing their experience with the payroll process.

Resource Savings: The automation of complex calculations and reduction in manual data entry lead to resource savings, allowing HR and finance teams to allocate their efforts to strategic initiatives.

Scalability: The modular and customizable design of the system ensures its adaptability to organizational growth and evolving payroll policies.

3. Software Requirement Specification (SRS)

3.1 Introduction:
The Software Requirement Specification (SRS) for the "Payroll Management System" outlines the functional and non-functional requirements of the system. This document serves as a comprehensive guide for developers, designers, and stakeholders, providing insights into the system's features, capabilities, and constraints.

3.2 Purpose:
The purpose of this SRS is to clearly define the scope, features, and specifications of the "Payroll Management System" project. It aims to facilitate a shared understanding of the project's goals, functionalities, and expected outcomes among all stakeholders.

3.3 Scope:
The scope of the "Payroll Management System" encompasses the design, development, and deployment of a web-based software solution. The system integrates Spring for the backend and React for the frontend, with a focus on automating payroll processes, enhancing financial management, and improving user experience for administrators and employees.

3.4 Overall Description:
The system's architecture includes a backend powered by Spring, which handles complex calculations, data processing, and database interactions. The frontend, built using React, offers a user-friendly interface for seamless user interactions and efficient data visualization. The system's modules include Employee Management, Salary Calculation, Taxation and Deduction Handling, Reporting, and Employee Self-Service.

3.5 Specific Requirements:

3.5.1 Functional Requirements:

User Authentication: Implement user authentication and authorization mechanisms for secure access to the system.
Employee Management: Develop features for adding, updating, and managing employee profiles, job roles, and contact details.
Salary Calculation: Design algorithms for accurate salary calculations based on days present, TA, DA.
Taxation and Deduction Handling: Automate tax calculations, deductions, and contributions as per regulatory standards.
Reporting: Create detailed reports offering insights into payroll trends, costs, and employee compensation.
Employee Self-Service Portal: Develop a secure portal for employees to access payslips, tax information, and personal records.
Dashboard: Design an interactive dashboard displaying crucial payroll information and tools for administrators.
Integration: Integrate with existing HR, accounting, and attendance systems for seamless data flow.

3.5.2 Non-Functional Requirements:

User Interface: Design an intuitive and responsive user interface for both administrators and employees.
Security: Implement robust security measures to safeguard sensitive payroll data from unauthorized access.
Performance: Ensure the system's responsiveness and speed to handle concurrent users efficiently.
Compatibility: Ensure compatibility with multiple browsers and devices to accommodate user preferences.
Scalability: Design the system to accommodate organizational growth and increased user load.
Data Privacy: Ensure compliance with data protection regulations to safeguard user privacy.
Reliability: Ensure the system's reliability by minimizing downtime and addressing potential issues promptly.
Usability: Prioritize user-friendliness and ease of use for administrators with varying technical backgrounds
.

3.6 Database Design:

Design a relational database to store employee information, salary details, tax data, and historical records. Ensure data integrity, normalization, and efficient querying. The tables generated in our project are for Salary, Users, Login.

3.7 Conclusion:

The Software Requirement Specification outlines the detailed functionalities and attributes of the "Payroll Management System." It serves as a foundation for the project's development, guiding the creation of a user-friendly, efficient, and reliable software solution that addresses the complexities of payroll management.

4. System Modules

main system modules for the Payroll Management System project:

1. Authentication and User Management:
This module handles user authentication and authorization. It allows administrators and employees to log in securely and manages their access to different parts of the system.

2. Admin Dashboard:
The admin dashboard is the central hub for administrators. It provides an overview of key payroll metrics, such as total payroll expenses, upcoming paydays, and employee count. Admins can access various tools and functionalities from this dashboard.

3. Employee Management:
This module allows administrators to manage employee profiles. Admins can add new employees, update existing profiles, and track employee details like personal information, job roles, and contact information.

5.1   Tools and Technology with Reasoning:

Hardware Tools:

No.	Types of Hardware	Use	Quantity
1	Laptop computer	To write and edit documentation implementation	2
2	BGB flash disk	To transfer files	2
3	Printer	To print document	1
4	Smartphone	For internet	2
5	BGB hard disk memory	For backup	1

5.2 Technology Used

BACK END
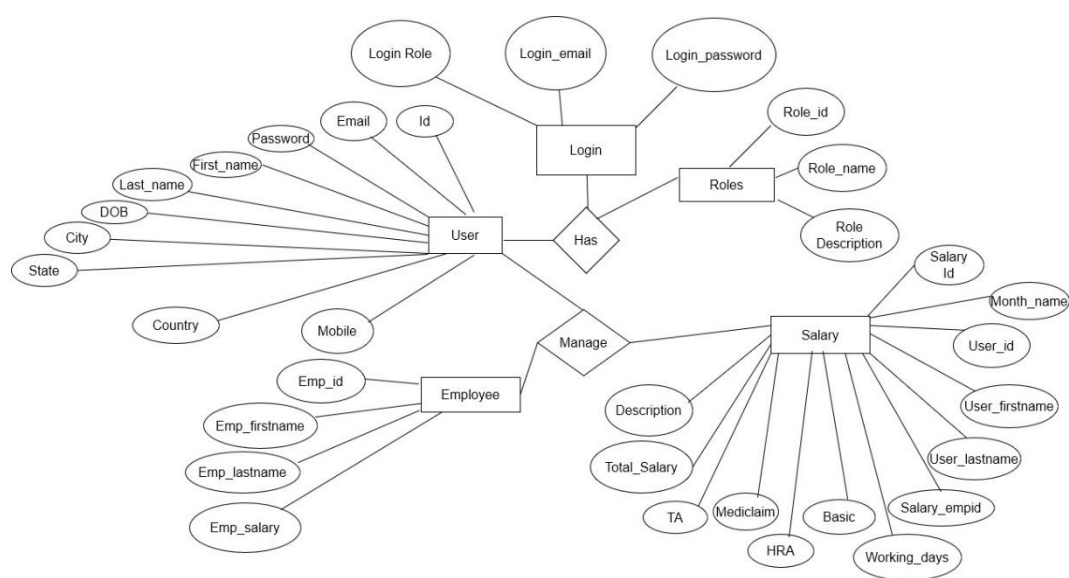☐ Spring Boot with REST API.
☐ MYSQL for storage of data.

FRONT END
☐ HTML
☐ CSS
☐ Bootstrap
☐ jQuery
☐ React

6. UML Diagram

6.1   DFD
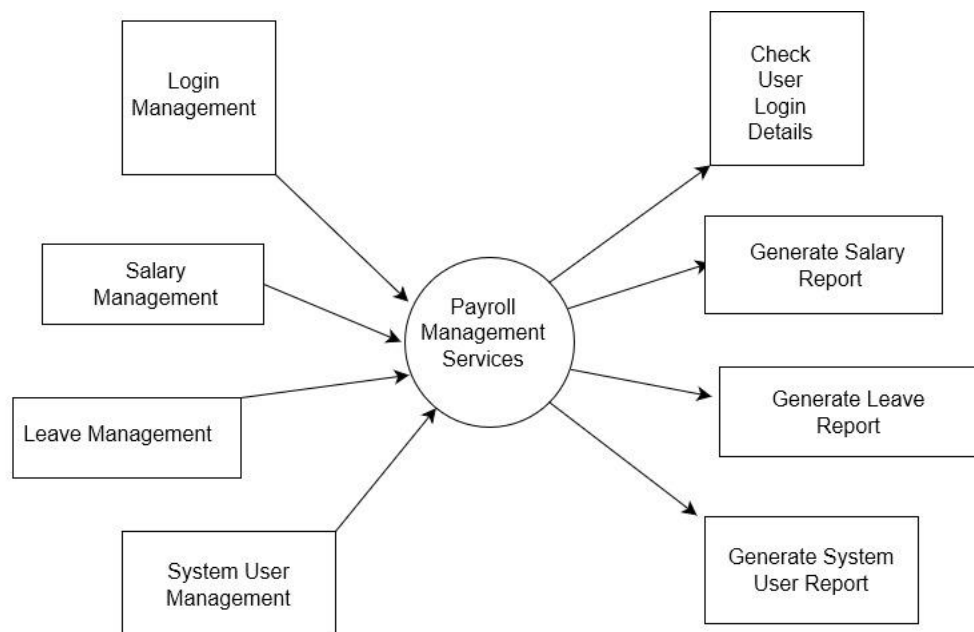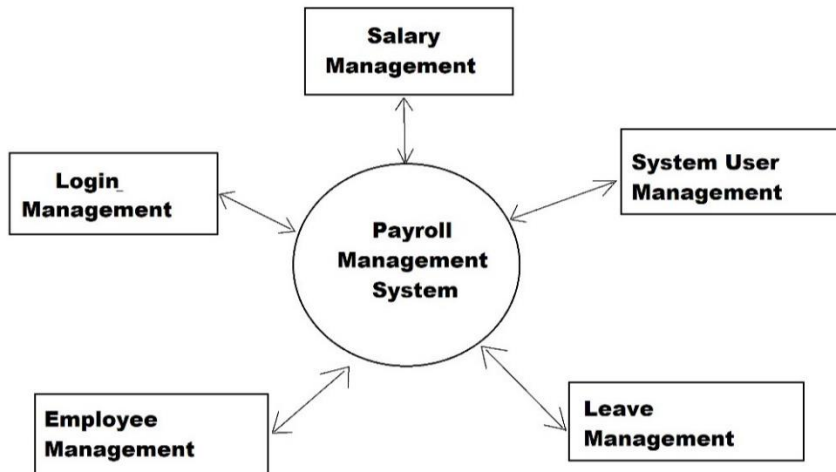
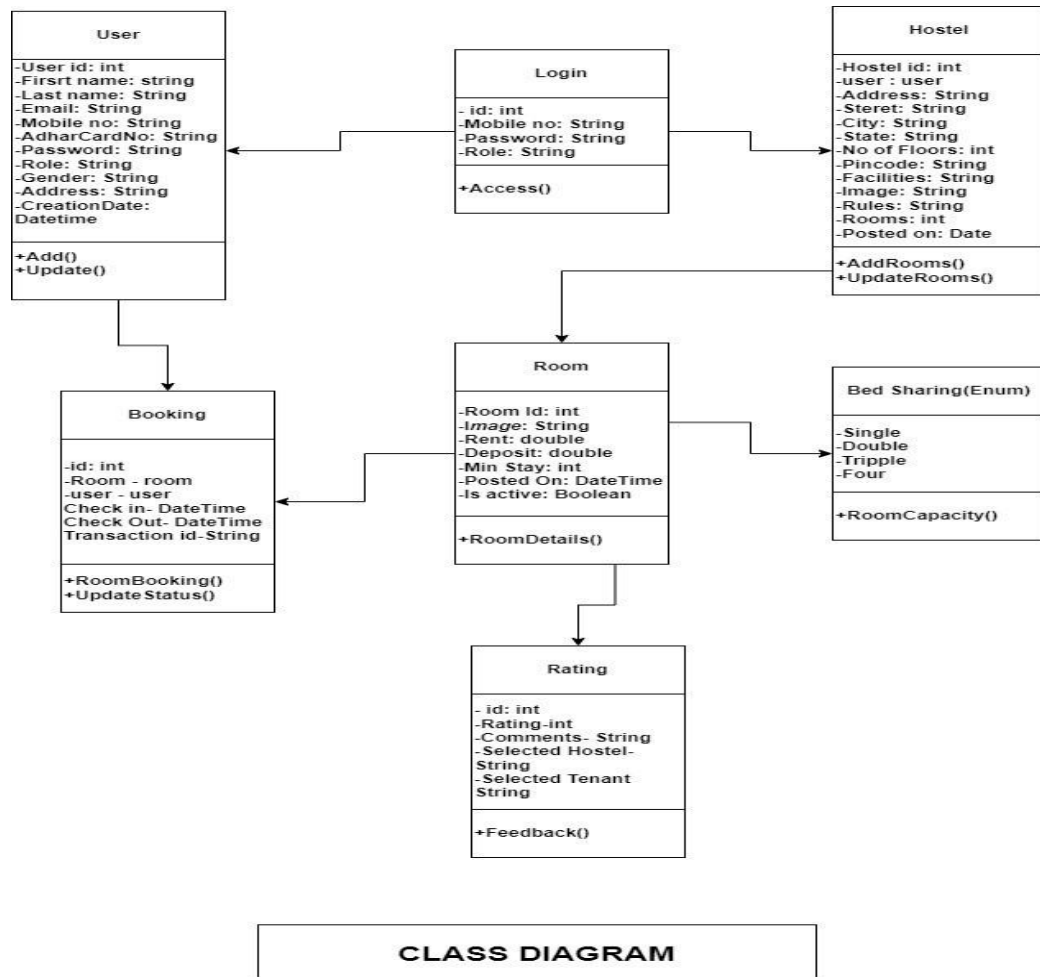## 6.2   ERD

6.3   Use case diagram

Use Case Diagram for Payroll management system

6.4   Class Diagram

User

-User id: int
-Firsrt name: string
-Last name: String
-Email: String
-Mobile no: String
-AdharCardNo: String
-Password: String
-Role: String
-Gender: String
-Address: String
-CreationDate:
Datetime

+Add()
+Update()

Login

- id: int
-Mobile no: String
-Password: String
-Role: String

+Access()

Hostel

-Hostel id: int
-user : user
-Address: String
-Steret: String
-City: String
-State: String
-No of Floors: int
-Pincode: String
-Facilities: String
-Image: String
-Rules: String
-Rooms: int
-Posted on: Date

+AddRooms()
+UpdateRooms()

Booking

-id: int
-Room - room
-user - user
Check in- DateTime
Check Out- DateTime
Transaction id-String

+RoomBooking()
+UpdateStatus()

Room

-Room Id: int
-*Image*: String
-Rent: double
-Deposit: double
-Min Stay: int
-Posted On: DateTime
-Is active: Boolean

+RoomDetails()

Bed Sharing(Enum)

-Single
-Double
-Tripple
-Four

+RoomCapacity()

Rating

- id: int
-Rating-int
-Comments- String
-Selected Hostel-
String
-Selected Tenant
String

+Feedback()

CLASS DIAGRAM

6.5   Sequence diagram
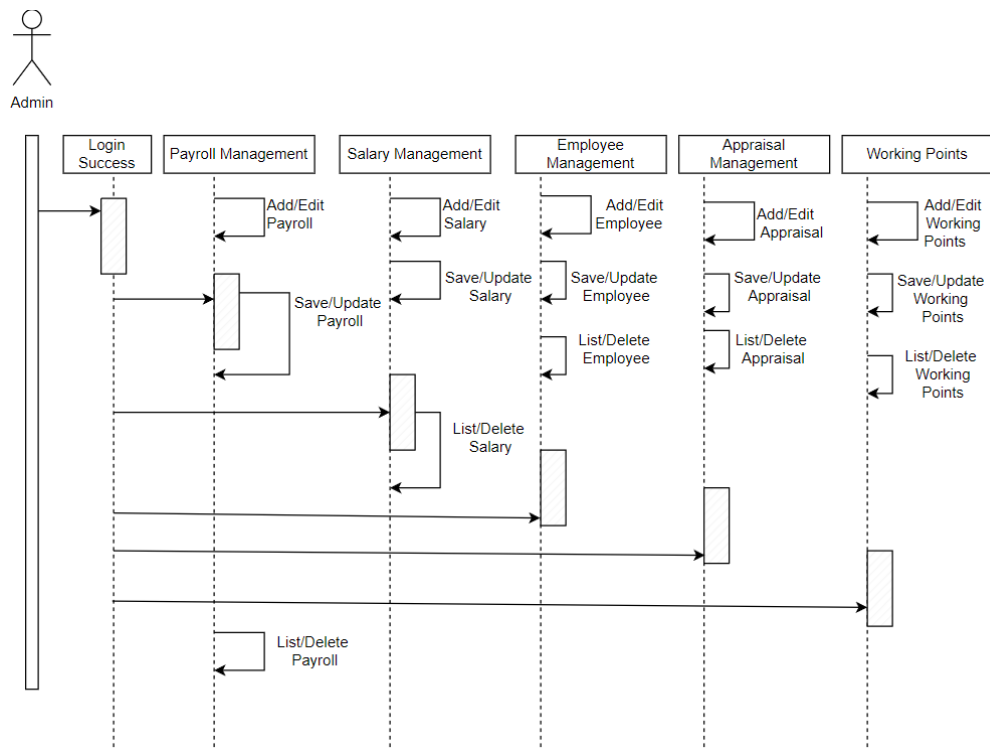
6.6   Activity Diagram
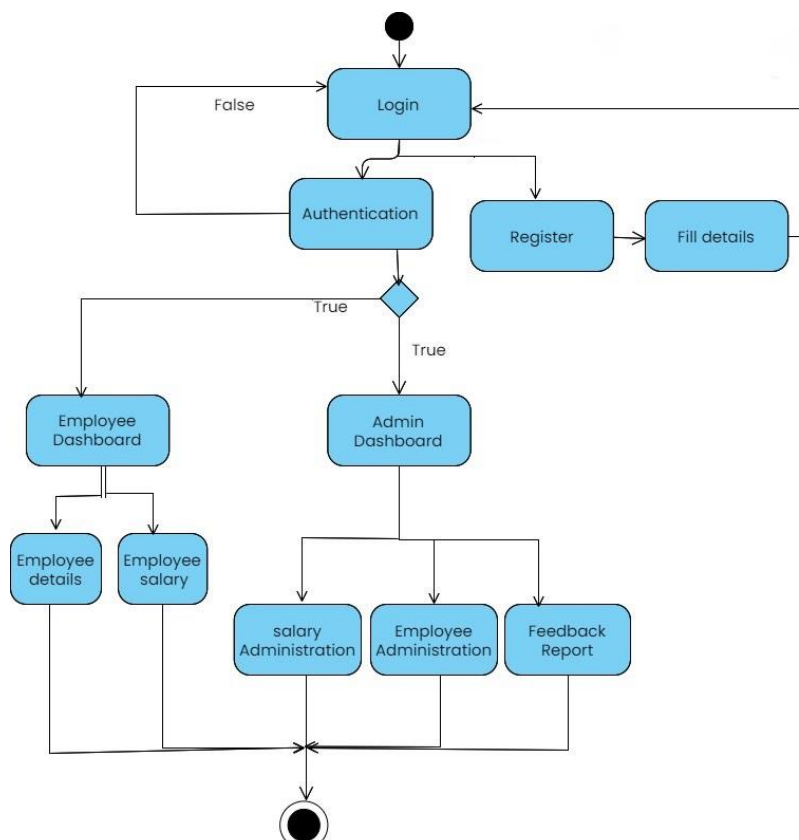
6.7   Deployment diagram
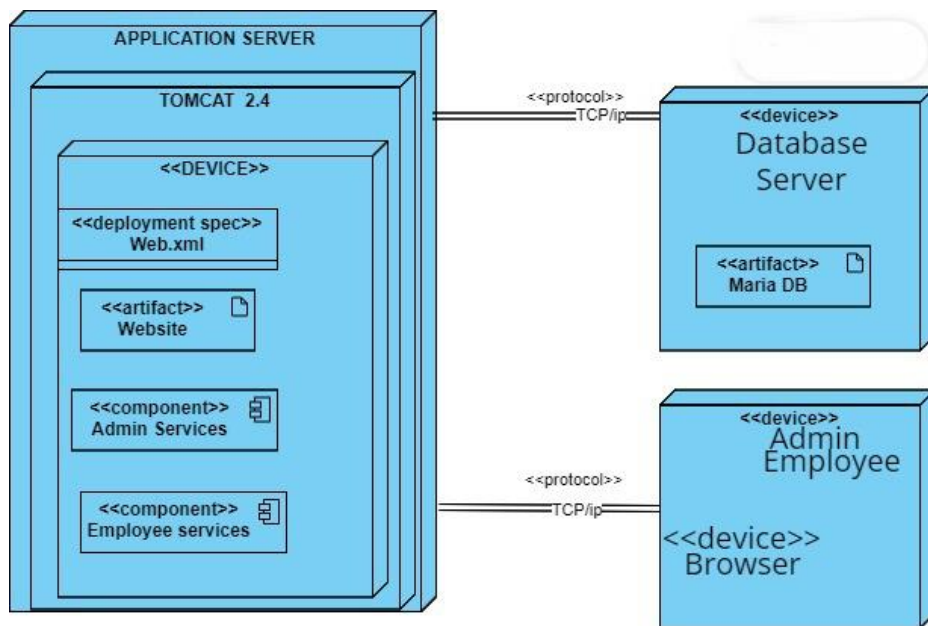
7. <u>Test Cases</u>

| Test Case ID	Test Case	Test Case I/P	Actual Result	Expected Result	Test case criteria(P/F)
001	Admin enter the correct username or password click on submit button	Username or password	Accept	Accept	P
001	Admin enter the wrong username or password click on submit button	Username or password	Error come	Accept	P
002	user enter the correct username or password click on submit button	Username or password	Accept	Accept	P
002	User enter the wrong username or password click on submit button	Username or password	Error come	Accept	P

System Test Cases:

Test Case ID	Test Case	Test Case I/P	Actual Result	Expected Result	Test case criteria(P/F)
001	Admin login into the system	Username or password	Accept	Accept	P
001	Creates Employee	Create Employee	Accept	Accept	P
001	Add Salary	Add salary of Employee	Accept	Accept	P
001	Show all Employees	Show Employee	Accept	Accept	P
001	Show all salaries	Show salaries	Accept	Accept	P
002	Employee Dashboard	Dashboard	Accept	Accept	P
002	Employee can see his details	Users table	Accept	Accept	P
003	Employee can see his salary	Properties Table	Accept	Accept	P

Logout Test Cases

Test case ID	Test case	Test case I/P	Actual Result	Expected Result	Test cases criteria(P/F)
001	Logout	User exit	Session exit	Logout successfully	P

8. ScreenShot:
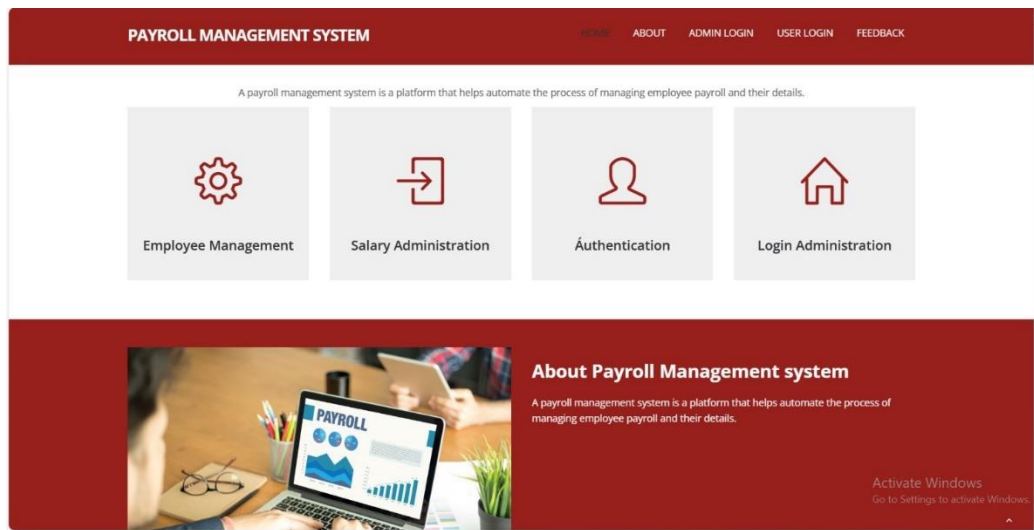
Employee Registrations

Employee Registrations

Email ID

Register As
Register As

Password

Confirm Password

First Name

Last Name

Date of Birth
dd-mm-yyyy

Mobile

Nationality

Full Address

City

State

Country

[Submit] [Reset]

Salary Entry

Salary Entry Form

Select User :	Select User	**Select Month :**	Select Month
Total Working Days :	Total Working Days	**Basic Salary :**	Salary Basic
Total HRA :	Total HRA	**Mediclaim :**	Salary Mediclaim
Travel Allowance :	Travel Allowance	**Dearness Allowance :**	Total DA
Reimbursement :	Salary Reimbursement	**Conveyance Allowance :**	Salary CA
Others Components :	Others Salary	**Provident Fund :**	Salary DPF
Tax Deduction :	Salary Dtax	**Total Deduction :**	Total Deduction
Total Salary :	Total Salary	**Description :**	Enter details of Salary

Upload Salary Slip: Choose File No file chosen

[Submit] [Reset]

PAYROLL MANAGEMENT SYSTEM   HOME   ABOUT   DASHBOARD   ADD NEW▾   REPORTS▾   LOGOUT

EMPLOYEE REPORT

Feedback Report

SALARY REPORT

FEEDBACK REPORT

PAYROLL MANAGEMENT SYSTEM

HOME · ABOUT · DASHBOARD · ADD NEW ˅ · REPORTS ˅ · LOGOUT

Employee Report

All Employee Report

Add New Employee

ID	User Name	Contact No	Email	City	Action
1	omkar patil	9899786756	omkar@user.com	Mumbai	✎ 🗑
2	Akshat Bhanu	9878765434	agent@agent.com	Jaipur	✎ 🗑
3	Piyush R	8987676567	piyush@gmail.com	pune	✎ 🗑
4	prashant h	7689876567	prashant@gmail.com	Delhi	✎ 🗑

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HOME · ABOUT · DASHBOARD · ADD NEW ˅ · REPORTS ˅ · LOGOUT

Salary Report

All Salary Report

Add Salary

ID	Customer Name	Month	Total Paid Days	Basic	HRA	Total	Action
91	omkar patil	March	30 Days	1000	1000	1000	✎ ⬇ 🗑
451	Akshat Bhanu	January	45 Days	40000	20000	200000	✎ ⬇ 🗑

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Feedback Report

All Feedback Report

ID	Name	Email	Rating	Action
1	Amit Singh	amit@gmail.com	5 Star	↪ 🗑
2	Sumit Singh	sumit@gmail.com	4 Star	↪ 🗑
3	Ranjeet Singh	ranjeet@gmail.com	5 Star	↪ 🗑
447	sadf	asdf@asfdc.com	1 Star	↪ 🗑
452	omkar	omkarpatil9753@gmail.com	2 Star	↪ 🗑

HOME   ABOUT   DASHBOARD   MY ADMINISTRATION ▾   LOGOUT

Employee Dashboard

Employee Dashboard

Home

About

My Salary

My Account

Logout

PAYROLL MANAGEMENT SYSTEM

HOME   ABOUT   DASHBOARD   MY ADMINISTRATION ▾   LOGOUT

Salary Report

All Salary Report

Add Salary

ID	Customer Name	Month	Total Paid Days	Basic	HRA	Total	Action
91	omkar patil	March	30 Days	1000	1000	1000	✎ ⬇ 🗑

PAYROLL MANAGEMENT SYSTEM

HOME   ABOUT   DASHBOARD   MY ADMINISTRATION ▾   LOGOUT

My Account

My Account

Email ID
omkar@user.com

Register As
Employee

Password
....

Confirm Password

First Name
omkar

Last Name
patil

Date of Birth
15-10-2021

Mobile
9899786756

Nationality
Indian

Full Address
aa

City
Mumbai

State
Maharastra

Country
India

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https://www.quora.com/What-are-the-problems-faced-by-those-who-live-in-hostels-PG-in-IndiaYouTube ref - https://www.youtube.com/watch?v=VtnXECCIX10

[6]   Need of the project ref - https://www.ezeeabsolute.com/blog/leading-indian-hostels-chooseezee-hostel-software/

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https://www.quora.com/What-are-the-problems-faced-by-those-who-live-in-hostels-PG-in-India