EMPLOYEE MANAGEMENT SYSTEM

Submitted by

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MINI PROJECT REPORT

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BONAFIDE CERTIFICATE

Certified that this project report titled "EMPLOYEE MANAGEMENT SYSTEM" is the bonafide work of **LAKSHMIPRIYA K (231001097), KAVITHA P (231001087)** who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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ABSTRACT

The Employee Management System (EMS) is a software application designed to streamline and automate the management of employee data within an organization. This system leverages Java Swing for the graphical user interface (GUI) and MySQL for database management, ensuring an efficient and reliable solution for handling employee information. The EMS allows administrators to add, update, delete, and search for employee records such as personal details, job roles, and salary information.

The application supports user authentication to ensure that sensitive data is accessible only to authorized personnel. It provides a user-friendly interface, allowing non-technical users to manage employee data with ease. MySQL serves as the backend database, offering a robust and scalable platform for storing and retrieving employee records. The system is designed to reduce manual errors, improve operational efficiency, and facilitate quick access to employee information.

Overall, the Employee Management System offers a cost-effective, scalable solution for businesses of all sizes to manage employee-related processes and improve organizational productivity.

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CHAPTER - 1

INTRODUCTION

1.1 MOIVATION

The motivation behind developing an Employee Management System using Java Swing and MySQL stems from the increasing need for organizations to efficiently manage large volumes of employee data. Traditional methods, such as paper records or spreadsheets, are prone to errors, inefficiencies, and security risks. By digitizing the process, businesses can automate administrative tasks, reduce human errors, and enhance the accuracy and accessibility of employee information.

The integration of Java Swing provides an intuitive and user-friendly interface, making the system accessible to all levels of users, while MySQL ensures that data is stored securely and can be retrieved quickly. This solution aims to simplify the management of employee records, streamline payroll processes, and facilitate reporting, ultimately enhancing organizational productivity and decision-making.

1.2 EXISTING SYSTEM

The existing Employee Management System using Java Swing and MySQL is a desktop application that allows users to manage employee records. It stores employee data (name, email, phone, department, salary) in a MySQL database, where SQL queries are used for CRUD operations (Create, Read, Update, Delete). The Java Swing interface provides forms for data entry, buttons for actions, and a table to view records. While effective for basic employee management, the system may lack advanced features like role-based access, reporting, and scalability for large datasets. These features can be added for improved performance and security.

1.3 PROJECT OBJECTIVES

The objective of the Employee Management System project using Java Swing and MySQL is to create an efficient and user-friendly platform for managing employee data. The system aims to streamline the process of adding, updating, viewing, and deleting employee records, such as names, contact information, departments, and salaries, by integrating a

MySQL database for secure and organized data storage. The primary goal is to develop an intuitive graphical user interface using Java Swing, making it easy for users to interact with the system. Additionally, the system is designed to ensure data integrity, provide scalability for future enhancements like reporting and payroll, and implement basic security features to protect sensitive information. Overall, the project seeks to improve organizational efficiency, reduce manual workloads, and create a maintainable system that can adapt to future requirements.

1.4 PROPOSED SYSTEM

The proposed Employee Management System (EMS) is designed to streamline HR tasks and simplify employee data management using Java Swing for the graphical user interface and MySQL as the database backend. The system will offer the following core features:

- ✓ Employee Registration: Admins can add new employees by inputting their details such as name, position, salary, and email.
- ✓ View Employee Records: All employee details are displayed in a table format for easy viewing and management.
- ✓ Employee Update: Allows the admin to update any employee's details, including position, salary, and personal information.
- ✓ Delete Employee: Admins can delete employee records permanently from the database.
- ✓ Search Functionality: Admins can search for employees based on criteria like name, position, or email.
- ✓ Data Validation: Ensures that only valid data is entered, such as correct email format and non-negative salary values.
- ✓ Error Handling: Displays appropriate error messages for invalid inputs.

CHAPTER - 2
SYSTEM DESIGN

2.1 INTRODUCTION

System design is a critical phase in software development, where the overall architecture and components of a system are defined to meet the specified requirements. For the Employee Management System (EMS), the design focuses on creating a structured and efficient approach for managing employee data within an organization. The system will use Java Swing for the user interface, allowing HR or admin users to interact with the application seamlessly, and MySQL as the database to store and manage employee records. The design ensures that the system is scalable, allowing it to handle increasing data volume as the organization grows, while also providing a user-friendly interface for easy interaction. It will include essential features like adding, updating, viewing, and deleting employee information, as well as validating input to prevent errors. The system is built with a clear separation of concerns, consisting of the presentation layer (UI), business logic layer (data processing), and the data layer (database). Proper attention will be given to efficiency, security, and maintainability, ensuring that the system is not only functional but also adaptable and easy to update in the future.

2.2 SYSTEM ARCHITECTURE :

The Employee Management System (EMS) follows a three-layer architecture to ensure efficiency, scalability, and maintainability:

Presentation Layer: This layer, implemented using Java Swing, provides the user interface for interacting with the system. Users can add, view, update, or delete employee records through forms, tables, and buttons.

Business Logic Layer: This layer handles the core functionality, including data validation, processing user requests, and applying business rules. It communicates between the Presentation Layer and the Data Layer.

Data Layer: The MySQL database stores employee records and manages CRUD operations. The Business Logic Layer interacts with the database through JDBC to execute SQL queries for retrieving and updating data.

2.3 SYSTEM REQUIREMENTS

HARDWARE REQUIREMENT:

Processor: 1.8 GHz dual-core or higher.

RAM: Minimum 4 GB (Recommended: 8 GB).

Storage: Minimum 100 MB free disk space (Recommended: 500 MB).

Display: Minimum 1280 x 800 resolution.

Network: Internet connection for updates (if using remote database).

SOFTWARE REQUIREMENT:

Operating System: Windows 10, macOS, or Linux.

Java Development Kit (JDK): Version 8 or later (Recommended: JDK 11).

IDE: Eclipse, IntelliJ IDEA, or NetBeans.

Database: MySQL 5.7 or later.

JDBC Driver: For MySQL database connection.

Libraries: Java Swing (for GUI).

CHAPTER - 3

PROJECT DESCRIPTION

INTRODUCTION

The Employee Management System (EMS) is designed to simplify and automate the management of employee records within an organization. Built using Java Swing for the user interface and MySQL for the database, the system allows HR personnel to easily add, update, view, and delete employee details. Key features include data validation, employee search, and a user-friendly interface. The EMS aims to improve HR efficiency, reduce errors, and streamline administrative tasks, while being scalable for future growth and additional features**.**

3.1 METHODOLOGIES:

Methodology	**Description**
Waterfall methodology	**The project followed a linear,sequential approach where were each phase.**
Object-Oriented Programming (OOP)	**The system was designed using OOP principles like encapsulation, inheritance, and polymorphism. The Employee class and DAO (Data Access Object) pattern were used for modular and reusable code.**
Iterative Development	**Features were developed and tested in stages, allowing for feedback and improvements to be incorporated early in the development cycle.**

Table 3.1

3.2 MODULE DESCRIPTION:

This module involves the development of an Employee Management System using Java Swing for the user interface and MySQL for the database management. The system allows users to perform CRUD (Create, Read, Update, Delete) operations on employee data, including employee details such as name, age, designation, and salary**.**

The key features of this module include:Employee Record Management: Allows adding, updating, and deleting employee records stored in a MySQL database.

Graphical User Interface (GUI): The system uses Java Swing to provide a simple, interactive user interface for managing employee data.

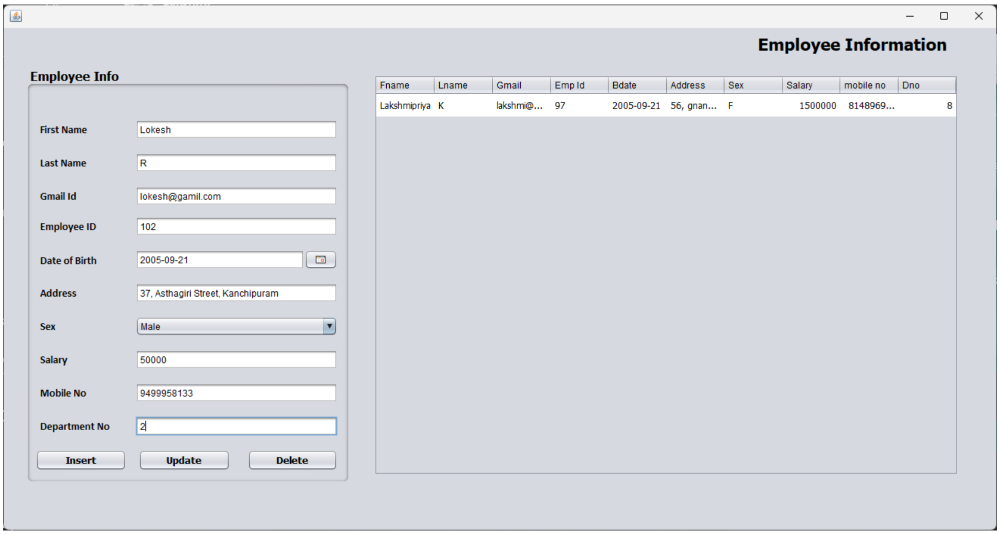
Database Connectivity: The application connects to a MySQL database via JDBC to store and retrieve employee information.

CHAPTER - 4

RESULTS AND DISCUSSION

OUTPUT IMAGES:

Inserting data



Employee Information

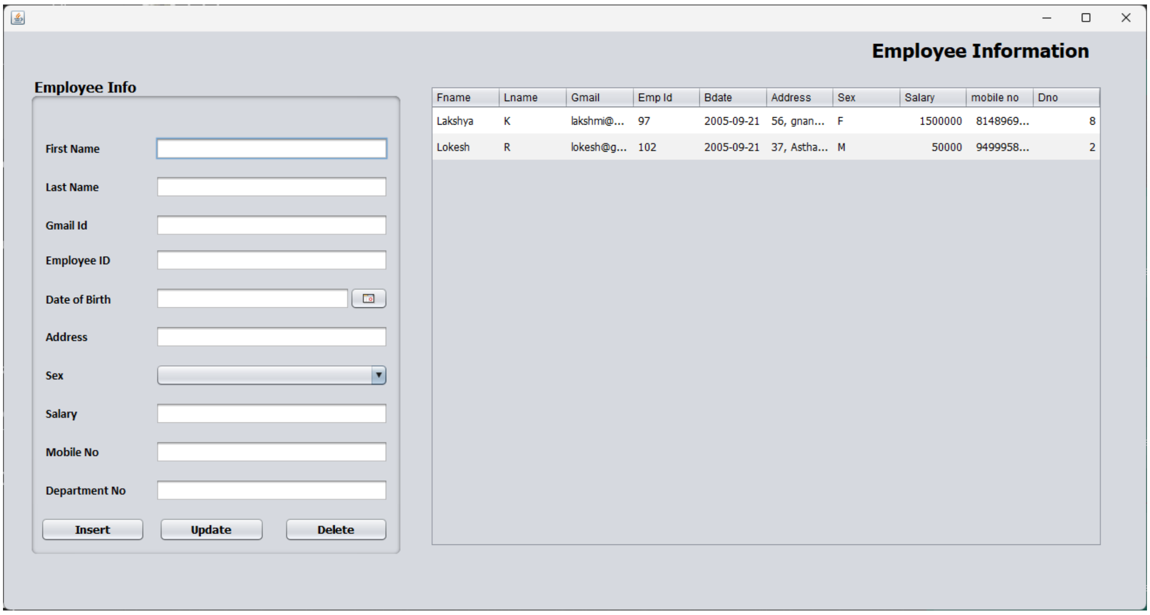
Employee Info

First Name	Lokesh
Last Name	R
Gmail Id	lokesh@gamil.com
Employee ID	102
Date of Birth	2005-09-21
Address	37, Asthagiri Street, Kanchipuram
Sex	Male
Salary	50000
Mobile No	9499958133
Department No	2

Fname	Lname	Gmail	Emp Id	Bdate	Address	Sex	Salary	mobile no	Dno
Lakshmipriya	K	lakshmi@...	97	2005-09-21	56, gnan...	F	1500000	8148969...	8

FIG 4.1

Updating data



Employee Information

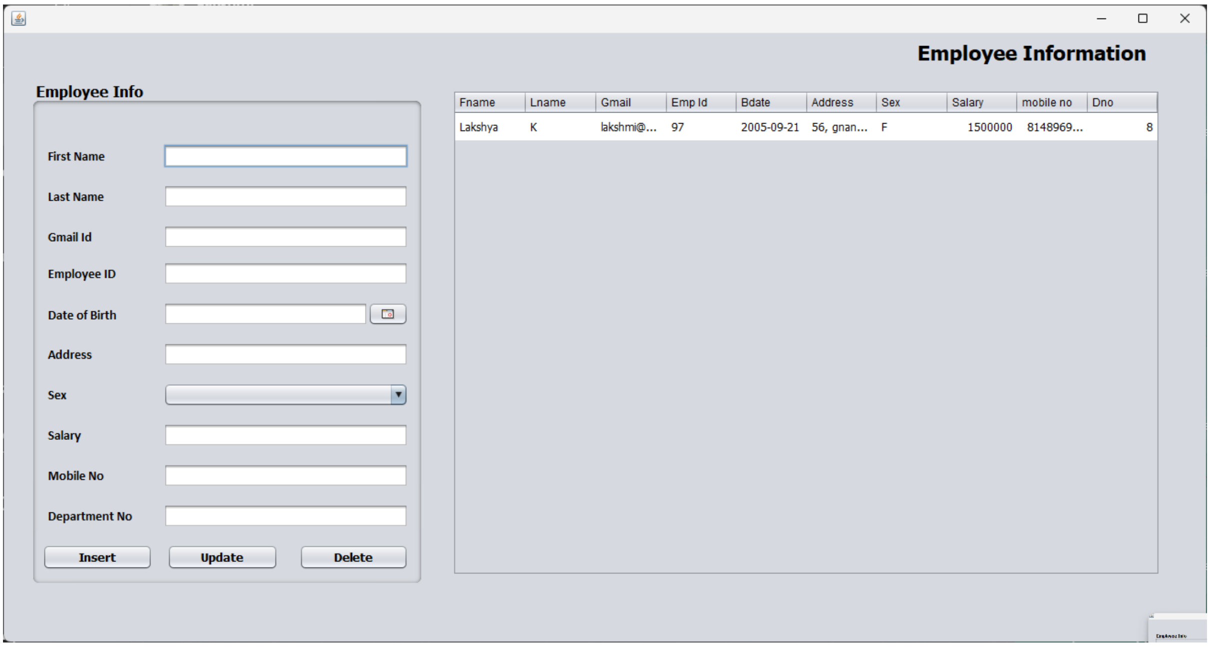
Employee Info

First Name	
Last Name	
Gmail Id	
Employee ID	
Date of Birth	
Address	
Sex	
Salary	
Mobile No	
Department No	

Fname	Lname	Gmail	Emp Id	Bdate	Address	Sex	Salary	mobile no	Dno
Lakshya	K	lakshmi@...	97	2005-09-21	56, gnan...	F	1500000	8148969...	8
Lokesh	R	lokesh@g...	102	2005-09-21	37, Astha...	M	50000	9499958...	2

FIG 4.2

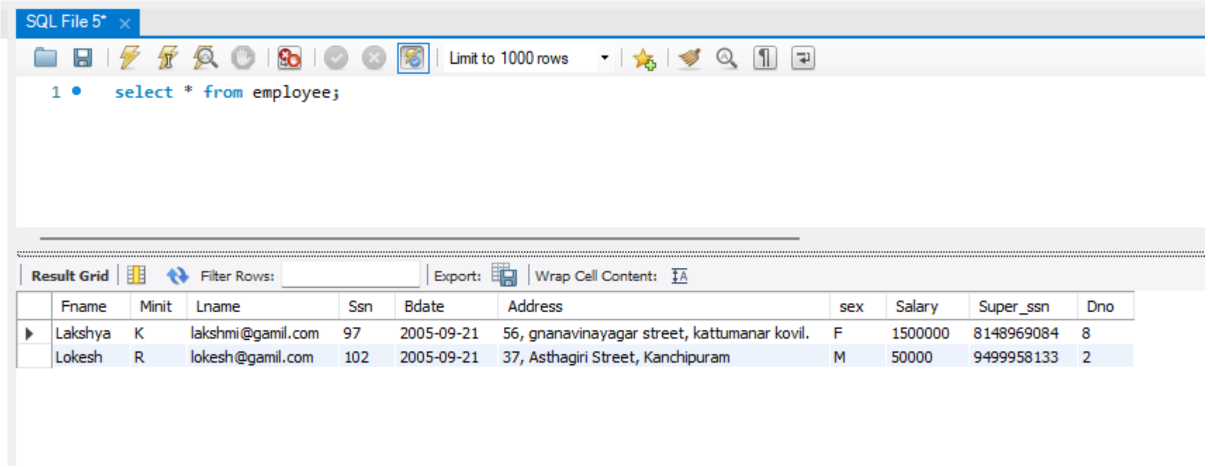
Deletion data



Fname	Lname	Gmail	Emp Id	Bdate	Address	Sex	Salary	mobile no	Dno
Lakshya	K	lakshmi@...	97	2005-09-21	56, gnan...	F	1500000	8148969...	8

FIG 4.3

Data are stored in database



```
select * from employee;
```

Fname	Minit	Lname	Ssn	Bdate	Address	sex	Salary	Super_ssn	Dno
Lakshya	K	lakshmi@gamil.com	97	2005-09-21	56, gnanavinayagar street, kattumanar kovil.	F	1500000	8148969084	8
Lokesh	R	lokesh@gamil.com	102	2005-09-21	37, Asthagiri Street, Kanchipuram	M	50000	9499958133	2

FIG 4.4

CONCLUSION

In this project, we developed a simple Employee Management System using Java Swing for the user interface and MySQL for database management. The system allows users to perform basic CRUD operations on employee records, such as adding, updating, deleting, and retrieving employee information. By integrating Java's JDBC for database connectivity and Swing for the front-end, the system provides a functional and user-friendly way to manage employee data. This project serves as a foundation for future enhancements like validation, advanced search features, and a more dynamic user interface**.**