Employee Management System

Project report in partial fulfillment of the requirement for the award of the degree of

Bachelor of Technology

In

Computer Science and Technology

Submitted By

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CERTIFICATE

This is to certify that the project titled **Employee Management System** submitted by **Sunrit Paul (University Roll No. 12020009022040), Aritrya Chatterjee (University Roll No. 12020009022021), Atanu Kumar Das (University Roll No. 120200009022260), Rangit Mukherjee (University Roll No. 12020009022106)**, **Ranjit Shaw (University Roll No. 12020009022107) and Debjit Dey (University Roll No. 12020009022093)** students of UNIVERSITY OF ENGINEERING and MANAGEMENT, KOLKATA, in partial fulfillment of requirement for the degree of Bachelor of Computer Science and Technology, is a bonafide work carried out by them under the supervision and guidance of **Prof. Dr. Chiradeep Mukherjee** during 8th Semester of academic session of 2020 - 2024. The content of this report has not been submitted to any other university or institute. I am glad to inform that the work is entirely original and its performance is found to be quite satisfactory.

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TABLE OF CONTENTS

ABSRTACT

The Employee Management System (EMS) is a software application developed to streamline human resource management processes within organizations. Utilizing Java programming language with AWT and Swing for the frontend and SQL for the backend database management, the EMS aims to centralize employee data, automate administrative tasks, and enhance workforce efficiency. This report provides an overview of the EMS project, including its objectives, functionalities, and proposed solution. Through the implementation of the EMS, organizations can improve HR operations, optimize resource utilization, and make informed decisions based on real-time employee data.

INTRODUCTION

Everything has been digitised in our age of ever-increasing technology. The human workforce has grown as a result of the abundance of job options. As a result, a system that can handle the data of such a vast number of people in a company is required. Because of its user-friendly design, this project makes the process of keeping records easier. The "EMPLOYEE MANAGEMENT SYSTEM" was created to address the issues that plagued the previous manual system. This programme is designed to eliminate, and in some cases, decrease, the problems that the current system has. To eliminate data entry mistakes, the software is kept as simple as possible. When inputting incorrect data, it also displays an error notice. The user doesn't require any formal expertise to operate this system. The admin will be able to add new employees to this project. Employee data may also be seen and printed by the administrator. Admins can also remove an employee and change their details. The Employee Management System is designed to cater to the diverse needs of modern organizations, from small businesses to large enterprises, across various industries. By harnessing the power of Java Swing and AWT for the frontend user interface and SQL for the backend database management, our system offers a robust and scalable solution for organizations seeking to optimize their HR processes.

This project aims to streamline the process of managing employee records within an organization by providing functionalities for adding, editing, deleting, and viewing employee information.

LITERATURE SURVEY

A literature survey on Employee Management Systems (EMS) reveals significant insights into their evolution, functionalities, benefits, and challenges. EMS has evolved from manual record-keeping systems to sophisticated digital platforms offering functionalities such as employee record management, attendance tracking, leave management, performance evaluation, training, and payroll processing.

This system's objectives include the following:

1. Design of an HR management system to meet needs such as adding and deleting employees, viewing and printing employee data, and updating employee information.
2. Employee data is stored in a well-designed database.
3. An easy-to-use interface that will let user interact with the system.
4. To create a user-friendly managing employee record.
5. To implement secure authentication and authorization mechanisms.
6. To ensure data integrity and consistency by storing employee data in centralized database.
7. To allow authorized users to add, edit, delete and view employee details.
8. To automate routine administrative tasks related to employee management, such as record-keeping, updating employee information, and generating reports.
9. To improve data accuracy and reliability by centralizing employee records in a secure and easily accessible database.
10. To ensure compliance with regulatory requirements and company policies by maintaining accurate and up-to-date employee records.

PROBLEM STATEMENT

The use of paperwork in handling some of the processes could lead to human error, papers may end up in the wrong hands and not forgetting the facts that this is time consuming. A few current systems lack employee self-service meaning employees are not able to access and manage their personal information directly without having to go through their HR department or their managers. Another challenge is that multi-national companies will have all the employee information stored at the headquarters of the company making it difficult to access the employee information from remote place when needed at short notice. The project is aimed at setting up an employee's information system about the status of the employee, the educational background, and the work experience to help monitor the performance and achievement of the employee through password protected system.

PROPOSED SOLUTION

The proposed solution is the development of an Employee Management System (EMS) using Java programming language with AWT and Swing for the frontend and SQL for the backend database management. The EMS will centralize employee records, automate administrative tasks, and provide real-time insights into workforce data. Key functionalities of the EMS include employee record management, attendance tracking, leave management, performance evaluation, training, and payroll processing. By leveraging technology, organizations can optimize HR processes, improve data accuracy, and make informed decisions to drive organizational success.

METHODOLOGY

The methodology to complete this project is as follows:

1. I explored net beans, concepts of swings and applets.
2. For further and a deeper understanding, I even referred to some articles, books, journals, websites and news articles.

Below are the important concepts on which the work has been done and with the support of these I was able to work on my project.

NET BEANS- NetBeans is a Java-based integrated development environment (IDE). NetBeans enables the creation of applications using a set of modular software components known as modules. NetBeans is compatible with Windows, Mac OS X, Linux, and Solaris. It also allows other programming languages to be extended. In addition to Java programming, Third-party developers can expand NetBeans-based applications, including the NetBeans IDE.

JAVA- High-level, Object-Oriented programming language which help programmers to run their applications efficiently. JAVA is the programming language which comes into our minds when we talk about android application. By using JAVA as a programming language, programmer can develop any type of android application easily. JAVA also provides many libraries which also helps in making efficient android application. Swing is a Java GUI widget toolkit. It's part of Oracle's Java Foundation Classes (JFC), which provides an API for creating graphical-user- interfaces for Java programmes.

SWING- Swing is a Java GUI widget toolkit. It's part of Oracle's Java Foundation Classes (JFC), which provides an API for creating-graphical-user-interfaces for Java programmes. Swing was created to give a more advanced collection of graphical user interface components than the previous Abstract Window Toolkit (AWT). Swing offers a pluggable look and feel that allows applications to have a look &feel that is unconnected to the underlying platform, as well as a look & feel that emulates the look & feel of numerous platforms.

SQL- SQL (Structured Query Language) is a computer language that is used to manage data in a relational database management system (RDBMS) or for stream processing in a relational data stream management system (RDSMS). It's especially beneficial for dealing with structured data, or data that has relationships between entities and variables.

FUCTIONALITIES

The Employee Management System offers the following functionalities:

• **Login Authentication:** Users are required to authenticate themselves using a username and password before accessing the system.

• **Employee Registration:** Authorized users can add new employee records by providing details such as name, address, contact information, and department.

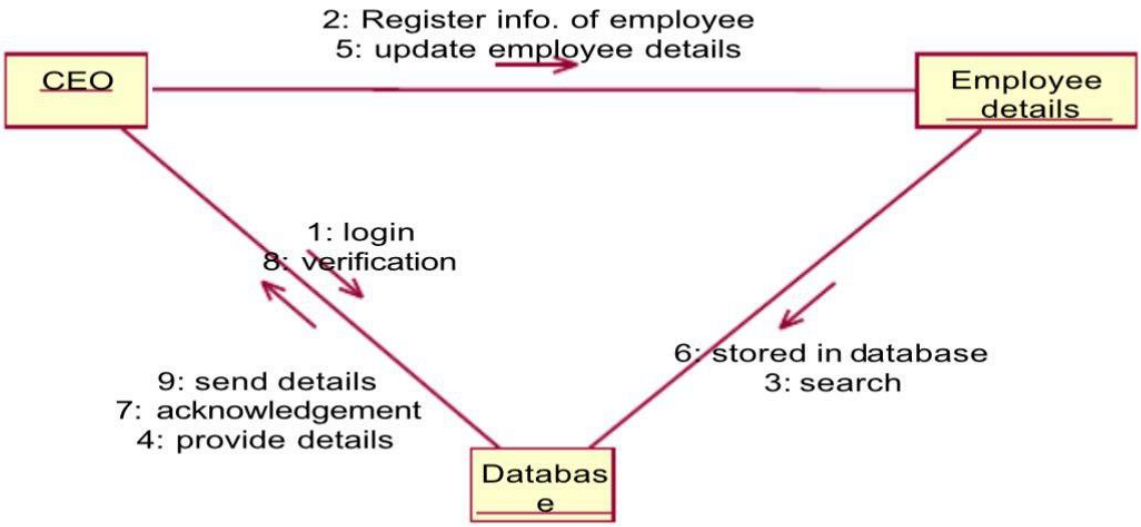
• **Employee Editing:** Users can edit existing employee records to update information such as contact details, department, or designation.

• **Employee Deletion**: Authorized users can delete employee records from the system if necessary.

• **Employee Search:** The system allows users to search for specific employees based on criteria such as name, department, or employee ID.

• **Employee Listing:** Users can view a list of all employees currently registered in the system, along with their details.

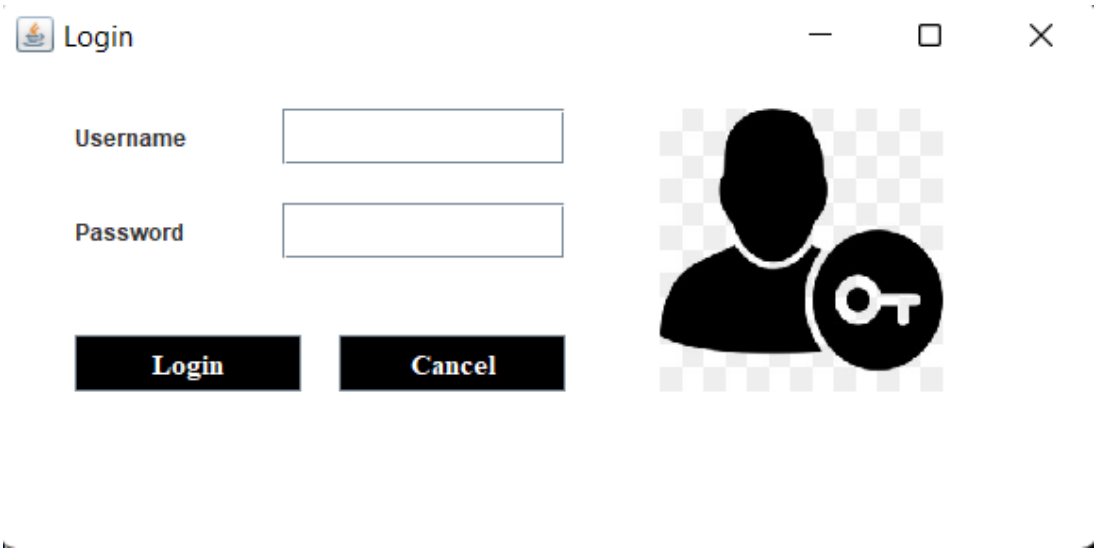
- **UML Diagram:**



EXPERIMENTAL SETUP AND RESULT ANALYSIS

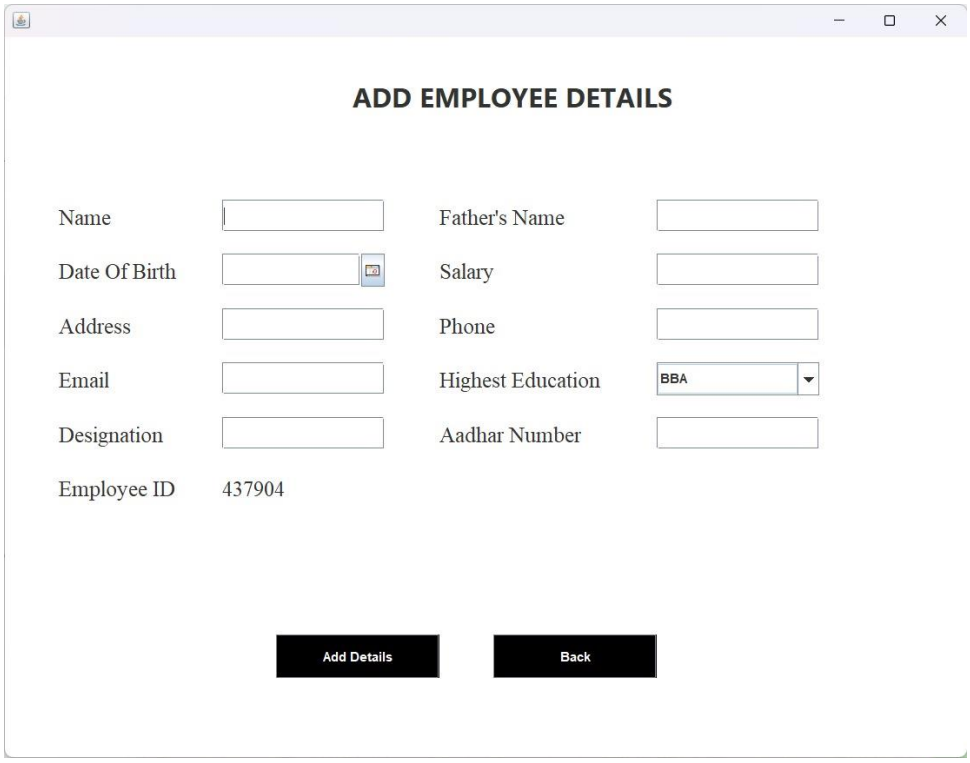
Following are the screens of the Employee Management System where you can see all the features of this system in use and you can also see the GUI of the system:

Login frame – This is the login frame of this system where user have to enter the required credentials to have access for the main dashboard.

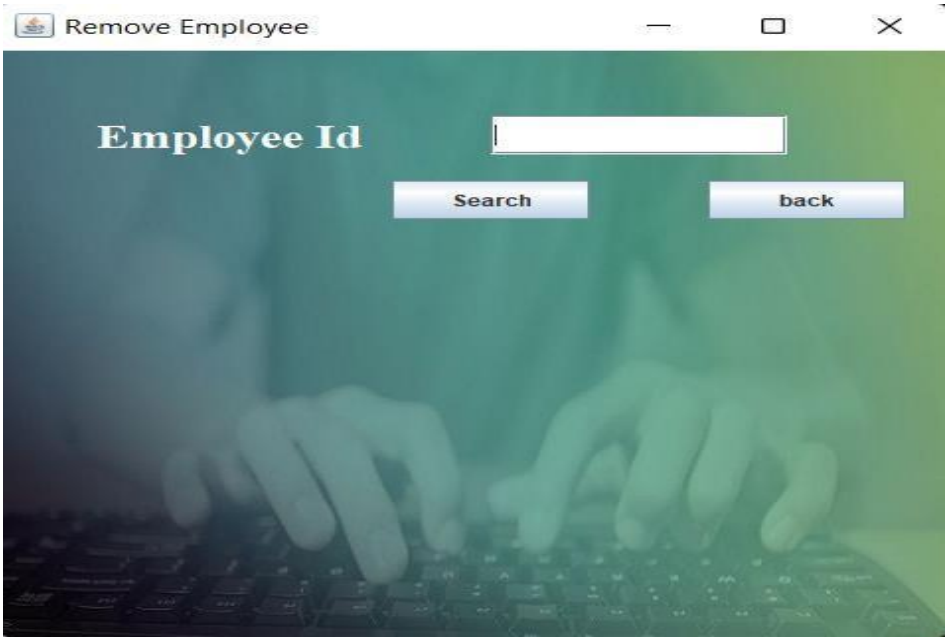


Main Dashboard – After login in, user is directed to the main dashboard of this system where user can perform various operations like adding an employee, deleting an employee.

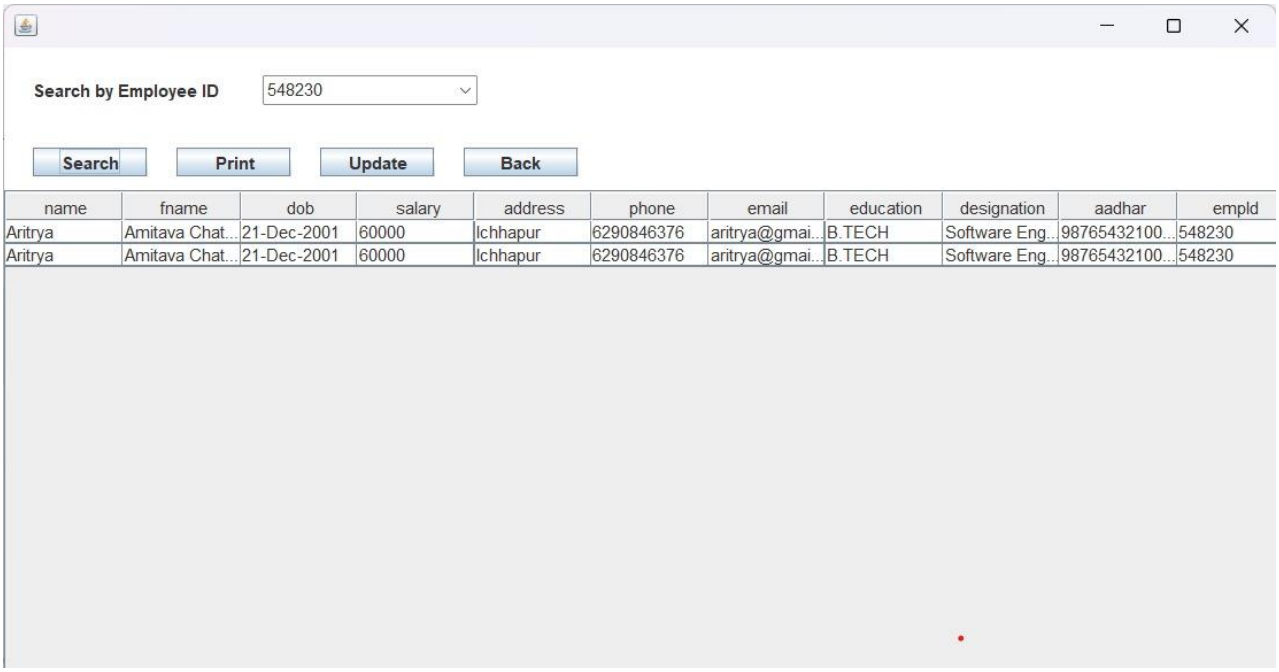
Add Employee – Here user has to enter all the required credentials to add a new employee to the system.



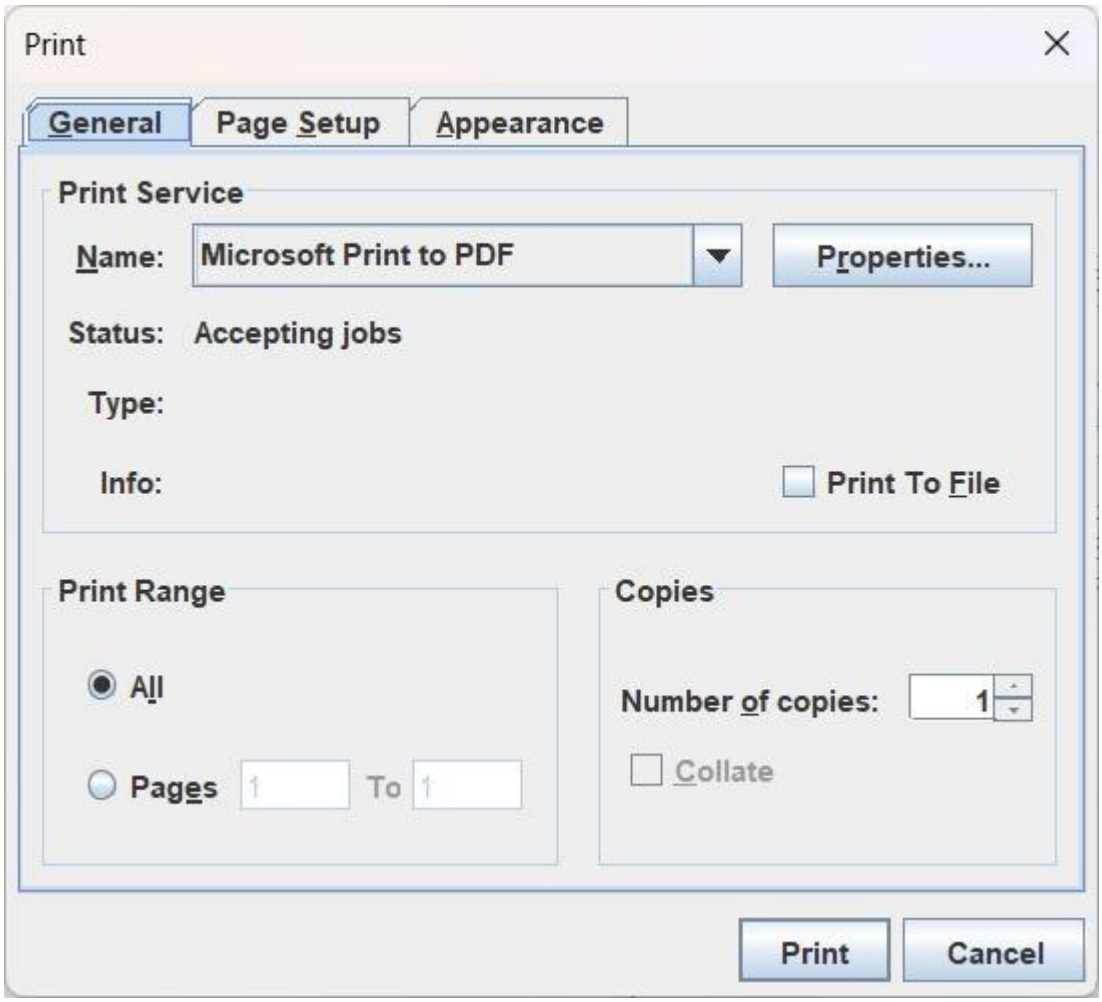
Remove Employee – User has to enter the employee id in order to delete his information from the system.



View and update employee – In order to view and update employee information, the user has to enter employee ID.



Print Employee Page: User can easily take the printout of the employee list.



FUTURE SCOPE

The GUI and the features added to this system are the basic ones. In future, there will be a better Graphical User Interface and there will be more features added to this system. If Graphical User Interface is improved then this system will be more user friendly and more features added will make this system a lot better and HR will be able to perform more operations.

Some potential future enhancements for the Employee Management System include:

- Implementing additional features such as attendance tracking, leave management, and performance evaluation.
- Enhancing the user interface with more interactive and visually appealing components.
- Implementing data validation and error handling mechanisms to improve system reliability and user experience.

CONCLUSION

The development of the Employee Management System represents a significant milestone in the realm of human resource management technology. Through the integration of Java Swing and AWT for the frontend user interface and SQL for the backend database management, we have successfully created a robust and scalable solution for organizations to streamline their employee management processes.

This project addresses the pressing need for organizations to modernize their HR operations and transition from manual, paper-based systems to automated, digital solutions. By centralizing employee records in a secure and easily accessible database, our system enables HR personnel to efficiently manage employee data, streamline administrative tasks, and make informed decisions based on real-time information.

Furthermore, the system's modular architecture and extensibility pave the way for future enhancements and integrations with additional HR functionalities, such as attendance tracking, performance evaluation, and payroll management. As organizations evolve and grow, our system can adapt to meet their changing needs and requirements, ensuring long-term viability and relevance.

In conclusion, the Employee Management System represents a paradigm shift in how organizations manage their most valuable asset: their people. By harnessing the power of technology, we empower HR professionals to focus less on administrative tasks and more on strategic initiatives that drive organizational success. We believe that our system will revolutionize HR operations and make a significant impact on the efficiency, effectiveness, and competitiveness of organizations across various industries.

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