EMPLOYEE RECORD SYSTEM ---- A Project using DBMS and JAVA

Submitted By

ABHISHEK SHARMA   Department of Computer Science

University Roll No. 12019009001127   UEM, Kolkata

ADITYA JAISWAL   Department of Computer Science

University Roll No. 12019009023073   UEM, Kolkata

AKASH SARKAR   Department of Computer Science

University Roll No. 12019009023099   UEM, Kolkata

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Department of Computer Science

UEM, Kolkata

UNIVERSITY OF ENGINEERING & MANAGEMENT, KOLKATA

University Area, Plot No. III – B/5, New Town, Action Area – III, Kolkata – 700 156

Certificate

This is to certify that the project titled **"EMPLOYEE RECORD SYSTEM ---- A Project using Database Management Systems and JAVA"** submitted by,
ABHISHEK SHARMA [12019009001127]
ADITYA JAISWAL [12019009023073]
and **AKASH SARKAR [12019009023099]**
students of University of Engineering & Management, Kolkata, i partial fulfilment of requirement of the degree of Bachelor of Computer Science, is a bonafide work carried out by them under the supervision and guidance of **Prof. Sudeshna Kundu Mondal, Prof. Srestha Sadhu and Prof. Sandip Mondal** during the **4th Semester of academic session of 2020-21**. The content of this report has not been submitted to any other institute or university. I am glad to inform you that, the work is entirely original and it's performance is found to be quite satisfactory.

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Examiner's Signature
Department of Computer Science
University of Engineering & Management, Kolkata

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ABHISHEK SHARMA

ADITYA JAISWAL

AKASH SARKAR

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EMPLOYEE RECORD SYSTEM

A PROJECT USING DATABASE MANAGEMENT SYSTEMS AND JAVA

Abstract

Employee Record System using JAVA and Database Management Systems is one the smartest and innovative projects in terms of automating the record system of various organizations and institutions. In this Employee Record System we have implemented a code base which will store the data of the employees of an organization or any other institution and have created the front end with JAVA so that it looks more effective and attractive. Storing information and records of the employees have been a tough work for manual users, hence to make it simple this JAVA empowered system is imposed to make the tough job simple.

To implement this project we have used Java Netbeans 12.3 version and MySQL (using the XAMPP control panel of version 7.2), to compile and run the program. Netbeans is a versatile IDE which has lot more facilities than any other IDEs and also the latest version of Java Development Kit 15, which help the system to empower. Hence, this project work is one of the best version of the Employee record taking system.

Introduction

Earlier systems were manual where there was no way of properly storing information.

Employee records were stored manually which lead to errors. There was no proper way of tracking employee records. It was very difficult and required a lot of paperwork which makes the application time consuming and not secured. There was no administrator which could handle the records. So there was the need to develop a system which could manage all these things and reduce the paperwork.

Employee information system is easy to use application which is created to manage the employee data. It is created to record the details of the employees. This reduces the dependency on the manual system which could create errors. This system can easily help in tracking employee records. There is a search feature which allows getting records of a specific employee. There is an administrator which can add, edit, delete and save records in a database. There are two views for this application first is the administrator and the second is employee view. The employee view enables employees to view their details.

Literature Review

In the past few times the employee record system is developed by manual deployment and there is no system generated approach through which this can be automated, but through this approach we can solve this matter and automate the whole system using the code base that we have developed and deployed successfully.

Before implementing this kind of project and code base the record system is worked in the excel sheet or in the form of register sheet, but in that case anyone can view and edit that as this is very open to all of the employees. Hence chance of malfunction is very much logical in this case.

So, to prevent this kind of steps, we have to develop something which will be 100% accurate and 100% efficient. Hence we have developed this project.

Problem Statement

The problem statement for this project is, to make a secure and automated system which will keep the Employee Records of an organization or institution secure and safe.

Also it can do the following jobs automatically with the help of the Admin of the company only,

- Adding new employee data
- Updating previous employee data
- Deleting employee data
- Search a particular employee record based on the employee ID and print the details.

These are the problem statements that we are solving using the code base which is implemented in JAVA.

Solution

To overcome the above mentioned problem statements, we need to create 6 procedures. They are,

- Creating a java file which will add new employee records in the employee database, as per the admin choice.
- Creating a java file which will update the previously entered record of the employee with the help of the admin through the system by the employee ID in the employee database.
- Creating a java file which will delete the desired record of the database with the permission of the admin.
- Creating java file which will search a record with respect to the employee ID of the employee.

These classes will be combined together to form the program which will help the admin to work on with the database of the employee records.

Methods and Algorithm

To access this project the basic medium will be JAVA Netbeans and XAMPP control panel (any other IDEs will also work on this project). We have to set two environments for this project to successful. Firstly, we have to create a database in which we will store all the information of the employees and then we have to make it secure and compact. Secondly, we have to make the java front end for the web app which will provide the GUI of the project and also this Java files will make the queries to the database and based on that the details will be shown and hence evaluated by the admin.

Now the main thing is how to connect with the Java files with the database called as Employee. For that we need JDBC driver for MySQL which will make the connection in between the Java files and the database.

The conn.java is the main connection file of this project without which we cannot make any connections via the database and the programs will not be executed.

```java
package Employee;

import java.sql.*;

public class conn{

    public Connection c;
    public Statement s;

    public conn(){
        try{
            Class.forName("com.mysql.cj.jdbc.Driver");
            c =DriverManager.getConnection("jdbc:mysql://localhost:3306/employee?zeroDateTimeBehavior=CONVERT_TO_NULL","root","");
            s =c.createStatement();
        }catch(Exception e) {
            e.printStackTrace();
        }
    }
}
```

using this conn.java file we have connected the database with the java files and now this project is ready to be implemented.

This project consists of 11 java files including the connection file. These separate files are organising separate works and queries, with the help of those queries this project will be successful.

Now the resources database which is the main source of information for this project.

emp_id ▲ 1	name	fname	age	dob	address	phone	email	education	post	aadhar
uemk001	Abhishek Sharma	G. Sharma	25	01.07.1995	Kolkata	9330555020	abhi@gmail.com	B.Tech	ML Engineer	985712120000
uemk002	Sayan Mukherjee	S. Mukherjee	26	03.08.1994	Kolkata	8240038821	sm@gmail.com	B.Tech	Web Dev.	854933310202
uemk003	Nabarun Mukhopadhyay	S. Mukhopadhyay	20	11.11.2000	Hridaypur	8240032289	nb@gmail.com	B.Tech	DevOps	956411123200
uemk004	Subha Das	B. Das	26	23.01.1994	Kolkata	7845001201	sdas@gmail.com	B.Tech	Ethical Hacker	854935555202
uemk005	Kritee Ghosh	TK Ghosh	23	12.07.1997	Ichapur	4512700012	kghosh@gmail.com	B.Sc.	Marketing	458711203302
uemk006	Rahul Dutta	B. Dutta	24	19.12.1996	Barasat	9654100213	rd@hotmail.com	B.Tech	Sales	123451240012
uemk007	Samasree Das	H.K. Das	25	23.07.1995	Barrackpore	4587131240	sdhacker@gmail.com	B.Tech	Ethical Hacker	322145569887
uemk008	Srabani Ghosh	B.N. Ghosh	22	14.05.1998	Dum Dum	4561277894	srabna@gmail.com	B.Sc.	Intern (Sales)	456712580000
uemk009	Payel Saha	H.K. Saha	22	14.06.1998	Kolkata	4567122222	psaha@gmail.com	B.Sc.	Intern (Sales)	111122223333
uemk010	Ruma Pal	J. Pal	21	16.01.1999	Birati	7897412365	ruma@gmail.com	B.A.	Intern (Sales)	121234345656
uemk011	Jayanta Ghosal	K. Ghosal	25	04.11.1995	Nimta	4564578978	jgsl@gmail.com	B.Sc.	Jr. Web Dev.	123122234545
uemk012	Manohar Singh	J.K. Singh	30	01.03.1990	Kolkata	4567811212	manoofc@gmail.com	MBA	CEO	454512127878
uemk013	Balwant Sinha	H. Sinha	32	23.04.1988	Kolkata	4612100012	sinha@gmail.com	M.Sc.	CTO	787795956623
uemk014	Dhruv Rathee	AT. Rathee	28	28.02.1992	Barrackpore	9874563145	rathee@gmail.com	M.Sc.	Manager	121234345858

```
Employee Management System
    Source Packages
        Employee
            Add_Employee.java
            Forget_Password.java
            Front_Page.java
            Print_Data.java
            Remove_Employee.java
            Search_Employee.java
            Update_Employee.java
            View_Employee.java
            conn.java
            details.java
            login.java
        icons
            add_employee.jpg
            add_employee1.jpeg
            avatar.png
            details.jpg
            front.jpg
            light.jpg
            light1.png
            login.jpg
            m1.jpg
            op.jpg
            print.jpg
            print1.png
            remove.png
            view.jpg
    Test Packages
        <default package>
    Libraries
        MySQLDriver - mysql-connector-java-8.0.22.jar
        JDK 15 (Default)
    Test Libraries
```

We have the employee database which consists 11 attributes and they are, employee ID, name, father's name, age, date of birth, address, mobile no., email ID, education, job post and aadhar no.. Based on these 11 attributes we have taken the information of the employees and stored them in the database.

There is also a database named as login which consists of the login credentials. In this database it has two attributes Login ID and password. For this whole project the login Id is 'admin' and the password is 'admin'.

Lastly the MySQL Connector 8.0.22 is used to connect the database with the java files.

For complete codebase of the project visit the GitHub link : https://github.com/abhisheks008/Advanced-Employee-Record-System---Version-II

MySQL Queries

MySQL server has to provide queries for adding, updating, searching and deleting records from the database named as 'employee'. For these kind of operations we need to provide certain amount of the queries.

➢ Adding data in the database : `insert into employee values('"+a+"','"+bb+"','"+c+"','"+d+"','"+e+"','"+ff+"','"+g+"','"+h+"','"+i+"','"+j+"','"+k+"')`

Here the data are collected using the string inputs as,

```
String a = t1.getText();
String bb = t2.getText();
String c = t3.getText();
String d = t4.getText();
String e = t5.getText();
String ff = t6.getText();
String g = t7.getText();
String h = t8.getText();
String i = t9.getText();
String j = t10.getText();
String k = t11.getText();
```

➢ Updating the record of a certain employee ID : `update employee set emp_id='"+t1.getText()+"',name='"+t2.getText()+"',fname='"+t3.getText()+"',age='"+t4.getText()+"',dob='"+t5.getText()+"',address='"+t6.getText()+"',phone='"+t7.getText()+"',email='"+t8.getText()+"',education='"+t9.getText()+"',post='"+t10.getText()+"',aadhar='"+t11.getText()+"' where emp_id='"+id_emp+"'`

➢ Searching and printing the data of a particular employee ID : `select * from employee where emp_id = '"+e_id+"'`

➢ Deleting a particular employee ID's record from the database : `delete from employee where emp_id = '"+t.getText()+"'`
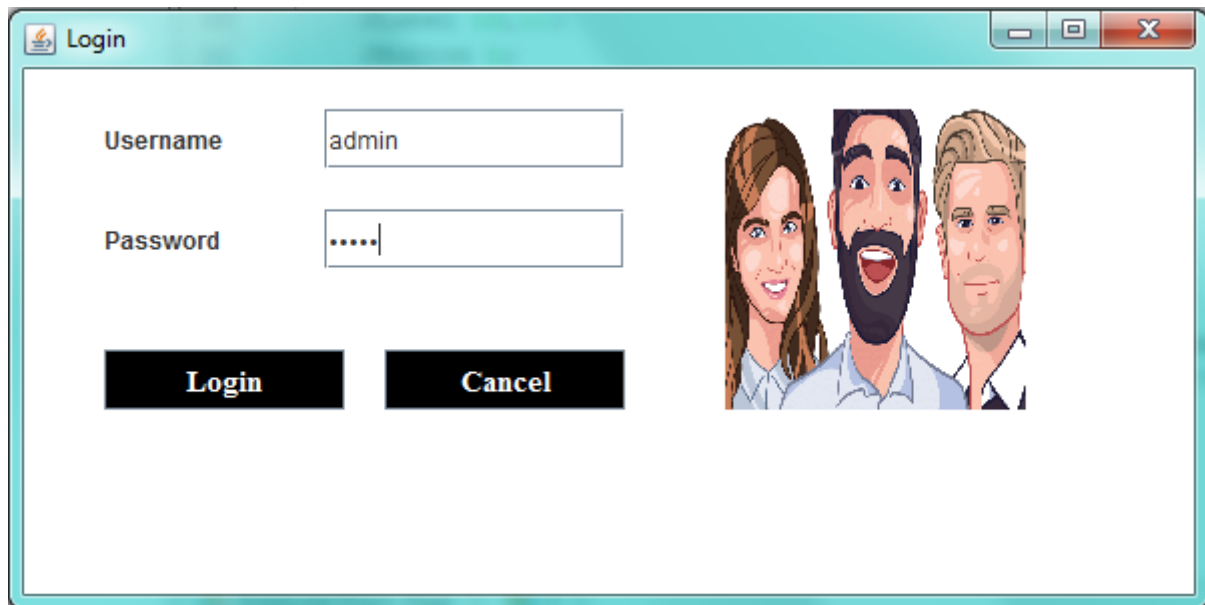
These are the main queries for running this project and the project is based on these queries.

Result and Analysis

Employee record system using Java and Database Management System is one of the major automations from the hand written registers. Now let's check how the project looks like after running all the files properly.
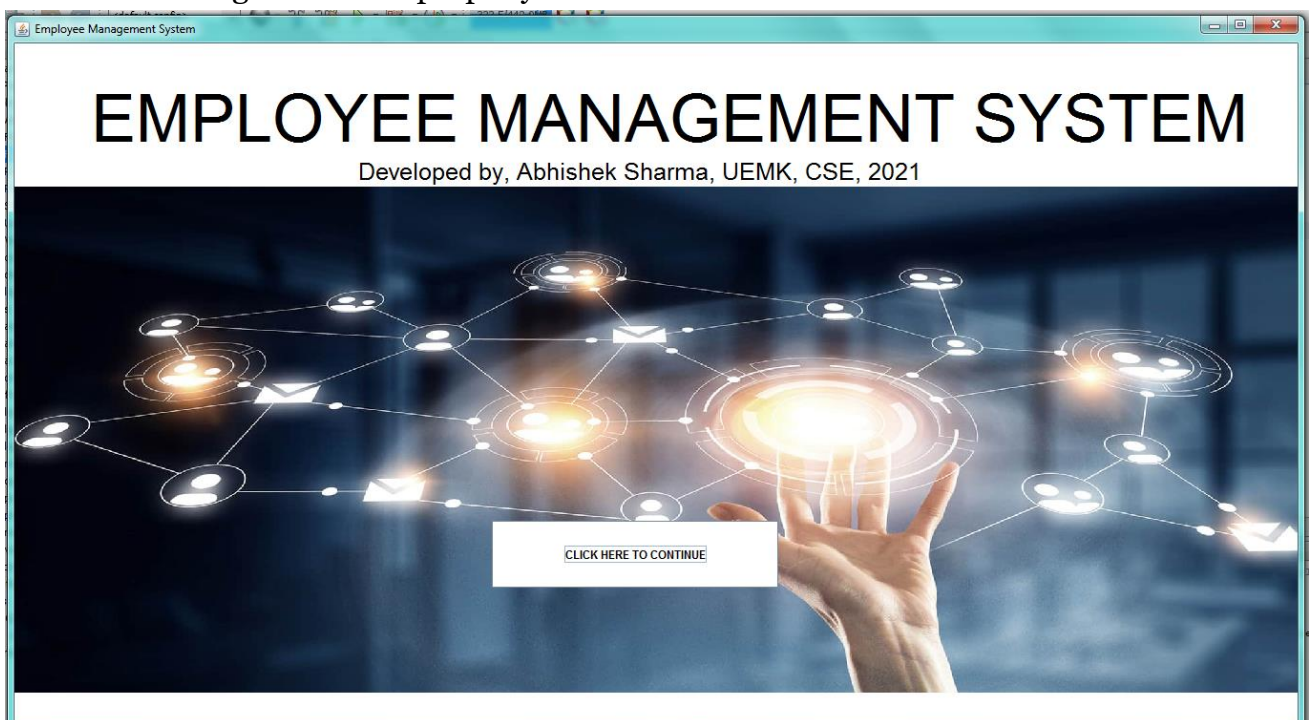
This is the front page or the welcome page of the system. After that a login window will pop up and it will require the login credentials for the login purposes.

After providing all the credentials properly it will take the user to the dashboard of the system. Now let's check the dashboard and also what it offers.
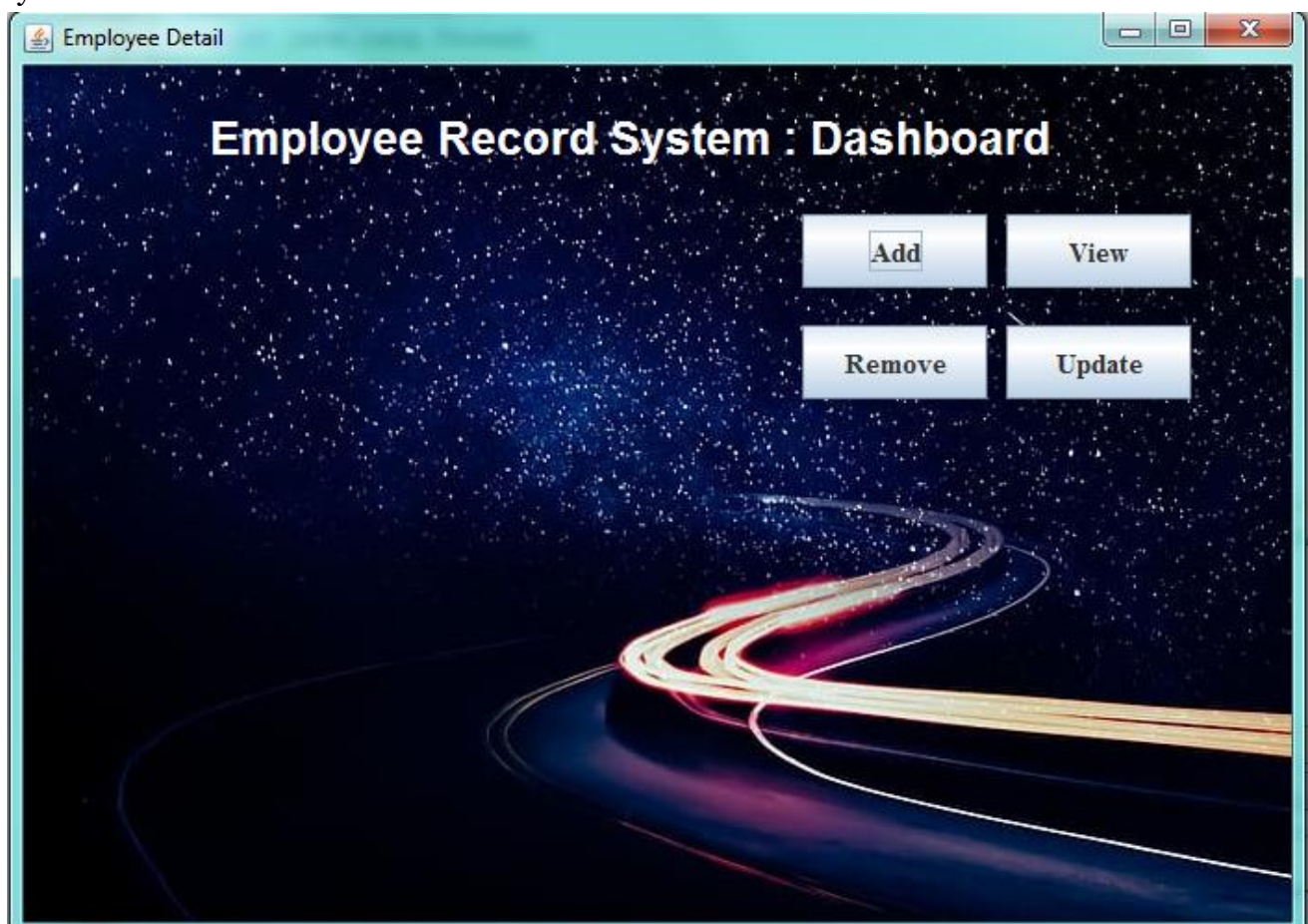
The dashboard offers the user to add employee data, update, search and remove employee data from the database. Now if we choose the 'Add' option then the add data window will open and the system will require the data.

After entering the data in the system click on the 'Submit' and the data will add in the database. As the data added successful it will show a pop-up as 'Data Added Successfully'.
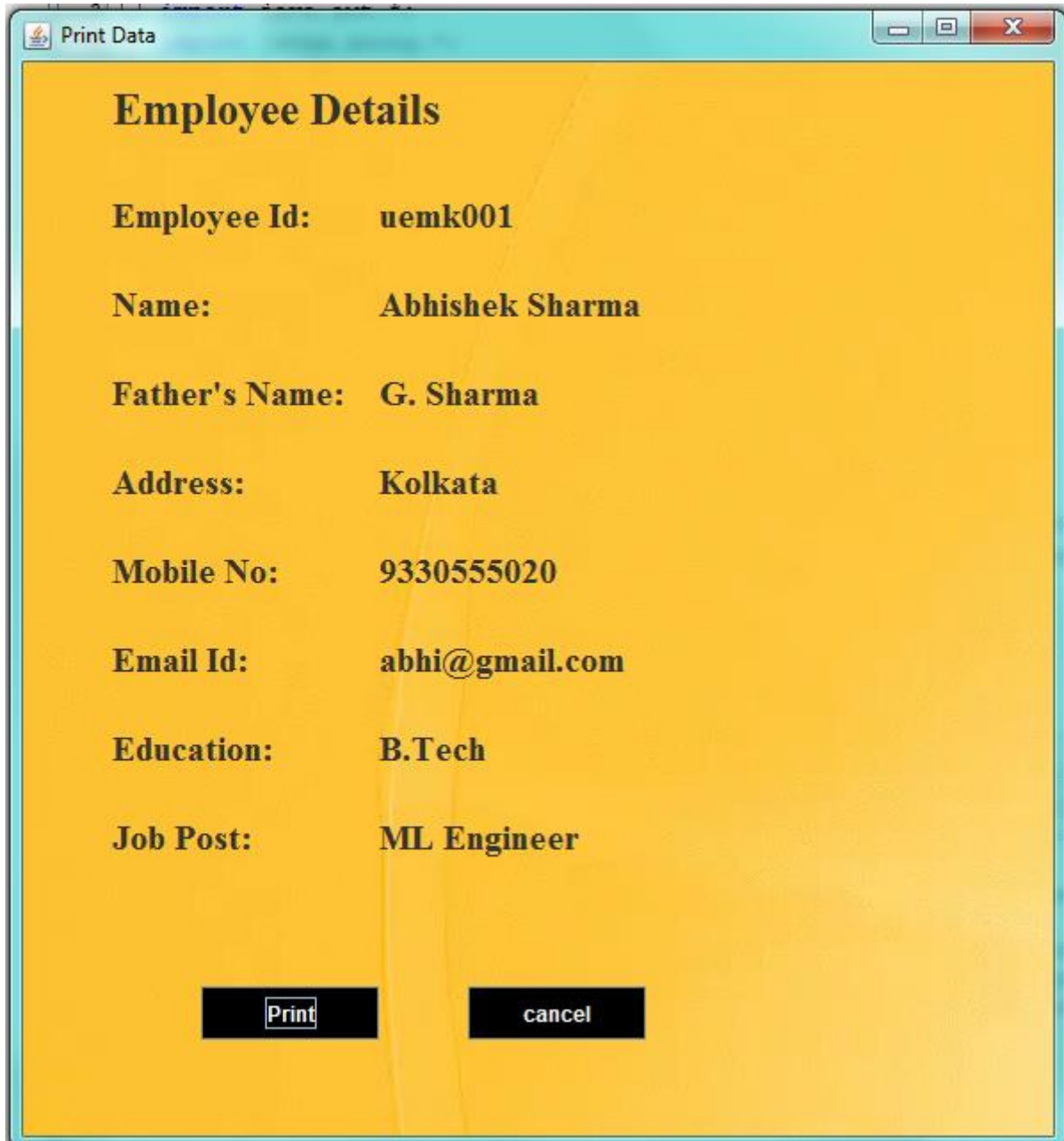
Now again from the dashboard let's search and view an employee' record.
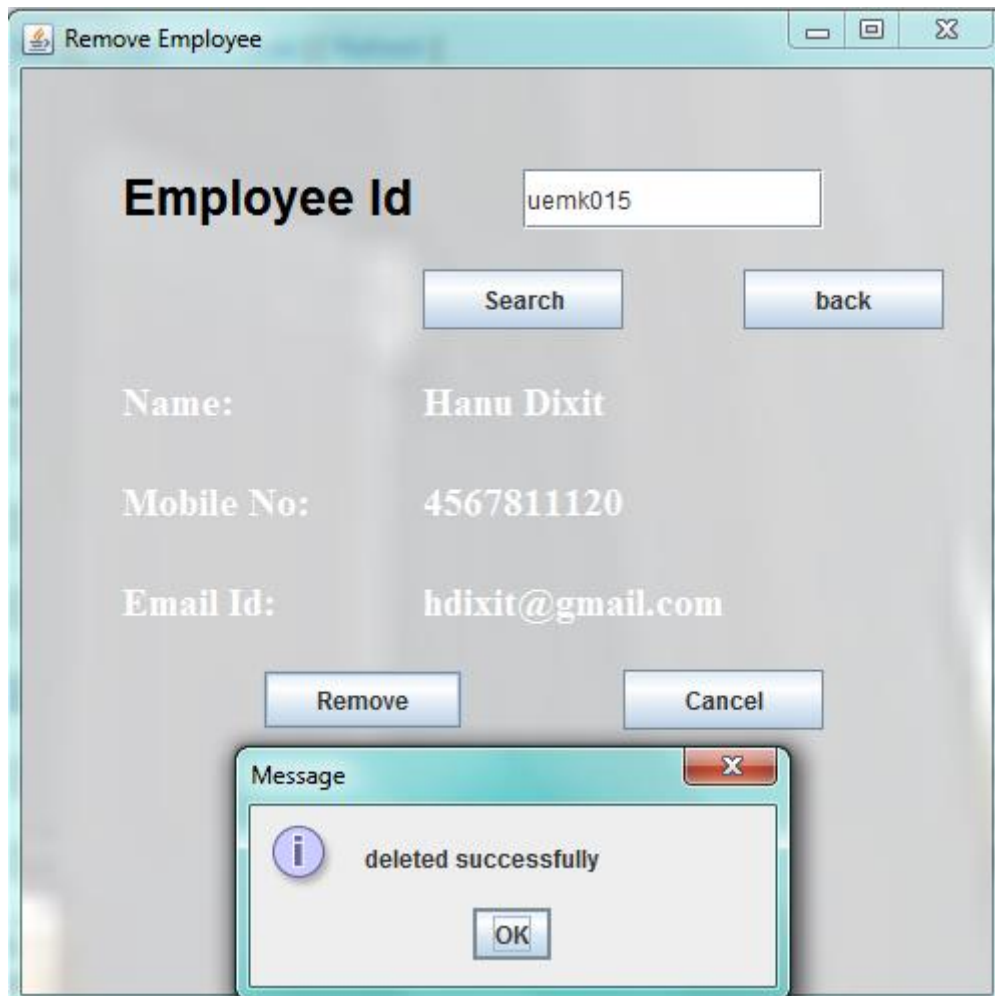
This is how the data will be shown in the interface.

Now if we want to delete or, remove an employee' data from the database then what we have to do? We have to head towards the 'Remove' section and from that we have to search the particular ID and then after confirming the details we have to click on the remove button and the data will be removed from the database.

Here's the interface of the remove data option.
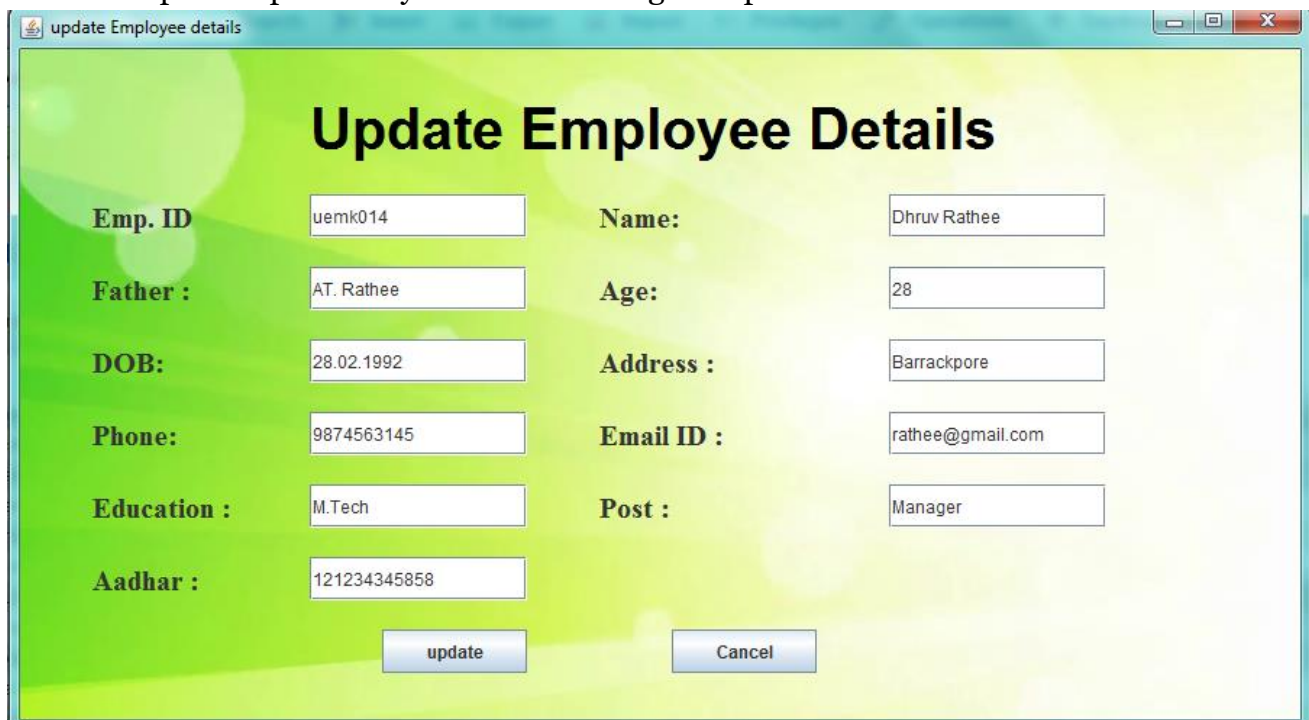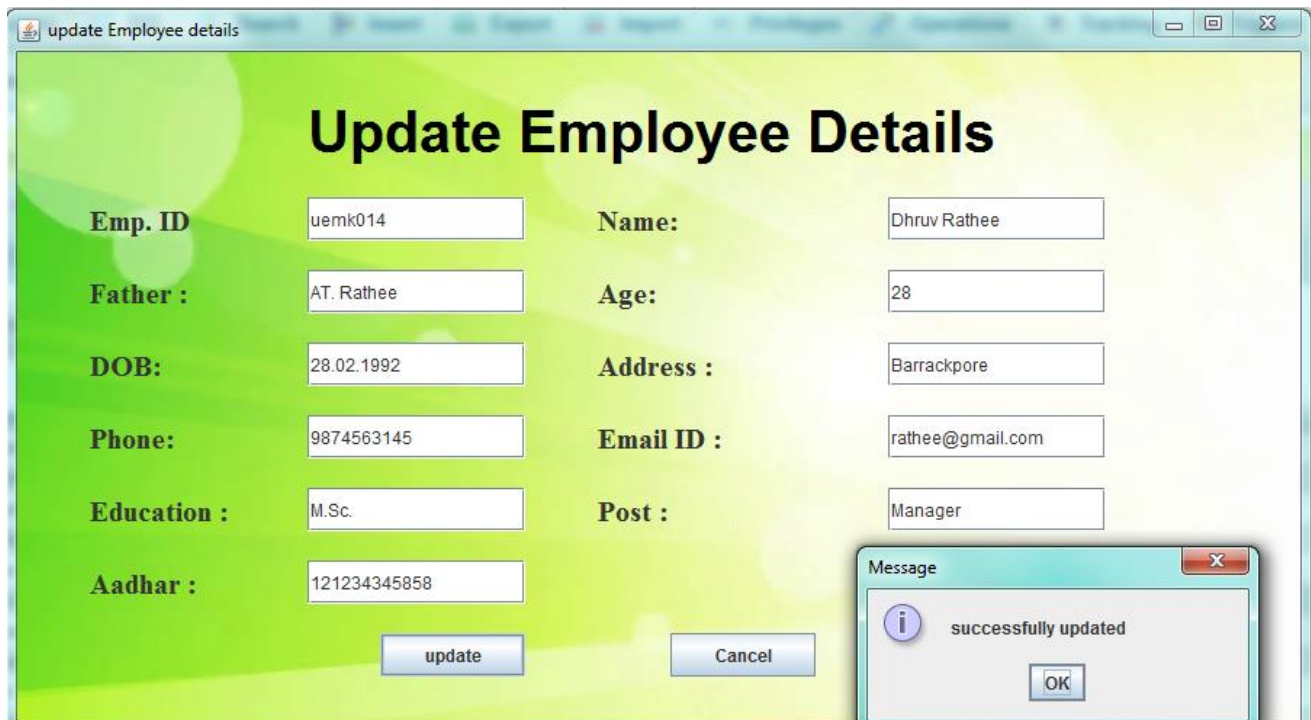
Now let's update a previously added data using the update button.

Let's change the education from 'M.Tech' to 'M.Sc.' and then update the data of this employee.

And the data is successfully updated.

This is how the system will work after proper configuration and the whole system is successfully deployed using the required conditions and methods of Java and Database Management Systems.

Conclusion and Discussion

By this project work the data keeping procedure for the admin of the company will be more accurate and more efficient. All the procedures have been working correctly. The code base is accurately,

- Adding the data in the database
- Updating the desired column
- Deleting the desired data
- Searching the desired the employee's record

Hence, we can conclude that the project has been done correctly and implemented properly to do the aforementioned procedures.

Future Scope of Work

This code base is the back bone of this project. Now this project can be modified using other attributes like salary, job attendance and lot more attributes are there to measure the scale of the employees.

Anyone can create a website which will provide the employees to check their attendances and their records which are in the system are right or, not. Like the Indian Railway has implemented this system as HRMS or, Human resources management systems where every employee can check their manager, salary, details and everything related to their jobs.

Resources and References

We would like to thank all the sources which help us in the project,

- Visual Studio Code : https://code.visualstudio.com/
- Java Development Kit : https://www.oracle.com/in/java/technologies/javase-downloads.html
- Java Documentation : https://docs.oracle.com/en/java/
- Apache Netbeans 12.3 IDE : https://netbeans.apache.org/download/nb123/nb123.html
- XAMPP Control Panel 3.2 version : https://www.apachefriends.org/download.html
- MySQL JDBC Driver and connector 8.2 version (.jar file) : https://dev.mysql.com/downloads/connector/j/
- Complete Code Base stored in my GitHub : https://github.com/abhisheks008/Advanced-Employee-Record-System---Version-II