RAJALAKSHMI ENGINEERING COLLEGE

An AUTONOMOUS Institution

Affiliated to ANNA UNIVERSITY, Chennai

SIGNUP & LOGIN PAGE USING JAVA

A MINI PROJECT REPORT

Submitted by

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IN

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BONAFIDE CERTIFICATE

Certified that this project report "Sign up and Login page using Java" is the bonafide

work of Gokul V (231501052)in the subject CS23333- Object Oriented

Programming using Java during the year 2024-2025.

Submitted for the Practical Examination held on⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

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INTERNAL EXAMINER   EXTERNAL EXAMINER

ABSTRACT

The Java Login and Signup System is a user-authentication project designed to demonstrate secure, efficient, and user-friendly account management using Java, NetBeans IDE, and MySQL database. Through this project, users can register for an account via a signup page, which stores their information securely in a database using Java Database Connectivity (JDBC). The login page then allows existing users to authenticate and access protected sections of the application by validating their credentials against stored records.

This project integrates core Java technologies, utilizing the NetBeans IDE for form design and Swing for graphical interface components, ensuring a smooth and interactive user experience. It also employs encryption algorithms to hash passwords before storing them in the database, thus enhancing data security and reducing vulnerability to unauthorized access. With well-defined error handling, validation checks, and structured database interactions, the project exemplifies foundational principles in software engineering, data security, and Java-based application development.

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1. INTRODUCTION

1.1 Overview

The Java Login and Signup System is an entry-level project that provides practical experience in secure user authentication, database management, and graphical user interface (GUI) development in Java. Authentication systems, which typically consist of login and signup interfaces, are integral components of most modern applications, from web-based platforms and mobile apps to desktop software. This project is a standalone application that enables users to create accounts (signup) and log in with those credentials, ensuring that only authorized users can access the application.

This project is built using the NetBeans Integrated Development Environment (IDE), which provides a powerful GUI designer and makes the development process more efficient. With NetBeans, developers can drag and drop components like text fields, labels, and buttons to create an intuitive and visually appealing interface without extensive manual coding. The backend of the application is managed with a MySQL database, where user data such as usernames and encrypted passwords are securely stored. This data is accessed and modified through Java Database Connectivity (JDBC), a vital API for enabling Java applications to interact with databases seamlessly.

By creating a login and signup system, developers can gain a deep understanding of important programming concepts such as GUI design, SQL database interaction, error handling, input validation, and encryption. Furthermore, this project introduces best practices for securing user information, such as hashing passwords before storing them in the database. This approach ensures that if unauthorized access to the database occurs, passwords remain protected. The Java Login and Signup System not only showcases foundational Java programming skills but also emphasizes the critical importance of security and user privacy in application development.

1.2 Objective

The main objectives of the Java Login and Signup System are to provide a robust, secure, and userfriendly environment where users can register and log in, with all data securely managed in a database. Here are the core objectives of this project in detail:

1. User Authentication: The first and foremost objective is to allow users to create an account (signup) and log in with those credentials. This authentication system ensures that users are verified before they gain access to the application. Each user must create a unique

profile with a username and password, which are validated upon login to restrict access to authenticated users only.

2. Secure Database Management: To securely store user information, a MySQL database is employed. Through JDBC, the application can connect to the database and perform essential operations such as inserting new user data during signup, retrieving existing user data during login, and updating or deleting data if necessary. The secure management of data is crucial for preserving user privacy and preventing unauthorized access to sensitive information.

3. Data Integrity and Consistency: Proper database schema design is essential for maintaining data integrity and preventing errors. For example, unique constraints can ensure that usernames are not duplicated, while validations at both the application and database levels prevent corrupt or inconsistent data entries. This objective guarantees that all user data remains accurate, complete, and consistent, which is essential for the stability and reliability of the application.

4. User-Friendly Interface: The project leverages Java Swing in the NetBeans IDE to create a clean, intuitive, and responsive user interface for both login and signup forms. With a visually appealing and straightforward interface, users can easily understand how to navigate the application. The GUI includes helpful prompts, labels, and validation messages to enhance the user experience, especially for those who may not be familiar with technology.

5. Error Handling and Validation: Robust error handling is implemented to manage scenarios such as incorrect input, empty fields, duplicate registrations, and database connection errors. Validation checks ensure that usernames and passwords meet specific criteria, such as minimum length requirements or password complexity standards. The system provides feedback through pop-up messages or on-screen prompts, helping users un

1.3 Modules

The Java Login and Signup System is composed of multiple functional modules that work together to provide a cohesive, secure, and efficient user authentication experience. Each module is responsible for specific tasks within the application, ensuring that it meets the outlined objectives. Here's an in-depth look at each module and its functions:

    1. User Interface (UI) Module:

The GUI module is developed with Java Swing components using the NetBeans IDE. This module provides the primary interface through which users interact with the application. The UI module comprises two forms: the Login Form and the Signup Form.

- o The Login Form allows existing users to enter their username and password to gain access to the system. It includes fields for username and password, a login button, and a "Forgot Password" option for future enhancements.
- o The Signup Form enables new users to register by entering their personal information, such as username, password, and email address. Once validated, this information is stored in the database.

Both forms are designed with accessibility in mind, ensuring that users of all experience levels can easily navigate and use the system. Labels and validation messages guide users on input requirements and warn them of any input errors.

2. Database Connectivity Module:

The Database Connectivity Module is the backbone of data storage and retrieval operations within the application. This module establishes a secure and stable connection between the application and the MySQL database through JDBC. It allows the application to interact with the database to perform tasks such as:

- o Inserting New Users: During the signup process, new user data is securely added to the database.
- o Retrieving User Data: When a user attempts to log in, this module retrieves the stored user data to verify credentials.
- o Updating and Deleting Data: For future scalability, this module is designed to accommodate user profile updates and deletion requests if required.

By using JDBC, the module ensures that data is transferred securely and efficiently between the application and the database. The JDBC API also includes features for error handling,

3. Data Validation Module:

Data validation is essential for ensuring that only valid data is entered and stored in the system. This module checks each input field on both the login and signup forms, preventing errors such as:

o Empty Fields: Ensuring that all required fields are filled in before submission. o Username Availability: Checking if a username already exists in the database to avoid duplicates.

  o Email Format Verification: Ensuring that email addresses meet standard formatting rules, which helps prevent invalid entries.

  o Password Complexity: Enforcing password strength requirements, such as a minimum length or inclusion of specific character types.

This module significantly enhances data integrity by catching errors before data is saved to the database. It helps maintain a clean, consistent database by ensuring that only properly formatted data is accepted.

4. Security Module:

  In any authentication system, security is of utmost importance. The Security Module in this project implements best practices for safeguarding user data, particularly passwords. This module uses encryption algorithms such as MD5 or SHA-256 to hash passwords before they are stored in the database. Password hashing ensures that even if the database is compromised, the original passwords remain unknown to unauthorized individuals.

Additionally, the security module includes mechanisms to prevent SQL injection attacks by using prepared statements. This approach ensures that user inputs are sanitized and safely handled, minimizing the risk of malicious input that could harm the database or compromise data security.

5. Error Handling Module:

  The Error Handling Module is responsible for managing all errors and exceptions that may arise during application use. This includes errors related to user input, database connection failures, and system exceptions. Error handling is implemented at various levels of the application:

  o User Input Errors: For example, if a user enters an incorrect username or password, a pop-up message appears, informing them of the error.

  o Database Connection Errors: If the application fails to connect to the database, an error message will be displayed to the user, and the system will attempt to reconnect.

- Duplicate Account Creation: If a user tries to create an account with an existing username, the system provides a warning message and suggests choosing a different username.

Effective error handling improves the user experience by providing feedback on errors and suggestions on how to proceed. It also ensures the stability of the application, as all errors are caught and managed gracefully rather than causing the program to crash.

Each of these modules is critical to the success of the Java Login and Signup System, contributing to a secure, user-friendly, and efficient application. By modularizing the project in this way, the system is easier to develop, maintain, and scale in the future.

2. SURVEY OF TECHNOLOGIES

2.1 Software Description

The Java Login and Signup System project relies on a combination ofpowerful software tools and libraries to create a reliable, secure, and efficient authentication application. Each software tool contributes specific functionalities and benefits that enhance the development process and end-user experience. Here's an in-depth look at each software component used in this project:

- **Java:**

  Java, an object-oriented programming language, is central to this project. Java's platform independence, achieved through the Java Virtual Machine (JVM), allows applications to run seamlessly across different operating systems such as Windows, macOS, and Linux. Known for its robustness and security, Java is ideal for developing applications that handle sensitive user data, as it offers strong memory management and error-handling mechanisms. The language's rich standard libraries support a wide range of features, from graphical user interface (GUI) components to database connectivity. In this project, Java is used to build the business logic, which includes validating user inputs, encrypting passwords, and managing database interactions. Java's built-in libraries, such as Swing for GUI and utility classes for handling errors, are leveraged to enhance both functionality and user experience.

- **NetBeans IDE:**

  NetBeans Integrated Development Environment (IDE) is used to develop and manage the entire project. NetBeans provides an organized workspace where developers can manage files, test code, and debug applications in a streamlined manner. One of the standout features of NetBeans is its drag-and-drop form designer for Java Swing components. This allows developers to visually design user interfaces by dragging components like buttons, text fields, and labels directly onto a form, making it much easier to create intuitive GUIs without writing excessive layout code manually. NetBeans also facilitates event handling for these components, enabling developers to link user actions (such as button clicks) to specific functionalities within the code. Additionally, NetBeans offers syntax highlighting, code suggestions, and error

detection, which make it easier to catch errors early and improve code quality. With its extensive support for Java, NetBeans is a reliable choice for creating a polished, professional user interface for this project.

- JDBC (Java Database Connectivity):

Java Database Connectivity (JDBC) is a core Java API that allows Java applications to interact with relational databases. JDBC provides a structured way to execute SQL commands within a Java program, facilitating operations such as inserting new records, retrieving existing records, updating data, and deleting records from a database. In this project, JDBC serves as the bridge between the Java application and the MySQL database, enabling secure and efficient data transfer. JDBC drivers convert Java method calls to SQL statements that the database can understand. By using prepared statements, JDBC also helps prevent SQL injection attacks, enhancing the security of database interactions. Furthermore, JDBC supports transaction management, which allows for grouped SQL statements to be executed as a single unit, ensuring data integrity. This project uses JDBC to handle user data operations, such as adding new users during signup, validating credentials during login, and performing other CRUD (Create, Read, Update, Delete) operations as needed.

- MySQL:
MySQL is an open-source relational database management system (RDBMS) that provides a reliable, scalable solution for data storage. Known for its stability and speed, MySQL is widely used in both small and large applications, including web-based systems and enterprise-level software. In this project, MySQL serves as the backend database, where all user-related information, such as usernames, email addresses, and encrypted passwords, is securely stored. The data stored in MySQL is organized into tables with defined structures, ensuring data consistency and integrity. MySQL's compatibility with JDBC makes it an excellent choice for Java applications, as it allows seamless integration with the Java code. Additionally, MySQL offers robust security features, such as user authentication, data encryption, and access control, which help safeguard sensitive user information from unauthorized access. With its structured query language (SQL), MySQL enables efficient querying, ensuring fast data retrieval for real-time login and signup operations.

Each of these software tools plays a specific role in the project, collectively creating a secure, user-friendly, and efficient Java Login and Signup System. By combining Java's versatility, NetBeans' user-friendly development environment, JDBC's powerful database connectivity, and MySQL's data management capabilities, this project leverages the strengths of each tool to deliver a reliable authentication system.

2.2 Programming Languages

This project primarily relies on Java as the programming language for both the frontend (Graphical User Interface) and backend (business logic and database interaction). Each component of the project utilizes Java in specific ways to achieve a smooth, secure, and efficient user experience. Additionally, SQL is used within Java code to interact with the MySQL database, allowing the application to store, retrieve, and manage user data effectively. Here's a breakdown of how each programming language contributes to the project:

- Java:
  Java is a powerful, object-oriented programming language that provides the foundation for the entire project. Known for its flexibility, Java allows developers to create applications that can run on multiple platforms without modification, thanks to the JVM (Java Virtual Machine). This cross-platform capability ensures that the Java Login and Signup System can operate seamlessly on various operating systems. Java is used extensively for the following components within the project:

- Graphical User Interface (GUI): Java Swing, a part of the Java Foundation Classes (JFC), provides a set of lightweight components for creating user interfaces. In this project, Swing is used to build the login and signup forms, with components such as JFrame, JLabel, JTextField, JPasswordField, and JButton. Java's Swing library allows for a responsive, event-driven interface where user actions, like button clicks, can trigger specific events within the application.

  - Business Logic: Java is used to write the core business logic of the application, which includes tasks such as validating user input, checking database entries, encrypting passwords, and managing error handling. Business logic is implemented in classes and methods that handle tasks like user registration, login verification, and error reporting. For example, Java's try-catch blocks are used to catch and handle errors

that may arise from database connections or invalid input, improving the stability of the application.

- Security: Java provides libraries for cryptographic functions, such as password encryption. In this project, passwords are hashed using encryption algorithms (e.g., MD5 or SHA-256) before they are stored in the MySQL database, ensuring that sensitive data remains protected even if the database is compromised. Java' s secure cryptographic algorithms make it an excellent choice for applications handling confidential information.

- SQL (Structured Query Language):

  SQL is the language used to interact with the MySQL database, allowing the Java application to store and manage user data efficiently. SQL commands are embedded within Java code through JDBC to facilitate database operations. Here's how SQL is utilized in the project:

  o Data Insertion: During the signup process, SQL INSERT statements are used to add new user records to the database. This ensures that new users are registered with unique usernames and securely encrypted passwords.

- Data Retrieval: When a user attempts to log in, SQL SELECT statements retrieve existing records from the database to validate the entered credentials. By using SQL queries to search the database, the application can quickly confirm whether a username and password match the stored data.

  o Data Validation and Constraints: SQL also enforces constraints such as UNIQUE keys on usernames, ensuring that each user has a unique identifier. Other SQL constraints, like NOT NULL, help maintain data integrity by ensuring that essential fields (e.g., username and password) are not left empty.

  o Prepared Statements: SQL queries are executed as prepared statements within Java, providing protection against SQL injection attacks. Prepared statements in JDBC ensure that user inputs are handled safely, preventing malicious SQL code from altering database contents or compromising security.

The combination of Java and SQL provides a robust foundation for this project, enabling the creation of a secure, efficient, and user-friendly login and signup system. Java handles the logic, interface, and security, while SQL manages the storage and retrieval of user data within the MySQL database. Together, these languages create a cohesive system that exemplifies

3. REQUIREMENTS AND ANALYSIS

3.1 Requirement Specification

The Java Login and Signup System project has specific requirements that ensure it meets both functional and non-functional expectations. These requirements guarantee that the system is efficient, secure, and user-friendly while also allowing for future enhancements. The requirements are divided into Functional and Non-functional categories to clearly outline the system's core functionalities and operational qualities.

Functional Requirements

The functional requirements define the core tasks that the system must be able to perform. These requirements focus on the primary features needed to achieve a working login and signup system.

1. User Registration:

   The application should allow new users to create an account by filling out a registration or signup form. The signup form will prompt users to enter necessary information, such as a unique username, a password, and potentially an email address. Once the user submits the form, the application validates the input, checking for conditions such as a minimum password length, unique username, and proper email format. After validation, the application stores the user's information in the database. This ensures that only valid, unique, and secure data is saved, maintaining data integrity and usability.

2. User Authentication:

   User authentication is the process of verifying the identity of a user trying to access the system. In this project, the login form allows registered users to enter their username and password to gain access. The application compares the inputted credentials against those stored in the database. If the username and password match, the user is granted access;

otherwise, an error message is displayed, prompting the user to retry or reset their password (for future expansion). This requirement is essential for safeguarding the application, as it ensures only authorized users can log in.

3. Database Connection:

A stable, secure connection to the MySQL database is essential for storing and retrieving user data. This connection must be managed via Java Database Connectivity (JDBC), which provides the link between the Java application and the database. The database connection should handle tasks like inserting new user data during signup, retrieving user data during login, and updating records when necessary. The connection must also be resilient, meaning that it should handle reconnection attempts if the database becomes temporarily unavailable. Error handling should be implemented to manage connection issues and ensure that the application notifies users of any service interruptions, enhancing overall user experience.

4. Password Encryption:

For enhanced security, the system should encrypt user passwords before storing them in the database. Password encryption ensures that sensitive data is protected, even if unauthorized access to the database occurs. This project should use secure hashing algorithms, such as MD5 or SHA-256, to convert plain-text passwords into hashed values. When users log in, the application hashes the entered password and compares it to the stored hash, rather than storing and comparing plain-text passwords. This approach significantly reduces security risks, as encrypted passwords cannot easily be read or misused by malicious actors.

Non-functional Requirements

Non-functional requirements define the quality attributes of the system, focusing on user experience, security, performance, and scalability. These requirements ensure that the application operates smoothly and securely, while also being adaptable to future changes.

1. User-Friendliness:

The user interface should be intuitive, simple, and visually appealing, enabling users of all experience levels to interact with the application without confusion. The design of the login and signup forms should follow best practices for usability, such as clear labels for each field, descriptive error messages, and tooltips to guide users if needed. The interface should avoid clutter, with clean layouts and logical navigation paths, making it easy for users to find and interact with the necessary features.

2. Data Security:

Protecting user data is crucial, especially for applications that handle sensitive information like passwords and personal identifiers. In addition to password encryption, the application should use secure coding practices to prevent vulnerabilities such as SQL injection attacks. This can be achieved by using prepared statements and parameterized queries to sanitize user inputs before they are processed by the database. Additionally, access to user data should be restricted, ensuring that only authorized parts of the application can interact with sensitive information. This commitment to data security ensures that user privacy and data integrity are maintained at all times.

3. Performance:
The application should be optimized to deliver a responsive and efficient experience. Database queries should execute promptly to avoid delays, particularly during login and signup processes where users expect quick responses. Techniques like indexing database fields that are frequently queried (e.g., usernames) can help improve search and retrieval speeds. The system should also be tested for performance under varying loads to ensure it remains responsive even if multiple users access the system simultaneously. By optimizing performance, the application will reduce user frustration and enhance overall satisfaction.

4. Scalability:
Although the Java Login and Signup System is a small-scale project, it should be designed with scalability in mind, allowing for potential future expansions. Scalability considerations include database design that supports additional tables or fields without significant restructuring and modular code that can accommodate new features. For instance, the database structure could include separate tables for user profiles, login

history, or password reset tokens, allowing the application to evolve without major overhauls. Ensuring scalability from the start allows the project to adapt to changing requirements, making it a flexible foundation for future development.

3.2 Hardware and Software Requirements

The Java Login and Signup System requires specific hardware and software resources to function effectively. These requirements ensure that the development environment is suitable for running Java applications, managing a MySQL database, and creating a reliable user interface. Below is a detailed overview of the hardware and software requirements for this project.

Hardware Requirements

The hardware requirements for this project are minimal, as it is an entry-level application. However, certain baseline specifications are necessary to ensure the smooth operation of development tools, the MySQL database, and Java processes. The recommended hardware specifications include:

- Computer System: A computer with a minimum of4 GB of RAM and 500 GB of storage is recommended. The RAM allows for the efficient running of the NetBeans IDE, the MySQL server, and the Java runtime environment without performance issues. While more RAM would further improve performance, 4 GB is sufficient for this project.

- Processor: An Intel Core i3 or equivalent processor is sufficient for this project, although a more powerful processor (like an i5 or i7) would improve the speed of complex database operations and compilation times.

- Stable Internet Connection: A stable internet connection is required for downloading the necessary software packages (such as the NetBeans IDE, JDK, and MySQL server) and for connecting to online resources if the database is hosted on a cloud server. If the database is local, the internet connection requirement can be minimized, though updates and online troubleshooting resources may still require connectivity.

Software Requirements

The software requirements include all necessary development and runtime tools, libraries, and database management systems needed to create, compile, and execute the Java Login and Signup System. Below are the recommended software tools:

- NetBeans IDE:

  NetBeans Integrated Development Environment (IDE) is recommended for Java programming and GUI development. NetBeans offers an intuitive drag-and-drop GUI designer, syntax highlighting, code completion, and debugging tools that simplify development and improve productivity. It also includes tools for testing and running Java applications, making it an ideal environment for this project. Additionally, NetBeans supports project organization and code management, making it easier to work on complex applications with multiple files and modules.

- Java Development Kit (JDK):

  The Java Development Kit (JDK) provides the necessary tools for compiling and running Java applications. The JDK includes the Java Runtime Environment (JRE), as well as essential libraries and utilities. For this project, JDK 8 or later is recommended, as it supports Java Swing for GUI development, JDBC for database connectivity, and encryption libraries needed for password hashing. Using the latest version of the JDK ensures compatibility with current security standards and access to the latest Java features.

- MySQL Server:

  MySQL Server is used for database management, providing a reliable and scalable solution for storing user data. MySQL's compatibility with JDBC makes it ideal for Java applications, as it allows for seamless data storage and retrieval operations. In this project, MySQL stores all user information, such as usernames, email addresses, and encrypted passwords, ensuring data integrity and security. The MySQL Server also includes tools for database administration, allowing developers to create, modify, and manage tables, indexes, and user accounts. Additionally, MySQL's query optimization and indexing features enhance the performance of database operations, ensuring a responsive user expe
  - MySQL JDBC Driver:

The MySQL JDBC Driver is necessary for establishing a connection between the Java application and the MySQL database. The driver translates Java Database Connectivity (JDBC) API calls into commands that the MySQL database can understand. This driver must be included in the project's classpath to enable the application to perform CRUD (Create, Read, Update, Delete) operations on the MySQL database. It supports prepared statements and other features that enhance database security and performance.

By ensuring that the required hardware and software resources are in place, this project can be developed and executed smoothly, providing a stable foundation for secure user authentication and data management.

JAVA PROGRAM:

Pro.java;
```java
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this
license
 */

package com.mycompany.pro;

/**
 *
 * @author lohes
 */
public class Pro {

    public static void main(String[] args) {
        NewJFrame1 x = new NewJFrame1();
        x.setVisible(true);
    }
}
```

NewJFrame1.java
```java
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this
license
 * Click nbfs://nbhost/SystemFileSystem/Templates/GUIForms/JFrame.java to edit this template
 */
package com.mycompany.pro;

import com.mongodb.client.MongoClient;
import com.mongodb.client.MongoClients;
import com.mongodb.client.MongoCollection;
import com.mongodb.client.MongoDatabase;
import javax.swing.JButton;
import javax.swing.JFrame;
import javax.swing.JOptionPane;
import javax.swing.JPasswordField;
import javax.swing.JTextField;
import org.bson.Document;

/**
 *
 * @author lohes
 */
public class NewJFrame1 extends javax.swing.JFrame {
```

```java
/**
 * Creates new form NewJFrame1
 */
public NewJFrame1() {
    initComponents();
}

/**
 * This method is called from within the constructor to initialize the form.
 * WARNING: Do NOT modify this code. The content of this method is always
 * regenerated by the Form Editor.
 */
@SuppressWarnings("unchecked")
// <editor-fold defaultstate="collapsed" desc="Generated Code">
private void initComponents() {

    jLabel1 = new javax.swing.JLabel();
    jTextField1 = new javax.swing.JTextField();
    jLabel2 = new javax.swing.JLabel();
    jPasswordField1 = new javax.swing.JPasswordField();
    jButton1 = new javax.swing.JButton();
    jButton2 = new javax.swing.JButton();

    setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

    jLabel1.setText("USER NAME :");

    jLabel2.setText("PASSWORD :");

    jButton1.setText("LOGIN");
    jButton1.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            jButton1ActionPerformed(evt);
        }
    });

    jButton2.setText("CREATE");
    jButton2.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            jButton2ActionPerformed(evt);
        }
    });

    javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
    getContentPane().setLayout(layout);
    layout.setHorizontalGroup(
```

```java
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(layout.createSequentialGroup()

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(layout.createSequentialGroup()
                        .addGap(64, 64, 64)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
                            .addComponent(jPasswordField1,
javax.swing.GroupLayout.DEFAULT_SIZE, 162, Short.MAX_VALUE)
                            .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE, 82,
javax.swing.GroupLayout.PREFERRED_SIZE)
                            .addComponent(jLabel1)
                            .addComponent(jTextField1)))
                    .addGroup(layout.createSequentialGroup()
                        .addGap(88, 88, 88)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(jButton2)
                            .addComponent(jButton1))))
                .addContainerGap(152, Short.MAX_VALUE))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGap(48, 48, 48)
                .addComponent(jLabel1)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addComponent(jTextField1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addComponent(jLabel2)
                .addGap(12, 12, 12)
                .addComponent(jPasswordField1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addGap(14, 14, 14)
                .addComponent(jButton1)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                .addComponent(jButton2)
                .addContainerGap(129, Short.MAX_VALUE))
        );

        pack();
    }// </editor-fold>

    private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
```

```java
        String                              uri                              =
"mongodb+srv://lokesh86loga:qwertyuiop@cluster0.8xfie.mongodb.net/?retryWrites=true&w=
majority&appName=Cluster0";

// MongoDB connection and operation
try (MongoClient mongoClient = MongoClients.create(uri)) {
    // Connect to the "news" database
    MongoDatabase database = mongoClient.getDatabase("project-1");

    // Get the "password" collection
    MongoCollection<Document> collection = database.getCollection("login-pass");

    // Convert password from char[] to String
    char[] passwordCharArray = jPasswordField1.getPassword();
    String passwordString = new String(passwordCharArray);

    // Query the database for a document with the matching username and password
    Document query = new Document("name", jTextField1.getText()).append("password",
passwordString);
    Document user = collection.find(query).first();

    // Define the admin credentials
    Document admin = new Document("name", "admin").append("password", "admin");

    // Check if the admin credentials match
    if (user != null) {
        dashboard x = new dashboard();
        x.setVisible(true);
        this.dispose();
    } else {
        // User not found, credentials are incorrect
        JOptionPane.showMessageDialog(this, "Please provide correct username and password");
    }
} catch (Exception e) {
    e.printStackTrace();
    JOptionPane.showMessageDialog(this, "Error: " + e.getMessage());
}

    }

    private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        NewJFrame c = new NewJFrame();
        c.setVisible(true);
        this.dispose();
    }
```

```java
/**
 * @param args the command line arguments
 */
public static void main(String args[]) {
    /* Set the Nimbus look and feel */
    //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">
    /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.
     * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
     */
    try {
        for (javax.swing.UIManager.LookAndFeelInfo info : javax.swing.UIManager.getInstalledLookAndFeels()) {
            if ("Nimbus".equals(info.getName())) {
                javax.swing.UIManager.setLookAndFeel(info.getClassName());
                break;
            }
        }
    } catch (ClassNotFoundException ex) {

java.util.logging.Logger.getLogger(NewJFrame1.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
    } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(NewJFrame1.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
    } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(NewJFrame1.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
    } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(NewJFrame1.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
    }
    //</editor-fold>

    /* Create and display the form */
    java.awt.EventQueue.invokeLater(new Runnable() {
        public void run() {
            new NewJFrame1().setVisible(true);
        }
    });
}

// Variables declaration - do not modify
private javax.swing.JButton jButton1;
private javax.swing.JButton jButton2;
private javax.swing.JLabel jLabel1;
```

```java
    private javax.swing.JLabel jLabel2;
    private javax.swing.JPasswordField jPasswordField1;
    private javax.swing.JTextField jTextField1;
    // End of variables declaration
}
```

NewJFrame.java

```java
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this
license
 * Click nbfs://nbhost/SystemFileSystem/Templates/GUIForms/JFrame.java to edit this template
 */
package com.mycompany.pro;

/**
 *
 * @author lohes
 */
import com.mongodb.client.MongoClient;
import com.mongodb.client.MongoClients;
import com.mongodb.client.MongoCollection;
import com.mongodb.client.MongoDatabase;
import javax.swing.JOptionPane;
import org.bson.Document;

public class NewJFrame extends javax.swing.JFrame {

    /**
     * Creates new form NewJFrame
     */
    public NewJFrame() {
        initComponents();
    }

    /**
     * This method is called from within the constructor to initialize the form.
     * WARNING: Do NOT modify this code. The content of this method is always
     * regenerated by the Form Editor.
     */
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        jPasswordField1 = new javax.swing.JPasswordField();
        jLabel1 = new javax.swing.JLabel();
```

```java
jTextField1 = new javax.swing.JTextField();
jLabel2 = new javax.swing.JLabel();
jButton1 = new javax.swing.JButton();
jButton2 = new javax.swing.JButton();

setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

jLabel1.setText("USER NAME :");

jLabel2.setText("PASSWORD :");

jButton1.setText("CREATE");
jButton1.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton1ActionPerformed(evt);
    }
});

jButton2.setText("BACK");
jButton2.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton2ActionPerformed(evt);
    }
});

javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
getContentPane().setLayout(layout);
layout.setHorizontalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(layout.createSequentialGroup()

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addGap(63, 63, 63)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
                .addComponent(jLabel1)
                .addComponent(jTextField1)
                .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE, 85,
javax.swing.GroupLayout.PREFERRED_SIZE)
                .addComponent(jPasswordField1,
javax.swing.GroupLayout.DEFAULT_SIZE, 145, Short.MAX_VALUE))
        .addGroup(layout.createSequentialGroup()
            .addGap(103, 103, 103)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                .addComponent(jButton2)
```

```java
                    .addComponent(jButton1))))
                .addContainerGap(192, Short.MAX_VALUE))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGap(49, 49, 49)
                .addComponent(jLabel1)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addComponent(jTextField1,          javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addComponent(jLabel2)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addComponent(jPasswordField1,     javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                .addComponent(jButton1)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                .addComponent(jButton2)
                .addContainerGap(87, Short.MAX_VALUE))
        );

        pack();
    }// </editor-fold>

    private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        // TODO add your handling code here:
        String                              uri                              =
"mongodb+srv://lokesh86loga:qwertyuiop@cluster0.8xfie.mongodb.net/?retryWrites=true&w=
majority&appName=Cluster0";

        // Create a new MongoClient using the connection string
        try (MongoClient mongoClient = MongoClients.create(uri)) {

            // Connect to the "news" database
            MongoDatabase database = mongoClient.getDatabase("project-1");

            // Get the "password" collection
            MongoCollection<Document> collection = database.getCollection("login-pass");

            // Convert password char[] to String
            char[] passwordCharArray = jPasswordField1.getPassword();
            String passwordString = new String(passwordCharArray);

            // Create documents to insert
```

```java
        Document doc1 = new Document("name", jTextField1.getText())
            .append("password", passwordString);

        // Insert a document
        collection.insertOne(doc1);

        System.out.println("Document inserted successfully");
        JOptionPane.showMessageDialog(this, "Created user successfully");
        mongoClient.close();

    } catch (Exception e) {
        e.printStackTrace();
        JOptionPane.showMessageDialog(this, "Error: " + e.getMessage());
    }
}

private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    NewJFrame1 x = new NewJFrame1();
    x.setVisible(true);
    this.dispose();
}

/**
 * @param args the command line arguments
 */
public static void main(String args[]) {
    /* Set the Nimbus look and feel */
    //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">
    /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.
     * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
     */
    try {
        for (javax.swing.UIManager.LookAndFeelInfo info : javax.swing.UIManager.getInstalledLookAndFeels()) {
            if ("Nimbus".equals(info.getName())) {
                javax.swing.UIManager.setLookAndFeel(info.getClassName());
                break;
            }
        }
    } catch (ClassNotFoundException ex) {

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
    } catch (InstantiationException ex) {
```

```java
java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging.Level.S
EVERE, null, ex);
        } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging.Level.S
EVERE, null, ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(NewJFrame.class.getName()).log(java.util.logging.Level.S
EVERE, null, ex);
        }
        //</editor-fold>

        /* Create and display the form */
        java.awt.EventQueue.invokeLater(new Runnable() {
            public void run() {
                new NewJFrame().setVisible(true);
            }
        });
    }

    // Variables declaration - do not modify
    private javax.swing.JButton jButton1;
    private javax.swing.JButton jButton2;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JPasswordField jPasswordField1;
    private javax.swing.JTextField jTextField1;
    // End of variables declaration
}
```

Dashboard.java

```java
/*
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license
 * Click nbfs://nbhost/SystemFileSystem/Templates/GUIForms/JFrame.java to edit this template
 */
package com.mycompany.pro;

/**
 *
 * @author lohes
 */
public class dashboard extends javax.swing.JFrame {
```

```java
/**
 * Creates new form dashboard
 */
public dashboard() {
    initComponents();
}

/**
 * This method is called from within the constructor to initialize the form.
 * WARNING: Do NOT modify this code. The content of this method is always
 * regenerated by the Form Editor.
 */
@SuppressWarnings("unchecked")
// <editor-fold defaultstate="collapsed" desc="Generated Code">
private void initComponents() {

    jLabel1 = new javax.swing.JLabel();
    jButton1 = new javax.swing.JButton();

    setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

    jLabel1.setText("you are logged");

    jButton1.setText("LOG OUT");
    jButton1.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            jButton1ActionPerformed(evt);
        }
    });

    javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
    getContentPane().setLayout(layout);
    layout.setHorizontalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addGap(154, 154, 154)
            .addComponent(jLabel1,     javax.swing.GroupLayout.PREFERRED_SIZE,     105, javax.swing.GroupLayout.PREFERRED_SIZE)
            .addContainerGap(141, Short.MAX_VALUE))
        .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, layout.createSequentialGroup()
            .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
            .addComponent(jButton1)
            .addGap(17, 17, 17))
    );
    layout.setVerticalGroup(
```

```java
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
          .addContainerGap()
          .addComponent(jButton1)
          .addGap(42, 42, 42)
          .addComponent(jLabel1)
          .addContainerGap(213, Short.MAX_VALUE))
    );

    pack();
  }// </editor-fold>

  private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    NewJFrame c = new NewJFrame();
    c.setVisible(rootPaneCheckingEnabled);
  }

  /**
   * @param args the command line arguments
   */
  public static void main(String args[]) {
    /* Set the Nimbus look and feel */
    //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">
    /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.
     * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
     */
    try {
      for            (javax.swing.UIManager.LookAndFeelInfo            info            :
javax.swing.UIManager.getInstalledLookAndFeels()) {
        if ("Nimbus".equals(info.getName())) {
          javax.swing.UIManager.setLookAndFeel(info.getClassName());
          break;
        }
      }
    } catch (ClassNotFoundException ex) {

java.util.logging.Logger.getLogger(dashboard.class.getName()).log(java.util.logging.Level.SE
VERE, null, ex);
    } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(dashboard.class.getName()).log(java.util.logging.Level.SE
VERE, null, ex);
    } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(dashboard.class.getName()).log(java.util.logging.Level.SE
VERE, null, ex);
```

```java
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(dashboard.class.getName()).log(java.util.logging.Level.SE
VERE, null, ex);
        }
        //</editor-fold>

        /* Create and display the form */
        java.awt.EventQueue.invokeLater(new Runnable() {
            public void run() {
                new dashboard().setVisible(true);
            }
        });
    }

    // Variables declaration - do not modify
    private javax.swing.JButton jButton1;
    private javax.swing.JLabel jLabel1;
    // End of variables declaration
}
```

REGISTER.java

```java
/*
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license
 * Click nbfs://nbhost/SystemFileSystem/Templates/GUIForms/JFrame.java to edit this template
 */
package com.mycompany.news;

import com.mongodb.client.MongoClient;
import com.mongodb.client.MongoClients;
import com.mongodb.client.MongoCollection;
import com.mongodb.client.MongoDatabase;
import javax.swing.JOptionPane;
import org.bson.Document;

/**
 *
 * @author jevan
 */
public class REGISTER extends javax.swing.JFrame {

    /**
     * Creates new form REGISTER
     */
    public REGISTER() {
```

```java
    initComponents();
}

/**
 * This method is called from within the constructor to initialize the form.
 * WARNING: Do NOT modify this code. The content of this method is always
 * regenerated by the Form Editor.
 */
@SuppressWarnings("unchecked")
// <editor-fold defaultstate="collapsed" desc="Generated Code">
private void initComponents() {

    jTextField2 = new javax.swing.JTextField();
    jButton2 = new javax.swing.JButton();
    jPanel3 = new javax.swing.JPanel();
    jPanel4 = new javax.swing.JPanel();
    jLabel4 = new javax.swing.JLabel();
    jPanel2 = new javax.swing.JPanel();
    jPanel1 = new javax.swing.JPanel();
    jLabel1 = new javax.swing.JLabel();
    jLabel3 = new javax.swing.JLabel();
    jTextField1 = new javax.swing.JTextField();
    jLabel2 = new javax.swing.JLabel();
    jButton1 = new javax.swing.JButton();
    jPasswordField1 = new javax.swing.JPasswordField();
    jButton3 = new javax.swing.JButton();
    jCheckBox1 = new javax.swing.JCheckBox();

    jButton2.setText("jButton2");

    setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

    jLabel4.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);
    jLabel4.setText("REGISTER");

    jLabel1.setText("NAME");

    jTextField1.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            jTextField1ActionPerformed(evt);
        }
    });

    jLabel2.setText("CREATE PASSWORD");

    jButton1.setText("REGISTER");
    jButton1.addActionListener(new java.awt.event.ActionListener() {
```

```java
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            jButton1ActionPerformed(evt);
        }
    });

    jButton3.setText("BACK");
    jButton3.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            jButton3ActionPerformed(evt);
        }
    });

    jCheckBox1.setText("SHOW PASSWORD");
    jCheckBox1.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            jCheckBox1ActionPerformed(evt);
        }
    });

    javax.swing.GroupLayout jPanel1Layout = new javax.swing.GroupLayout(jPanel1);
    jPanel1.setLayout(jPanel1Layout);
    jPanel1Layout.setHorizontalGroup(
        jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(jPanel1Layout.createSequentialGroup()
            .addContainerGap()

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addComponent(jLabel2,                 javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                .addGroup(jPanel1Layout.createSequentialGroup()

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
                        .addComponent(jTextField1)
                        .addGroup(jPanel1Layout.createSequentialGroup()
                            .addGap(182, 182, 182)
                            .addComponent(jLabel3,   javax.swing.GroupLayout.PREFERRED_SIZE,
176, javax.swing.GroupLayout.PREFERRED_SIZE))
                        .addComponent(jLabel1,           javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                    .addGap(0, 0, Short.MAX_VALUE))))
            .addGroup(jPanel1Layout.createSequentialGroup()

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
                .addGroup(jPanel1Layout.createSequentialGroup()
                    .addContainerGap()
```

```java
                .addComponent(jPasswordField1,   javax.swing.GroupLayout.DEFAULT_SIZE,
244, Short.MAX_VALUE))
            .addGroup(jPanel1Layout.createSequentialGroup()
              .addGap(74, 74, 74)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADIN
G)
                .addComponent(jButton3, javax.swing.GroupLayout.PREFERRED_SIZE, 81,
javax.swing.GroupLayout.PREFERRED_SIZE)
                .addComponent(jButton1)))
            .addGroup(jPanel1Layout.createSequentialGroup()
              .addContainerGap()
              .addComponent(jCheckBox1,        javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)))
          .addGap(0, 0, Short.MAX_VALUE))
      );
      jPanel1Layout.setVerticalGroup(
        jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(jPanel1Layout.createSequentialGroup()
          .addContainerGap()
          .addComponent(jLabel1)
          .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
          .addComponent(jTextField1,          javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
          .addGap(18, 18, 18)
          .addComponent(jLabel2)
          .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
          .addComponent(jPasswordField1,     javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
          .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
          .addComponent(jCheckBox1)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADIN
G)
            .addGroup(jPanel1Layout.createSequentialGroup()
              .addGap(59, 59, 59)
              .addComponent(jLabel3))
            .addGroup(jPanel1Layout.createSequentialGroup()
              .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
              .addComponent(jButton1)
              .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
              .addComponent(jButton3)))
          .addContainerGap(45, Short.MAX_VALUE))
      );

      javax.swing.GroupLayout jPanel2Layout = new javax.swing.GroupLayout(jPanel2);
      jPanel2.setLayout(jPanel2Layout);
      jPanel2Layout.setHorizontalGroup(
```

```java
        jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel2Layout.createSequentialGroup()
                .addContainerGap(25, Short.MAX_VALUE)
                .addComponent(jPanel1,    javax.swing.GroupLayout.PREFERRED_SIZE,    253,
javax.swing.GroupLayout.PREFERRED_SIZE)
                .addContainerGap())
        );
        jPanel2Layout.setVerticalGroup(
            jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel2Layout.createSequentialGroup()
                .addComponent(jPanel1,              javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addGap(0, 12, Short.MAX_VALUE))
        );

        javax.swing.GroupLayout jPanel4Layout = new javax.swing.GroupLayout(jPanel4);
        jPanel4.setLayout(jPanel4Layout);
        jPanel4Layout.setHorizontalGroup(
            jPanel4Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel4Layout.createSequentialGroup()
                .addContainerGap()

.addGroup(jPanel4Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jPanel2,          javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel4Layout.createSequentialGroup()
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
81, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addComponent(jLabel4, javax.swing.GroupLayout.PREFERRED_SIZE, 101,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addGap(102, 102, 102)))
                .addContainerGap())
        );
        jPanel4Layout.setVerticalGroup(
            jPanel4Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel4Layout.createSequentialGroup()
                .addContainerGap()
                .addComponent(jLabel4)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addComponent(jPanel2,              javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addContainerGap())
        );

        javax.swing.GroupLayout jPanel3Layout = new javax.swing.GroupLayout(jPanel3);
```

```java
        jPanel3.setLayout(jPanel3Layout);
        jPanel3Layout.setHorizontalGroup(
            jPanel3Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel3Layout.createSequentialGroup()
                .addContainerGap()
                .addComponent(jPanel4,            javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE))
        );
        jPanel3Layout.setVerticalGroup(
            jPanel3Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel3Layout.createSequentialGroup()
                .addContainerGap()
                .addComponent(jPanel4,            javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE))
        );

        javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
        getContentPane().setLayout(layout);
        layout.setHorizontalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGap(46, 46, 46)
                .addComponent(jPanel3,            javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addContainerGap(46, Short.MAX_VALUE))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addContainerGap()
                .addComponent(jPanel3,            javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE))
        );

        pack();
    }// </editor-fold>

    private void jTextField1ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
    }
```

```java
    private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        String                              uri                            =
"mongodb+srv://jevajevs7:fI8PCElrECICvLbN@cluster0.0xfus.mongodb.net/?retryWrites=tru
e&w=majority&appName=Cluster0";

// Create a new MongoClient using the connection string
try (MongoClient mongoClient = MongoClients.create(uri)) {

    // Connect to the "news" database
    MongoDatabase database = mongoClient.getDatabase("news");

    // Get the "password" collection
    MongoCollection<Document> collection = database.getCollection("password");

    // Convert password char[] to String
    char[] passwordCharArray = jPasswordField1.getPassword();
    String passwordString = new String(passwordCharArray);

    // Create documents to insert
    Document doc1 = new Document("name", jTextField1.getText())
        .append("password", passwordString);

    // Insert a document
    collection.insertOne(doc1);

    System.out.println("Document inserted successfully");
    JOptionPane.showMessageDialog(this, "Created user successfully");
    mongoClient.close();

} catch (Exception e) {
    e.printStackTrace();
    JOptionPane.showMessageDialog(this, "Error: " + e.getMessage());
}

    }

    private void jButton3ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        this.dispose();;
    }

    private void jCheckBox1ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        if(jCheckBox1.isSelected()){
            jPasswordField1.setEchoChar((char)0);
        }
```

```java
        else{
            jPasswordField1.setEchoChar('*');
        }
    }

    /**
     * @param args the command line arguments
     */
    public static void main(String args[]) {
        /* Set the Nimbus look and feel */
        //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">
        /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.
         * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
         */
        try {
            for            (javax.swing.UIManager.LookAndFeelInfo            info            :
javax.swing.UIManager.getInstalledLookAndFeels()) {
                if ("Nimbus".equals(info.getName())) {
                    javax.swing.UIManager.setLookAndFeel(info.getClassName());
                    break;
                }
            }
        } catch (ClassNotFoundException ex) {

java.util.logging.Logger.getLogger(REGISTER.class.getName()).log(java.util.logging.Level.S
EVERE, null, ex);
        } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(REGISTER.class.getName()).log(java.util.logging.Level.S
EVERE, null, ex);
        } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(REGISTER.class.getName()).log(java.util.logging.Level.S
EVERE, null, ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(REGISTER.class.getName()).log(java.util.logging.Level.S
EVERE, null, ex);
        }
        //</editor-fold>

        /* Create and display the form */
        java.awt.EventQueue.invokeLater(new Runnable() {
            public void run() {
                new REGISTER().setVisible(true);
            }
        });
    }
```

```java
    // Variables declaration - do not modify
    private javax.swing.JButton jButton1;
    private javax.swing.JButton jButton2;
    private javax.swing.JButton jButton3;
    private javax.swing.JCheckBox jCheckBox1;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel3;
    private javax.swing.JLabel jLabel4;
    private javax.swing.JPanel jPanel1;
    private javax.swing.JPanel jPanel2;
    private javax.swing.JPanel jPanel3;
    private javax.swing.JPanel jPanel4;
    private javax.swing.JPasswordField jPasswordField1;
    private javax.swing.JTextField jTextField1;
    private javax.swing.JTextField jTextField2;
    // End of variables declaration
}
```

Login.java

```java
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this
license
 * Click nbfs://nbhost/SystemFileSystem/Templates/GUIForms/JFrame.java to edit this template
 */
package com.mycompany.news;

import com.mongodb.client.MongoClient;
import com.mongodb.client.MongoClients;
import com.mongodb.client.MongoCollection;
import com.mongodb.client.MongoDatabase;
import javax.swing.JOptionPane;
import org.bson.Document;

/**
 *
 * @author jevan
 */
public class login extends javax.swing.JFrame {

    /**
     * Creates new form login
     */
    public login() {
        initComponents();
```

```java
    }

    /**
     * This method is called from within the constructor to initialize the form.
     * WARNING: Do NOT modify this code. The content of this method is always
     * regenerated by the Form Editor.
     */
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        jButton3 = new javax.swing.JButton();
        jPanel3 = new javax.swing.JPanel();
        jLabel4 = new javax.swing.JLabel();
        jPanel2 = new javax.swing.JPanel();
        jPanel1 = new javax.swing.JPanel();
        jLabel1 = new javax.swing.JLabel();
        jLabel3 = new javax.swing.JLabel();
        jTextField1 = new javax.swing.JTextField();
        jLabel2 = new javax.swing.JLabel();
        jButton1 = new javax.swing.JButton();
        jPasswordField1 = new javax.swing.JPasswordField();
        jCheckBox1 = new javax.swing.JCheckBox();
        jButton2 = new javax.swing.JButton();

        jButton3.setText("BACK");
        jButton3.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jButton3ActionPerformed(evt);
            }
        });

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

        jLabel4.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);
        jLabel4.setText("LOGIN");

        jLabel1.setText("NAME");

        jTextField1.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jTextField1ActionPerformed(evt);
            }
        });

        jLabel2.setText("CREATE PASSWORD");
```

```java
    jButton1.setText("LOGIN");
    jButton1.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            jButton1ActionPerformed(evt);
        }
    });

    jCheckBox1.setText("SHOW PASSWORD");
    jCheckBox1.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            jCheckBox1ActionPerformed(evt);
        }
    });

    jButton2.setText("CREATE");
    jButton2.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            jButton2ActionPerformed(evt);
        }
    });

    javax.swing.GroupLayout jPanel1Layout = new javax.swing.GroupLayout(jPanel1);
    jPanel1.setLayout(jPanel1Layout);
    jPanel1Layout.setHorizontalGroup(
        jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(jPanel1Layout.createSequentialGroup()
            .addContainerGap()

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addComponent(jLabel2,                javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
            .addGroup(jPanel1Layout.createSequentialGroup()

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
                .addComponent(jTextField1)
                .addGroup(jPanel1Layout.createSequentialGroup()
                    .addGap(182, 182, 182)
                    .addComponent(jLabel3,    javax.swing.GroupLayout.PREFERRED_SIZE,
176, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addComponent(jLabel1,        javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                .addGap(0, 0, Short.MAX_VALUE))))
            .addGroup(jPanel1Layout.createSequentialGroup()

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
```

```java
                    .addGroup(jPanel1Layout.createSequentialGroup()
                        .addContainerGap()
                        .addComponent(jPasswordField1,   javax.swing.GroupLayout.DEFAULT_SIZE,
244, Short.MAX_VALUE))
                    .addGroup(jPanel1Layout.createSequentialGroup()
                        .addGap(74, 74, 74)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADIN
G)
                            .addComponent(jButton2)
                            .addComponent(jButton1)))
                    .addGroup(jPanel1Layout.createSequentialGroup()
                        .addContainerGap()
                        .addComponent(jCheckBox1,        javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)))
                .addGap(0, 0, Short.MAX_VALUE))
        );
        jPanel1Layout.setVerticalGroup(
            jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel1Layout.createSequentialGroup()
                .addContainerGap()
                .addComponent(jLabel1)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addComponent(jTextField1,          javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addGap(18, 18, 18)
                .addComponent(jLabel2)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addComponent(jPasswordField1,     javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addComponent(jCheckBox1)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADIN
G)
                    .addGroup(jPanel1Layout.createSequentialGroup()
                        .addGap(59, 59, 59)
                        .addComponent(jLabel3))
                    .addGroup(jPanel1Layout.createSequentialGroup()
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jButton1)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addComponent(jButton2)))
                .addContainerGap(40, Short.MAX_VALUE))
        );

        javax.swing.GroupLayout jPanel2Layout = new javax.swing.GroupLayout(jPanel2);
```

```java
        jPanel2.setLayout(jPanel2Layout);
        jPanel2Layout.setHorizontalGroup(
            jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel2Layout.createSequentialGroup()
                .addContainerGap(25, Short.MAX_VALUE)
                .addComponent(jPanel1,      javax.swing.GroupLayout.PREFERRED_SIZE,     253,
javax.swing.GroupLayout.PREFERRED_SIZE)
                .addContainerGap())
        );
        jPanel2Layout.setVerticalGroup(
            jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel2Layout.createSequentialGroup()
                .addComponent(jPanel1,                 javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addGap(0, 12, Short.MAX_VALUE))
        );

        javax.swing.GroupLayout jPanel3Layout = new javax.swing.GroupLayout(jPanel3);
        jPanel3.setLayout(jPanel3Layout);
        jPanel3Layout.setHorizontalGroup(
            jPanel3Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel3Layout.createSequentialGroup()
                .addContainerGap()

.addGroup(jPanel3Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADIN
G)
                    .addComponent(jPanel2,          javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel3Layout.createSequentialGroup()
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
81, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addComponent(jLabel4,  javax.swing.GroupLayout.PREFERRED_SIZE,  101,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addGap(102, 102, 102)))
                .addContainerGap())
        );
        jPanel3Layout.setVerticalGroup(
            jPanel3Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel3Layout.createSequentialGroup()
                .addContainerGap()
                .addComponent(jLabel4)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addComponent(jPanel2,                 javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addContainerGap())
        );
```
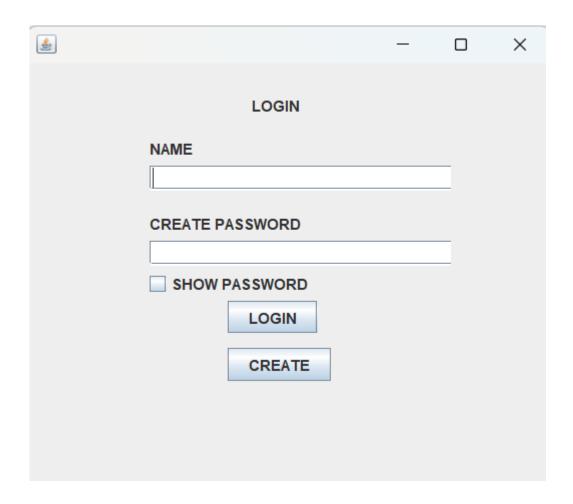
```java
    javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
    getContentPane().setLayout(layout);
    layout.setHorizontalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addGap(49, 49, 49)
            .addComponent(jPanel3,             javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
            .addContainerGap(55, Short.MAX_VALUE))
    );
    layout.setVerticalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
layout.createSequentialGroup()
            .addContainerGap(14, Short.MAX_VALUE)
            .addComponent(jPanel3,             javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
            .addGap(20, 20, 20))
    );

    pack();
  }// </editor-fold>

  private void jTextField1ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
  }

  private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
    String                               uri                               =
"mongodb+srv://jevajevs7:fI8PCElrECICvLbN@cluster0.0xfus.mongodb.net/?retryWrites=tru
e&w=majority&appName=Cluster0";  // Replace with your actual MongoDB URI

// MongoDB connection and operation
try (MongoClient mongoClient = MongoClients.create(uri)) {
  // Connect to the "news" database
  MongoDatabase database = mongoClient.getDatabase("news");

  // Get the "password" collection
  MongoCollection<Document> collection = database.getCollection("password");

  // Convert password from char[] to String
  char[] passwordCharArray = jPasswordField1.getPassword();
  String passwordString = new String(passwordCharArray);

  // Query the database for a document with the matching username and password
```
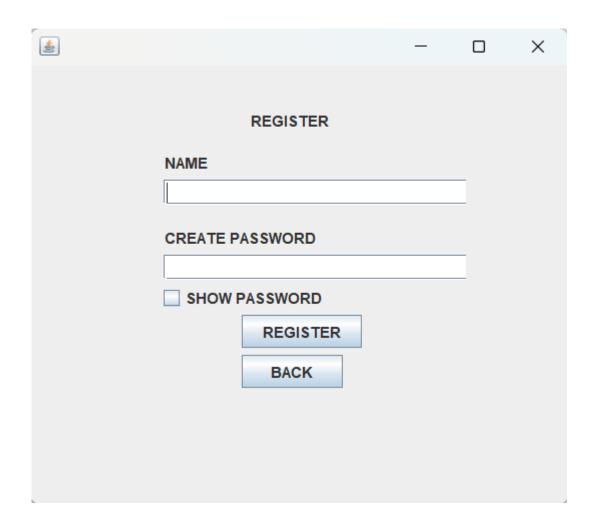
```java
    Document query = new Document("name", jTextField1.getText()).append("password",
passwordString);
    Document user = collection.find(query).first();

    // Define the admin credentials
    Document admin = new Document("name", "admin").append("password", "admin");

    // Check if the admin credentials match
    if (query.equals(admin)) {
        userdashboard x = new userdashboard();
        x.setVisible(true);
        this.dispose();
    }
    // If user found and credentials are correct
    else if (user != null) {
        dashboard x = new dashboard();
        x.setVisible(true);
        this.dispose();
    } else {
        // User not found, credentials are incorrect
        JOptionPane.showMessageDialog(this, "Please provide correct username and password");
    }
} catch (Exception e) {
    e.printStackTrace();
    JOptionPane.showMessageDialog(this, "Error: " + e.getMessage());
}

    }

    private void jButton3ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        this.dispose();;
    }

    private void jCheckBox1ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        if(jCheckBox1.isSelected()){
            jPasswordField1.setEchoChar((char)0);
        }
        else{
            jPasswordField1.setEchoChar('*');
        }
    }

    private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        REGISTER c = new REGISTER();
```
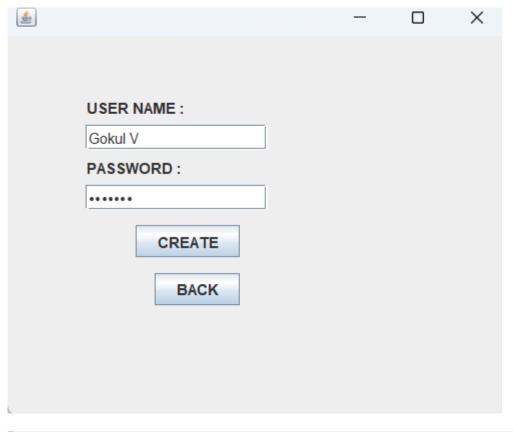
```java
        c.setVisible(true);
    }

    /**
     * @param args the command line arguments
     */
    public static void main(String args[]) {
        /* Set the Nimbus look and feel */
        //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">
        /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.
         * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
         */
        try {
            for (javax.swing.UIManager.LookAndFeelInfo info : javax.swing.UIManager.getInstalledLookAndFeels()) {
                if ("Nimbus".equals(info.getName())) {
                    javax.swing.UIManager.setLookAndFeel(info.getClassName());
                    break;
                }
            }
        } catch (ClassNotFoundException ex) {

java.util.logging.Logger.getLogger(login.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(login.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(login.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(login.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        }
        //</editor-fold>

        /* Create and display the form */
        java.awt.EventQueue.invokeLater(new Runnable() {
            public void run() {
                new login().setVisible(true);
            }
        });
    }

    // Variables declaration - do not modify
```
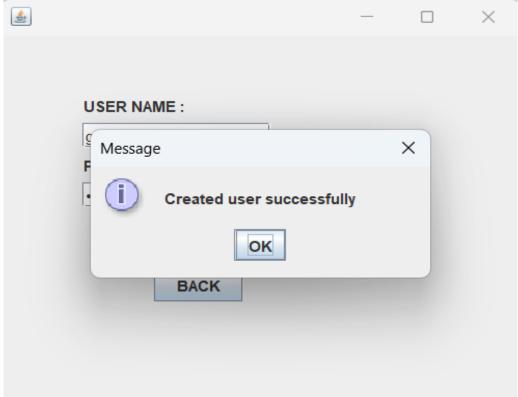
```
private javax.swing.JButton jButton1;
private javax.swing.JButton jButton2;
private javax.swing.JButton jButton3;
private javax.swing.JCheckBox jCheckBox1;
private javax.swing.JLabel jLabel1;
private javax.swing.JLabel jLabel2;
private javax.swing.JLabel jLabel3;
private javax.swing.JLabel jLabel4;
private javax.swing.JPanel jPanel1;
private javax.swing.JPanel jPanel2;
private javax.swing.JPanel jPanel3;
private javax.swing.JPasswordField jPasswordField1;
private javax.swing.JTextField jTextField1;
// End of variables declaration
```
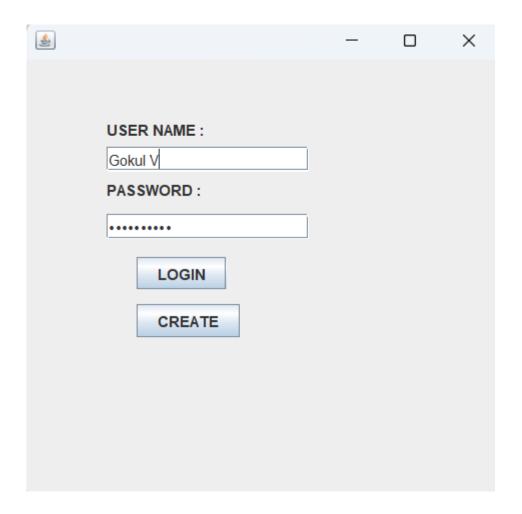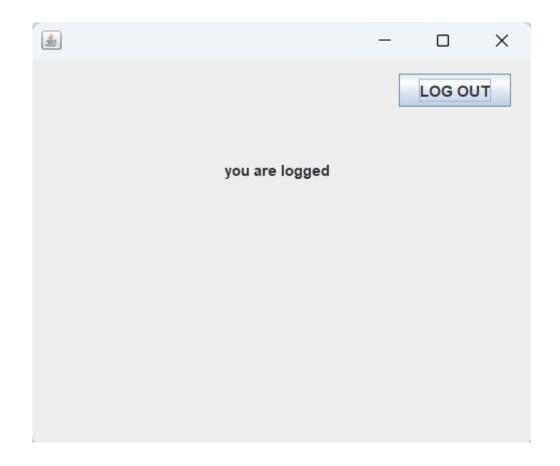
PROJECT SCREENSHOTS :

6. RESULTS AND DISCUSSION

The Java Login and Signup System effectively accomplishes its primary goals, offering reliable user registration and authentication functionalities. During testing and initial use, several key observations were made regarding its usability, security, and overall performance. The following points outline the strengths and key features observed in the application:

1. Successful User Registration and Login Functionality:

   The application enables users to register new accounts by entering essential details, which are then stored securely in the MySQL database. During login, users can enter their credentials, and the application verifies the input against stored data. This process is straightforward and efficient, allowing users to access the application without issues. The registration and login functions form the core of the application and work seamlessly, providing a reliable user experience.

2. Password Encryption for Data Security:

   One of the application's primary security features is password encryption. The use of hashing algorithms to encrypt passwords before storage ensures that sensitive user data is protected. If the database is accessed by unauthorized individuals, the hashed passwords make it difficult for malicious actors to retrieve original password information. This layer of security is essential in safeguarding user privacy and maintaining data integrity within the system.

3. Input Validation to Prevent Invalid Data Entry:

   Input validation is implemented to ensure that only valid, properly formatted data is accepted by the application. For instance, users must enter a unique username, a correctly formatted email address, and a password that meets minimum security standards. By enforcing these requirements, the application reduces the risk of errors, improves data quality, and enhances user experience. This feature is particularly beneficial for preventing issues that may arise from incorrect or incomplete data entries.

4. User-Friendly GUI Enhances Usability:

The application 's GUI, created with Java Swing components, is designed to be simple and user-friendly. It includes clear labels, input fields, and validation messages that guide users through each process. For example, if a user enters incorrect information during login or signup, an error message is displayed, helping the user identify and correct their mistakes. The intuitive design and layout make the application accessible to users with varying levels of technical expertise.

5. Feedback Mechanisms for Improved User Experience:

Real-time feedback mechanisms, such as pop-up messages for successful registration or error messages for failed login attempts, enhance the user experience by providing immediate responses to user actions. These feedback mechanisms improve user confidence in the system, as users are promptly informed of the outcome of their actions. Additionally, the feedback helps users understand any issues they encounter, reducing frustration and creating a smoother interaction with the application.

6.2 Limitations

While the Java Login and Signup System successfully meets its primary objectives, a few limitations were identified during development and testing. Addressing these limitations could enhance the system's robustness, scalability, and security in future iterations.

1 . Dependency on MySQL: The application is designed to work with a MySQL database, which requires a stable internet connection if the database is hosted remotely. This dependency can pose challenges in environments with limited or intermittent connectivity, as the application relies on continuous access to the MySQL database to function correctly. If the application cannot connect to the database, users will experience issues with registration, login, and data retrieval. To address this limitation, future versions could explore offline data caching or alternative database options that support both local and remote deployment.

2. Scalability   Constraints:
The current application is designed primarily for single-user, small-scale use cases, such as demonstration or learning purposes. Its design does not inherently support multiple concurrent users or large datasets. This limitation affects scalability, as the system may

encounter performance issues if deployed in a multi-user environment, such as an organization with numerous users attempting to access the system simultaneously. Enhancing scalability by optimizing the database schema, implementing connection pooling, and introducing multi-threading capabilities could enable the system to accommodate larger user bases and more extensive datasets.

3. Limited Password Encryption:

    Although the application uses hashing algorithms (e.g., MD5 or SHA-256) to encrypt passwords, the current approach is limited to basic password hashing. Advanced security measures, such as multi-layered encryption or salting, could further protect user passwords and reduce vulnerability to attacks. Salting involves adding random data to each password before hashing, making it more resistant to brute-force or dictionary attacks. Adding these advanced encryption techniques would strengthen data security, ensuring that even if hashed passwords are accessed, they remain challenging to decode.

7. CONCLUSION

The Java Login and Signup System project successfully demonstrates the core principles of user authentication, secure data management, and interactive GUI design using Java and JDBC. This project offers a functional, secure, and user-friendly solution for managing user access, enabling users to create accounts, store their information securely, and log in with validated credentials. By developing a basic login and signup system, this project addresses key aspects of application security, data consistency, and user experience.

This project allowed for hands-on experience with essential development tools and concepts. The use of Java Swing for GUI development provided practical insights into designing intuitive user interfaces, while NetBeans IDE enabled efficient project management and simplified the process of creating forms and handling events. Implementing Java Database Connectivity (JDBC) allowed for direct interaction with the MySQL database, reinforcing the importance of secure database connections, data validation, and error handling. Moreover, by incorporating password encryption, this project emphasized the importance of protecting user credentials and minimizing vulnerabilities, which is crucial in today's digital landscape where data breaches and unauthorized access are common threats.

The project also served as a practical exercise in best practices for security and user data management. Encrypting user passwords before storing them in the database underscores the importance of confidentiality and data protection. Furthermore, input validation and feedback mechanisms enhanced the system's usability, guiding users to enter correct information and providing meaningful responses when issues occurred.

While the project meets its primary objectives, it also highlights several areas for potential improvement, such as implementing multi-layered security measures, enhancing scalability, and adding features like two-factor authentication and email verification. These enhancements would allow the application to handle more complex requirements, making it suitable for larger-scale implementations and environments where high security is essential.

REFERENCES

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