

Technological Institute of the Philippines Manila  
CCS-309-Parallel and Distributed Computing  
Final Project Document

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<b>Section\Sem\Year</b>	CS33S2\SUMMER\3RD

### Intended Learning Outcomes

At the end of this activity, the student is expected to:

1. Evaluate the student's capability to use the Java Language in creating a useful application; and
2. Create a business-related application using the principle of multi-threading.

## A. Preliminaries:

### I. Area of Research : (Communication, Educational Game, E-Learning, Tourism, etc)

- Senior High School Educational Reviewer

### II. Title and Description of the Application.

#### **FlashIt: Amplifying your Reviewing Experience**

Based on the study "Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology" by Dunlosky et al. (2013), it has been found that study techniques significantly impact students' exam performance. Notably, not all study techniques are equally effective, a point further supported by Balch in his study "Practice versus review exams and final exam performance" (1998).

We are pleased to present "FlashIt", a response to the growing need for effective study tools tailored for students. Leveraging the proven benefits of flashcards, as highlighted in Kornell's study "Optimising learning using flashcards: Spacing is more effective than cramming" (2019), FlashIt employs the spacing effect to enhance learning and retention. We aim to provide students with a sophisticated yet user-friendly flashcard application that helps them study more efficiently and retain information longer.

FlashIt is crafted with a focus on accessibility and ease of use, specifically designed for senior high school students, especially those from ICT or STEM backgrounds. The intuitive interface prioritizes usability, making it effortless for students to create, manage, and review their flashcards. By incorporating the spacing effect, FlashIt promotes long-term retention and effective learning.

FlashIt enables users to create personalized flashcard sets tailored to their specific needs. Moreover, FlashIt enhances the learning process by incorporating a unique collaborative feature: it mixes user-generated flashcard data with content from other users studying similar subjects. With randomization, this cross-pollination of ideas not only broadens the scope of study materials but also deepens understanding and retention by exposing students to diverse perspectives and variations of the same concepts.

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Whether you're studying alone or collaborating with peers, FlashIt provides the tools needed to optimize study habits and improve academic performance. With FlashIt, you can effortlessly create and review flashcards, benefit from the diverse inputs of other learners, and leverage scientifically-backed techniques to achieve academic excellence.

Discover FlashIt, the ultimate study companion designed to revolutionize your study experience. Embrace the power of effective study techniques, enhance your retention, and achieve academic success with FlashIt.

Key features:

- **User Interface (UI)**

**Intuitive Design:** A clean and easy-to-navigate interface that allows users to quickly access flashcards and start quizzes.

**Responsive Layout:** Ensure the UI adapts well to different screen sizes and remains responsive during various operations.

- **Flashcard Management**

**CRUD Operations:** Allow users to create, read, update, and delete flashcards easily.

**Categories:** Enable users to categorize flashcards by subject better organization.

**Collaboration Tools:** Enables users to review their lessons by using flashcards created by other users or themselves, enhancing overall learning outcomes.

**Multimedia Support:** Utilizing multimedia elements like images, audio, and video making concepts more memorable and engaging.

- **User Authentication and Profiles**

**User Accounts:** Allow users to create accounts to save their preferences.

**Profile Management:** Enable users to manage their profile.

- **Data Storage and Management**

**Database:** Use of database to store flashcards and user data.

### III. Project Objectives (Why do you want to develop this App / Why your app is a solution)

- **General Objective:**
  - To enhance the reviewing and studying experience by providing a dynamic and interactive platform for creating, sharing, and studying with flashcards.
- **Specific Objectives:**
  - Enhance learning efficiency and retention by leveraging the spacing effect for optimal review.
  - Improve academic performance with proven study techniques.
  - Ensure accessibility with an intuitive user interface.
  - Facilitate personalized learning through easy CRUD flashcard operations.
  - Support organized study habits with categorization features.
  - Promote collaborative learning with question sharing.
  - Engage users with multimedia elements.

### IV. Sample Screen Layout or Storyboard

#### A. Loading



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## B. Sign In

# FlashIT

## Add a subheading

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud ex

### Sign in

Username / Email

Password

**Sign in**

Don't have an account? [Register here.](#)

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minm.

## C. Signup

# FlashIT

## Add a subheading

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud ex

### Sign Up

Username

Password

Email

Birthday

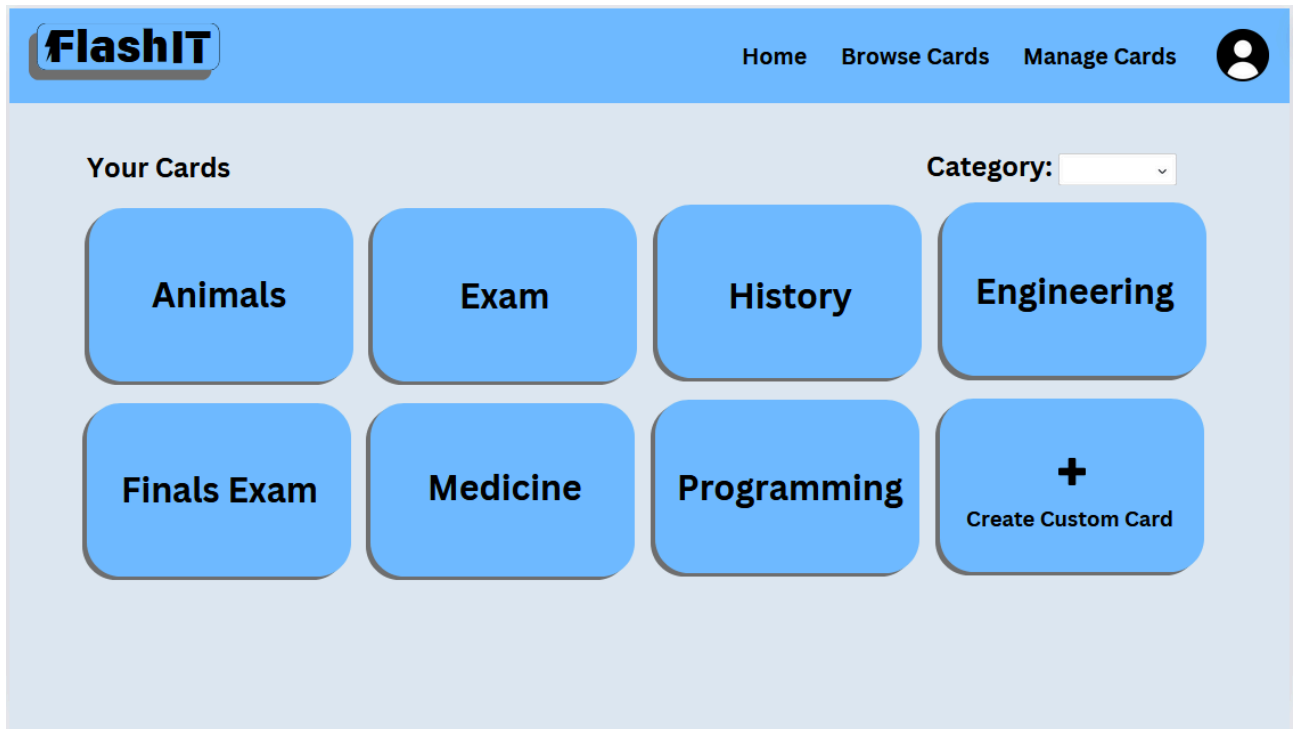
☒ I accept Flashit's [Terms of Service](#) and [Privacy Policy](#)

**Sign Up**

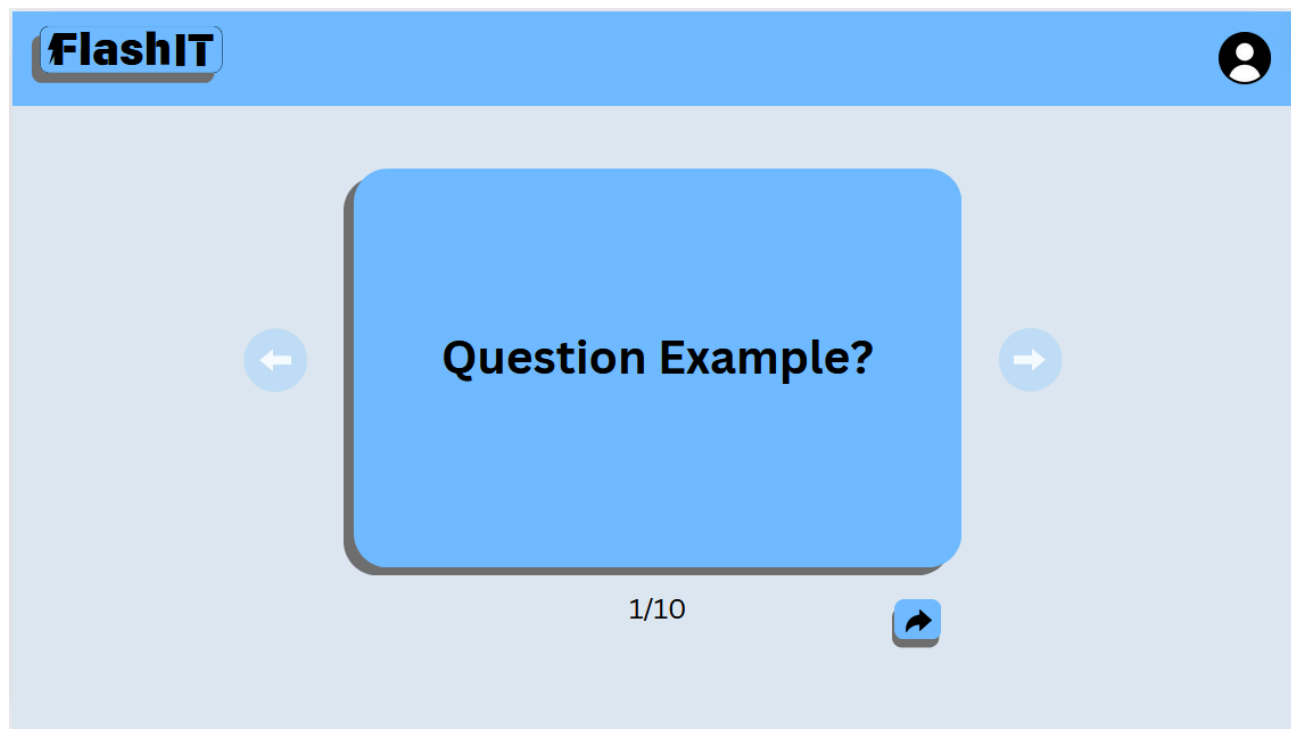
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minm.

## D. Menu

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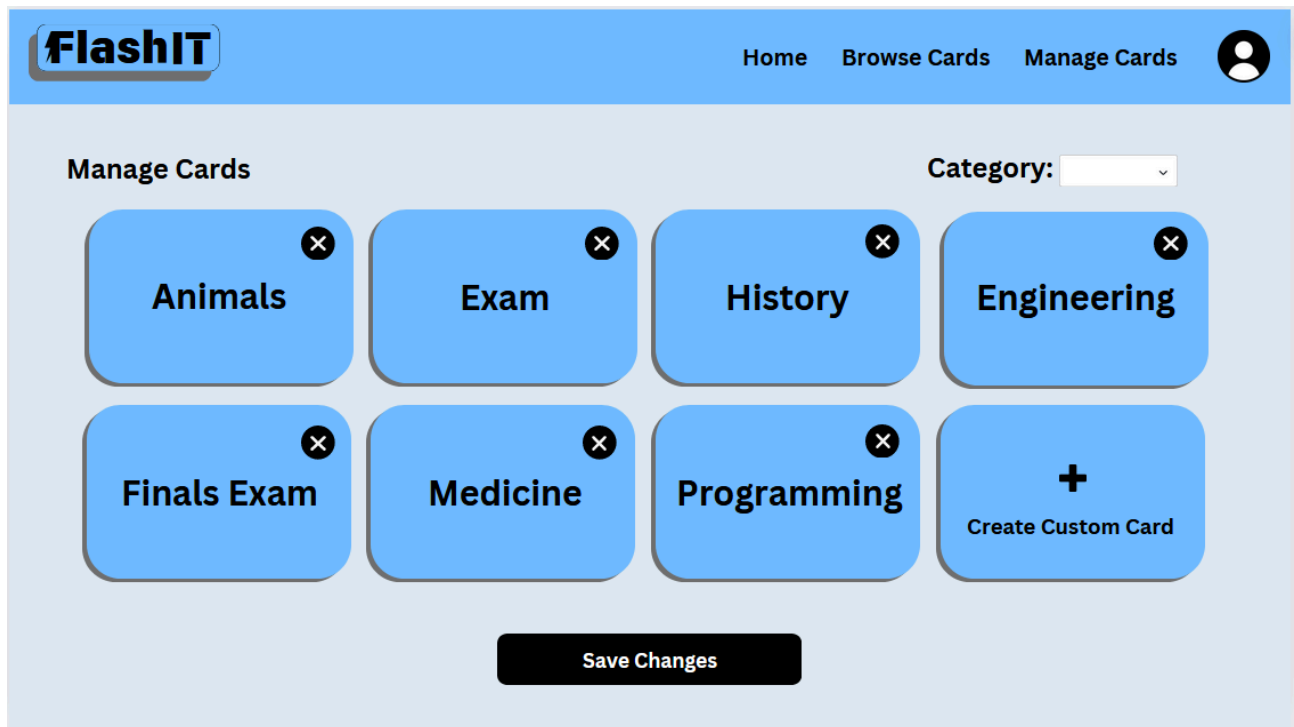


E. Card View



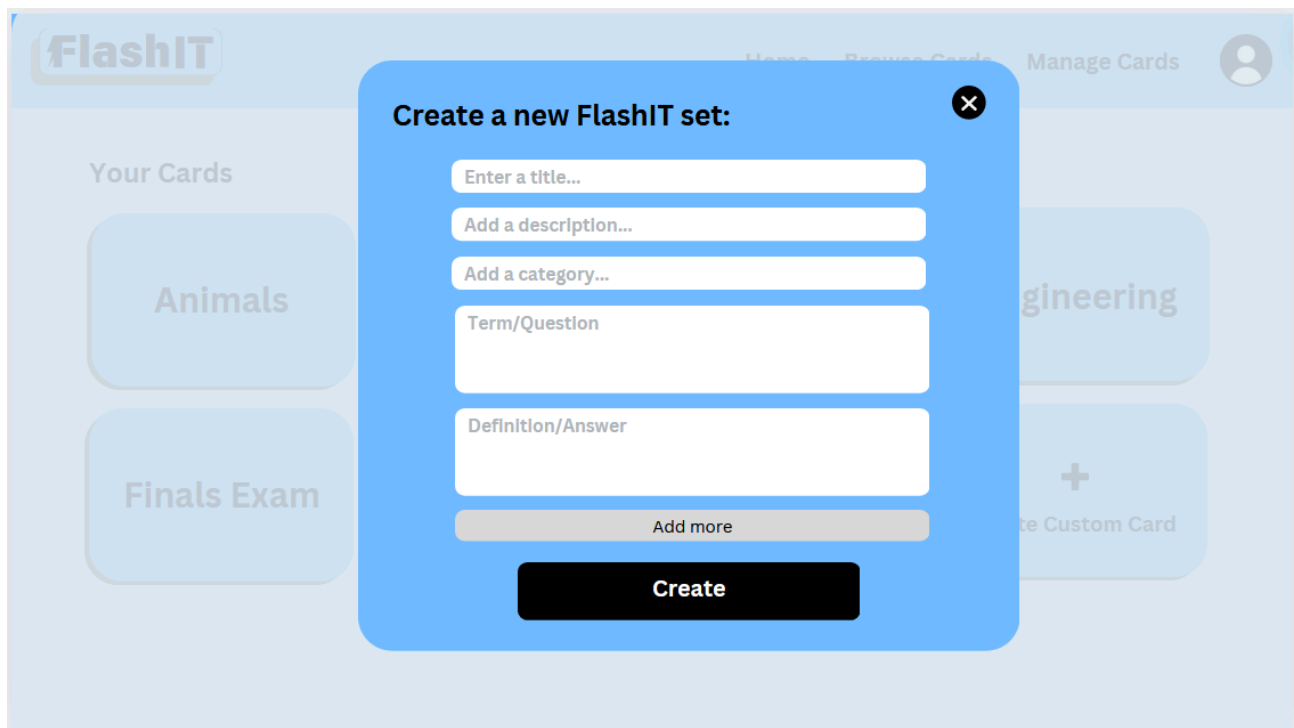
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F. Card Management  
a. Deletion



The screenshot shows the 'FlashIT' application's 'Manage Cards' page. At the top, there is a navigation bar with the 'FlashIT' logo, links for 'Home', 'Browse Cards', and 'Manage Cards', and a user profile icon. Below the navigation bar, the page title 'Manage Cards' is on the left, and a 'Category:' dropdown menu is on the right. The main area contains eight blue rounded rectangular cards arranged in a 2x4 grid. The first three rows of cards are labeled 'Animals', 'Exam', 'History', 'Engineering', 'Finals Exam', 'Medicine', and 'Programming'. Each of these seven cards has a small black circle with a white 'x' in the top right corner, indicating a delete option. The fourth card in the second row is a 'Create Custom Card' button, featuring a large black plus sign and the text 'Create Custom Card'. At the bottom center of the page is a black button with the text 'Save Changes'.

b. Creation



The screenshot shows the 'FlashIT' application with a modal dialog box open for creating a new FlashIT set. The modal is titled 'Create a new FlashIT set:' and has a close button (a black circle with a white 'x') in the top right corner. Inside the modal, there are four input fields: 'Enter a title...', 'Add a description...', 'Add a category...', and 'Term/Question'. Below the 'Term/Question' field is a larger text area for 'Definition/Answer'. At the bottom of the modal, there is a grey button labeled 'Add more' and a black button labeled 'Create'. The background of the application is dimmed, showing the 'Your Cards' section with cards for 'Animals', 'Finals Exam', and 'Engineering', and the 'Create Custom Card' button.

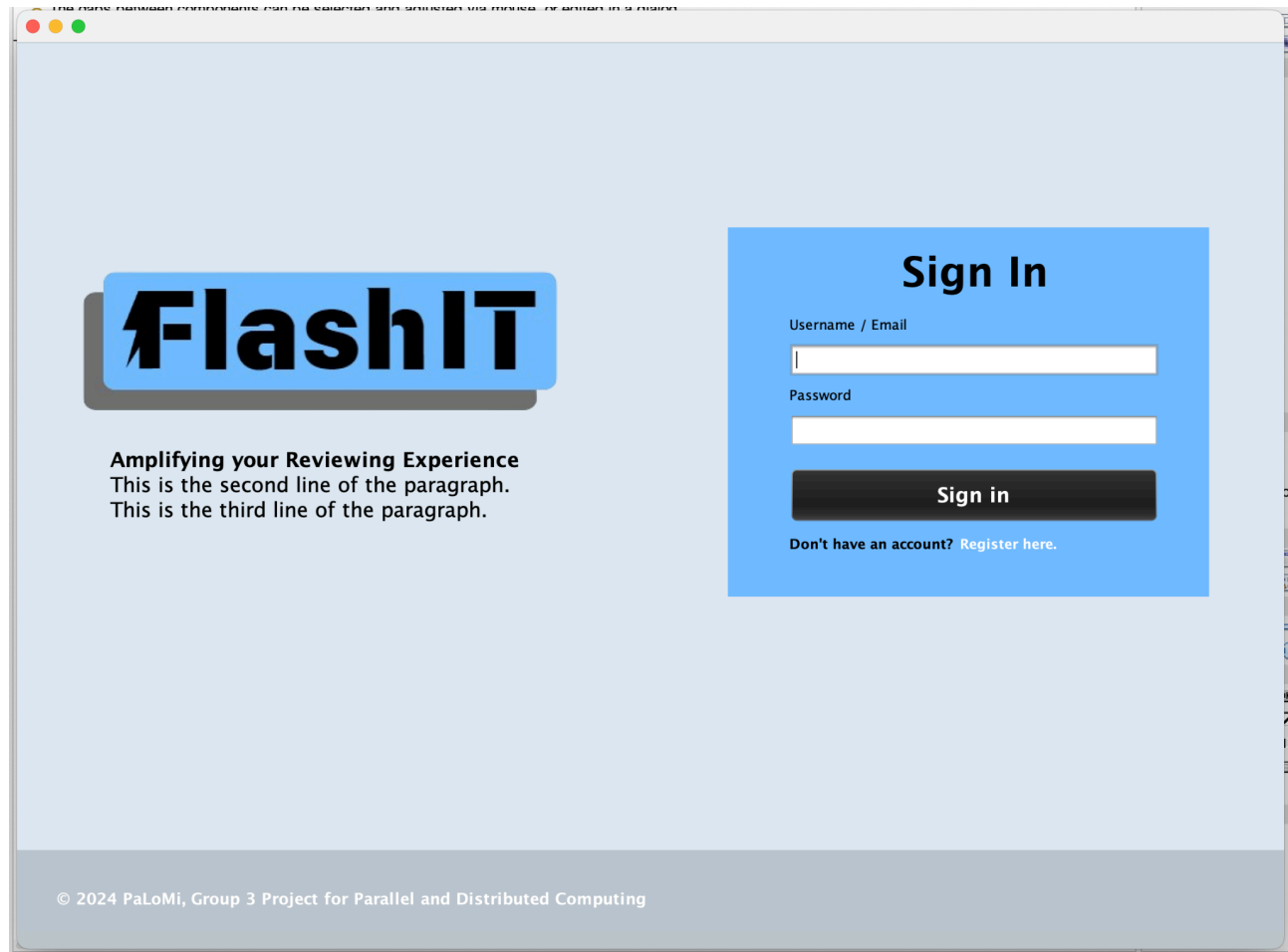
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**G. Profile Management**

The screenshot displays the FlashIT application interface. At the top, there is a navigation bar with the 'FlashIT' logo on the left and links for 'Home', 'Browse Cards', and 'Manage Cards' on the right, accompanied by a user profile icon. Below the navigation bar, the main content area is titled 'Your Cards' and features a grid of card thumbnails. Visible thumbnails include 'Animals', 'Engineering', and 'Finals Exam'. A blue modal window titled 'Profile Management' is overlaid on the interface. This modal contains three input fields labeled 'Username', 'Change Password', and 'Confirm New Password'. A black button labeled 'Save Changes' is positioned at the bottom of the modal. A close button (an 'X' icon) is located in the top right corner of the modal.

## B. Completion of the Project

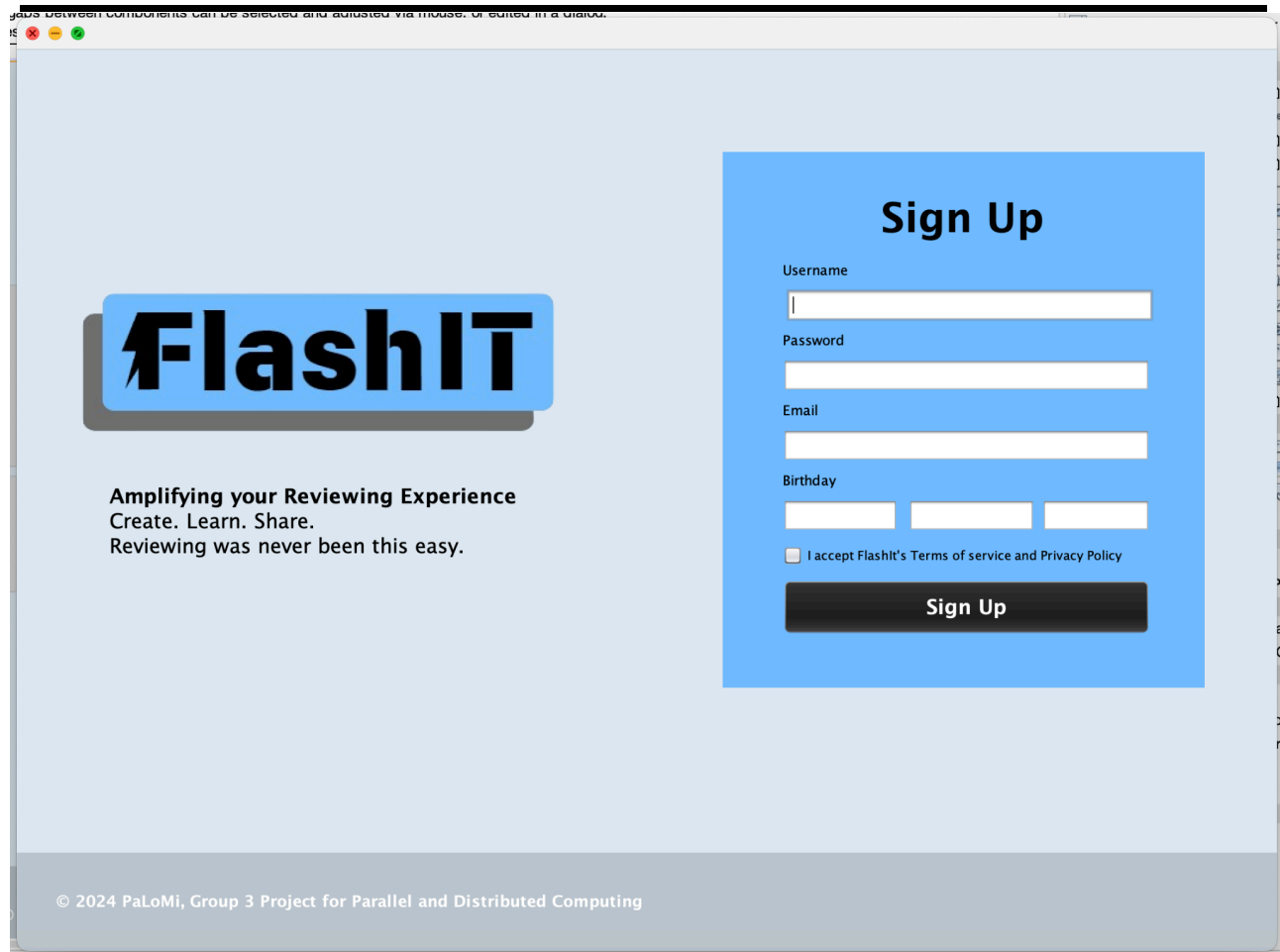
### A. Final Screen Layout Screenshots (Write sub-title description)



**Login Screen:** User's input their credentials to proceed to the app, if none create one.



Users Between Components can be selected and adjusted via mouse, or edited in a dialog.



The image shows a web browser window displaying the 'FlashIT' sign-up page. The page has a light blue background. On the left, there is a logo for 'FlashIT' in a blue box, followed by the text 'Amplifying your Reviewing Experience', 'Create. Learn. Share.', and 'Reviewing was never been this easy.' On the right, there is a blue rectangular box containing the 'Sign Up' form. The form includes input fields for 'Username', 'Password', 'Email', and 'Birthday' (split into three boxes). Below these is a checkbox for 'I accept FlashIT's Terms of service and Privacy Policy' and a black 'Sign Up' button. At the bottom of the browser window, a footer reads '© 2024 PaLoMi, Group 3 Project for Parallel and Distributed Computing'.

**FlashIT**

Amplifying your Reviewing Experience  
Create. Learn. Share.  
Reviewing was never been this easy.

## Sign Up

Username

Password

Email

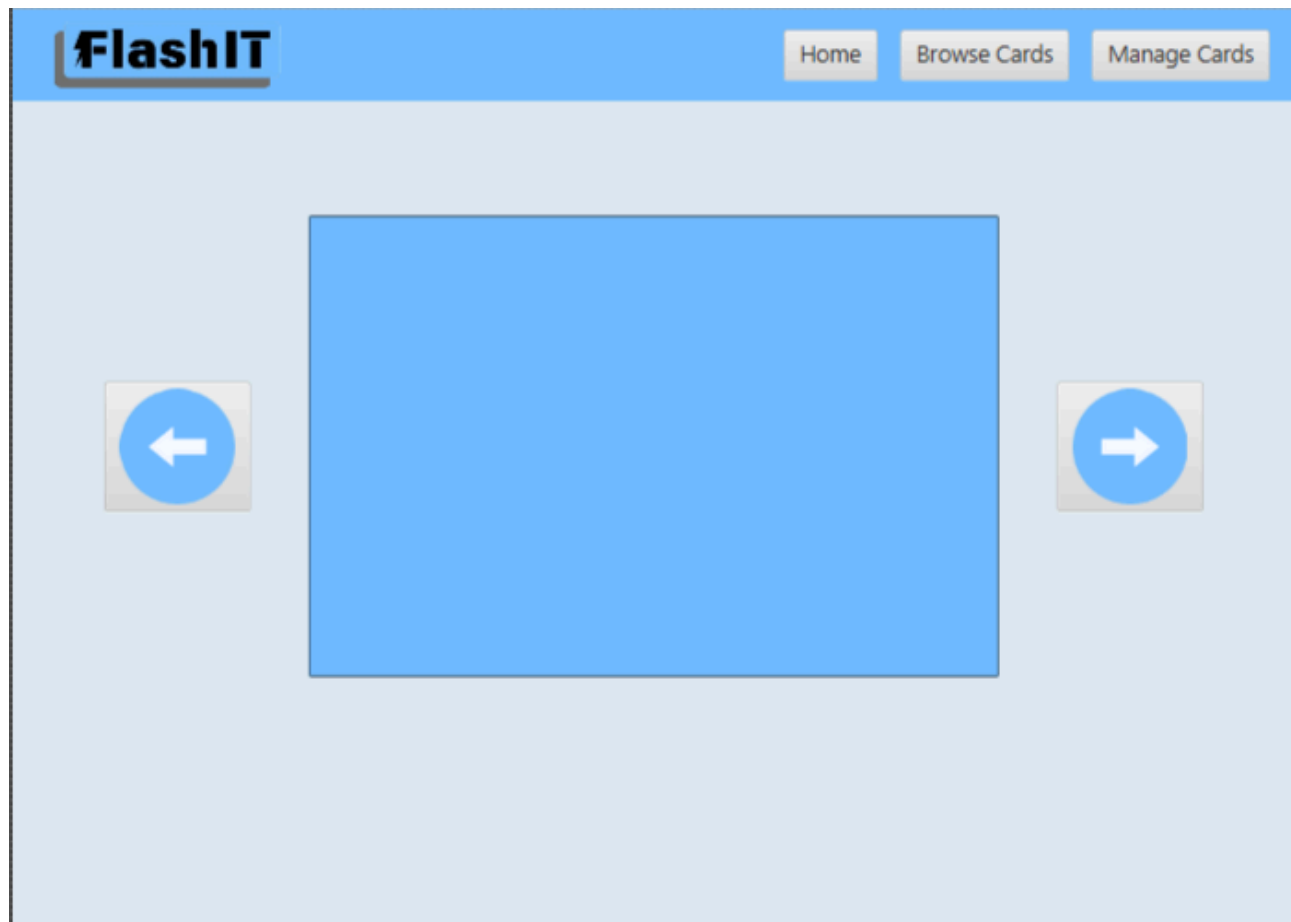
Birthday

☐ I accept FlashIT's Terms of service and Privacy Policy

**Sign Up**

© 2024 PaLoMi, Group 3 Project for Parallel and Distributed Computing

**Registration Screen:** Users input details to create their account



**Card View:** Users can see practice question

## **B. Source code (Copy and Paste all the source code)**

### **LoginScreen.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.flashit;

/**
 *
 * @author christinepapillero
 */
public class LoginScreen extends javax.swing.JFrame {

    /**
     * Creates new form LoginScreen
     */
}
```

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```
*/  
  
public LoginScreen() {  
    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"> //GEN-BEGIN: initComponents  
private void initComponents() {  
  
    BG = new javax.swing.JPanel();  
    LOGO = new javax.swing.JLabel();  
    jLabel1 = new javax.swing.JLabel();  
    jPanel1 = new javax.swing.JPanel();  
    jTextField1 = new javax.swing.JTextField();  
    jTextField2 = new javax.swing.JTextField();  
    jButton1 = new javax.swing.JButton();  
    jLabel2 = new javax.swing.JLabel();  
    jLabel3 = new javax.swing.JLabel();  
    jLabel4 = new javax.swing.JLabel();  
    jLabel5 = new javax.swing.JLabel();  
    jLabel7 = new javax.swing.JLabel();  
    jLabel6 = new javax.swing.JLabel();  
    jPanel2 = new javax.swing.JPanel();  
    jLabel8 = new javax.swing.JLabel();  
  
    setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);  
  
    BG.setBackground(new java.awt.Color(221, 233, 241));  
    BG.setPreferredSize(new java.awt.Dimension(1336, 768));  
  
    LOGO.setIcon(new  
javax.swing.ImageIcon(getClass().getResource("/images/image-removebg-preview (1)  
(1).png"))); // NOI18N  
  
    jPanel1.setBackground(new java.awt.Color(112, 188, 255));  
  
    jButton1.setBackground(new java.awt.Color(0, 0, 0));  
    jButton1.setFont(new java.awt.Font("SansSerif", 1, 18)); // NOI18N
```

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```
jButton1.setForeground(new java.awt.Color(255, 255, 255));
jButton1.setText("Sign in");
jButton1.addMouseListener(new java.awt.event.MouseAdapter() {
    public void mouseClicked(java.awt.event.MouseEvent evt) {
        jButton1MouseClicked(evt);
    }
});
jButton1.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton1ActionPerformed(evt);
    }
});

jLabel2.setFont(new java.awt.Font("SansSerif", 0, 12)); // NOI18N
jLabel2.setText("Username / Email");

jLabel3.setFont(new java.awt.Font("SansSerif", 0, 12)); // NOI18N
jLabel3.setText("Password");

jLabel4.setFont(new java.awt.Font("SansSerif", 1, 36)); // NOI18N
jLabel4.setText("Sign In");

jLabel5.setFont(new java.awt.Font("SansSerif", 1, 12)); // NOI18N
jLabel5.setText("Don't have an account?");

jLabel7.setFont(new java.awt.Font("SansSerif", 1, 12)); // NOI18N
jLabel7.setForeground(new java.awt.Color(255, 255, 255));
jLabel7.setText("Register here.");

javax.swing.GroupLayout jPanel1Layout = new javax.swing.GroupLayout(jPanel1);
jPanel1.setLayout(jPanel1Layout);
jPanel1Layout.setHorizontalGroup(
    jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel1Layout.createSequentialGroup()
        .addGap(54, 54, 54)

        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel1Layout.createSequentialGroup()
jPanel1Layout.createSequentialGroup()
        .addComponent(jLabel4)
        .addGap(97, 97, 97)
        .addComponent(jLabel3)
        .addComponent(jLabel2)
```

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```
.addComponent(jButton1, javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.PREFERRED_SIZE, 325, javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(jTextField2, javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.PREFERRED_SIZE, 325, javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(jTextField1, javax.swing.GroupLayout.PREFERRED_SIZE,
325, javax.swing.GroupLayout.PREFERRED_SIZE)
    .addGroup(jPanel1Layout.createSequentialGroup()
        .addComponent(jLabel5)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
        .addComponent(jLabel7)))
    .addGap(44, 44, 44)
);
jPanel1Layout.setVerticalGroup(
    jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(jPanel1Layout.createSequentialGroup()
            .addGap(14, 14, 14)
            .addComponent(jLabel4, javax.swing.GroupLayout.PREFERRED_SIZE, 49,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
            .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE, 21,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
            .addComponent(jTextField2, javax.swing.GroupLayout.PREFERRED_SIZE, 29,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
            .addComponent(jLabel3, javax.swing.GroupLayout.PREFERRED_SIZE, 21,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
            .addComponent(jTextField1, javax.swing.GroupLayout.PREFERRED_SIZE, 29,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addGap(18, 18, 18)
            .addComponent(jButton1, javax.swing.GroupLayout.PREFERRED_SIZE, 49,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(jLabel5, javax.swing.GroupLayout.PREFERRED_SIZE, 25,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jLabel7, javax.swing.GroupLayout.PREFERRED_SIZE, 25,
javax.swing.GroupLayout.PREFERRED_SIZE))
        .addContainerGap(34, Short.MAX_VALUE))
);
```

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```
jLabel6.setFont(new java.awt.Font("SansSerif", 0, 18)); // NOI18N
jLabel6.setText("<html>\n<p><b>Amplifying your Reviewing Experience</p>\n<p>This
is the second line of the paragraph.</p>\n<p>This is the third line of the
paragraph.</p>\n</html>\n");

jPanel2.setBackground(new java.awt.Color(188, 198, 205));

jLabel8.setFont(new java.awt.Font("SansSerif", 1, 14)); // NOI18N
jLabel8.setForeground(new java.awt.Color(255, 255, 255));
jLabel8.setText("© 2024 PaLoMi, Group 3 Project for Parallel and Distributed
Computing ");

javax.swing.GroupLayout jPanel2Layout = new javax.swing.GroupLayout(jPanel2);
jPanel2.setLayout(jPanel2Layout);
jPanel2Layout.setHorizontalGroup(
    jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(jPanel2Layout.createSequentialGroup()
            .addGap(35, 35, 35)
            .addComponent(jLabel8)
            .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
        )
);
jPanel2Layout.setVerticalGroup(
    jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(jPanel2Layout.createSequentialGroup()
            .addGap(30, 30, 30)
            .addComponent(jLabel8, javax.swing.GroupLayout.PREFERRED_SIZE, 25,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addContainerGap(32, Short.MAX_VALUE)
        )
);

javax.swing.GroupLayout BGLayout = new javax.swing.GroupLayout(BG);
BG.setLayout(BGLayout);
BGLayout.setHorizontalGroup(
    BGLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(BGLayout.createSequentialGroup()
            .addGroup(BGLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(BGLayout.createSequentialGroup()
                    .addGroup(BGLayout.createSequentialGroup()
                        .addGap(53, 53, 53)
                        .addComponent(LOGO, javax.swing.GroupLayout.PREFERRED_SIZE, 445,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addGap(120, 120, 120)
                        .addComponent(jLabel1))
                    .addGroup(BGLayout.createSequentialGroup()
```

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```
.addGap(82, 82, 82)
.addComponent(jLabel6, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 7,
Short.MAX_VALUE)
.addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
.addGap(66, 66, 66))
.addComponent(jPanel2, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
);
BGLayout.setVerticalGroup(
    BGLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(BGLayout.createSequentialGroup()
        .addGap(163, 163, 163)

.addGroup(BGLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(BGLayout.createSequentialGroup()
        .addGap(33, 33, 33)
        .addComponent(LOGO, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
    .addComponent(jLabel6, javax.swing.GroupLayout.PREFERRED_SIZE,
105, javax.swing.GroupLayout.PREFERRED_SIZE)
    .addGap(269, 269, 269))
    .addGroup(BGLayout.createSequentialGroup()

.addGroup(BGLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(BGLayout.createSequentialGroup()
        .addGap(82, 82, 82)
        .addComponent(jLabel1))
    .addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 223,
Short.MAX_VALUE))
    .addComponent(jPanel2, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
);

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

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```
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addComponent(BG, javax.swing.GroupLayout.DEFAULT_SIZE, 1114, Short.MAX_VALUE)
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addComponent(BG, javax.swing.GroupLayout.DEFAULT_SIZE, 798, Short.MAX_VALUE)
            );

        pack();
    } // </editor-fold> // GEN-END: initComponents

    private void jButton1ActionPerformed(java.awt.event.ActionEvent evt)
    { // GEN-FIRST:event_jButton1ActionPerformed
        // TODO add your handling code here:
    } // GEN-LAST:event_jButton1ActionPerformed

    private void jButton1MouseClicked(java.awt.event.MouseEvent evt)
    { // GEN-FIRST:event_jButton1MouseClicked
        // TODO add your handling code here:
        new RegisterScreen().setVisible(true);
        this.setVisible(true);
    } // GEN-LAST:event_jButton1MouseClicked

    /**
     * @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) {
```



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

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

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

java.util.logging.Logger.getLogger(LoginScreen.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 LoginScreen().setVisible(true);
        }
    });
}

// Variables declaration - do not modify//GEN-BEGIN:variables
private javax.swing.JPanel BG;
private javax.swing.JLabel LOGO;
private javax.swing.JButton jButton1;
private javax.swing.JLabel jLabel1;
private javax.swing.JLabel jLabel2;
private javax.swing.JLabel jLabel3;
private javax.swing.JLabel jLabel4;
private javax.swing.JLabel jLabel5;
private javax.swing.JLabel jLabel6;
private javax.swing.JLabel jLabel7;
private javax.swing.JLabel jLabel8;
private javax.swing.JPanel jPanel1;
private javax.swing.JPanel jPanel2;
private javax.swing.JTextField jTextField1;
private javax.swing.JTextField jTextField2;
// End of variables declaration//GEN-END:variables
}
```

## pom.xml file

```
<?xml version="1.0" encoding="UTF-8"?>
<project xmlns="http://maven.apache.org/POM/4.0.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
http://maven.apache.org/xsd/maven-4.0.0.xsd">
  <modelVersion>4.0.0</modelVersion>
  <groupId>com.mycompany</groupId>
  <artifactId>FLASHIT</artifactId>
  <version>1.0-SNAPSHOT</version>
  <packaging>jar</packaging>
  <properties>
    <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
    <maven.compiler.source>19</maven.compiler.source>
    <maven.compiler.target>19</maven.compiler.target>
    <exec.mainClass>com.mycompany.flashit.FLASHIT</exec.mainClass>
    <javafx.version>19</javafx.version>
    <javafx.maven.plugin.version>0.0.8</javafx.maven.plugin.version>
  </properties>

  <dependencies>
    <dependency>
      <groupId>org.openjfx</groupId>
      <artifactId>javafx-controls</artifactId>
      <version>${javafx.version}</version>
    </dependency>

    <dependency>
      <groupId>org.openjfx</groupId>
      <artifactId>javafx-media</artifactId>
      <version>${javafx.version}</version>
    </dependency>

    <dependency>
      <groupId>org.openjfx</groupId>
      <artifactId>javafx-fxml</artifactId>
      <version>${javafx.version}</version>
    </dependency>

    <dependency>
      <groupId>com.google.firebase</groupId>
      <artifactId>firebase-admin</artifactId>
```

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```
<version>9.3.0</version>
</dependency>
</dependencies>

<build>
  <plugins>

    <plugin>
      <groupId>org.openjfx</groupId>
      <artifactId>javafx-maven-plugin</artifactId>
      <version>${javafx.maven.plugin.version}</version>
      <configuration>
        <mainClass>com.mycompany.flashit.FLASHIT</mainClass>
      </configuration>
    </plugin>

    <plugin>
      <groupId>org.apache.maven.plugins</groupId>
      <artifactId>maven-compiler-plugin</artifactId>
      <version>3.7.0</version>
      <configuration>
        <source>19</source>
        <target>19</target>
        <encoding>UTF-8</encoding>
      </configuration>
    </plugin>
  </plugins>
</build>

</project>
```

## **C. Rubric**

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Criteria	Ratings				Pts
Program execution (20pts)					20 pts
	<b>20 pts Excellent</b> Program executes correctly with no syntax or runtime errors	<b>17 pts Good</b> Program executes with less than 3 errors	<b>14 pts Fair</b> Program executes with more than 3 errors	<b>11 pts Poor</b> Program does not execute	
Correct output (20pts)					20 pts
	<b>20 pts Excellent</b> Program displays correct output with no errors	<b>17 pts Good</b> Output has minor errors	<b>14 pts Fair</b> Output has multiple errors	<b>11 pts Poor</b> Output is incorrect	
Design of output (10pts)					10 pts
	<b>10 pts Excellent</b> Program displays more than expected	<b>9 pts Good</b> Program displays minimally expected output	<b>7 pts Fair</b> Program does not display the required output	<b>5 pts Poor</b> Output is poorly designed	
Design of logic (20pts)					20 pts
	<b>20 pts Excellent</b> Program is logically well designed	<b>17 pts Good</b> Program has slight logic errors that do not significantly affect the results	<b>14 pts Fair</b> Program has significant logic errors	<b>11 pts Poor</b> Program is incorrect	
Standards (20pts)					20 pts
	<b>20 pts Excellent</b> Program code is stylistically well designed	<b>17 pts Good</b> Few inappropriate design choices (i.e. poor variable names, improper indentation)	<b>14 pts Fair</b> Several inappropriate design choices (i.e. poor variable names, improper indentation)	<b>11 pts Poor</b> Program is poorly written	
Delivery (10pts)					10 pts
	<b>10 pts Excellent</b> The program was delivered on time.	<b>9 pts Good</b> The program was delivered a day after the deadline.	<b>7 pts Fair</b> The program was delivered two days after the deadline.	<b>5 pts Poor</b> The program was delivered more than two days after the deadline.	

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Criteria	Ratings	Pts
Total Points: 100		

**“I affirm that I have not given or received any unauthorized help on this assignment,  
and that this work is my own.”**

\_\_\_\_\_  
**(Your E-Signature)**