

JAVA PROJECT

TOPIC

Quiz Application with User Registration and Login

AIM

The project aims to create an interactive quiz application that allows users to register, login, take quizzes, and receive feedback on their performance, all through a user-friendly graphical interface.

WORKFLOW

1. User Registration: Allow users to register by providing a username and password. This information will be stored in a database.
2. User Login: Enable registered users to log in using their username and password, verifying their credentials against the stored data in the database.
3. Display Quiz: Once logged in, display a quiz to the user. Questions and possible answers are presented sequentially, and users input their answers.
4. Quiz Evaluation: Evaluate the user's responses against the correct answers. Keep track of the score.
5. Interactive Interface: Provide a graphical user interface (GUI) for user interaction, making the application intuitive and user-friendly.
6. Database Integration: Utilize a MySQL database for storing user registration information and retrieving quiz questions.
7. Error Handling: Implement error handling to handle exceptions gracefully, providing informative error messages to users in case of any issues.

DATABASE AND TABLES

```
CREATE DATABASE quiz_db;
```

```
USE quiz_db;
```

```
CREATE TABLE tbl_reg (  
    id INT PRIMARY KEY,  
    uname VARCHAR(255) NOT NULL,  
    password VARCHAR(255) NOT NULL  
);
```

```
CREATE TABLE tbl_result (  
    id INT,  
    quiz_mark INT,  
    FOREIGN KEY(id) REFERENCES tbl_reg(id)  
);
```

SOURCE CODE

```
import javax.swing.*;
import java.awt.*;
import java.awt.event.*;
import java.sql.*;

public class QuizGUI extends JFrame {
    private static final long serialVersionUID = 1L;
    private JButton userRegistrationBtn, loginBtn, exitBtn;
    private JPanel panel;
    private Connection con;

    public QuizGUI() {
        setTitle("Quiz");
        setSize(400, 200);
        setDefaultCloseOperation(EXIT_ON_CLOSE);
        setLocationRelativeTo(null);
        panel = new JPanel();
        panel.setLayout(new GridLayout(3, 1)); // 3 rows, 1 column
        userRegistrationBtn = new JButton("User Registration");
        loginBtn = new JButton("Login");
        exitBtn = new JButton("Exit");
        panel.add(userRegistrationBtn);
        panel.add(loginBtn);
        panel.add(exitBtn);
        add(panel);

        try {
            Class.forName("com.mysql.jdbc.Driver");

            con =
DriverManager.getConnection("jdbc:mysql://localhost:3307/ems_db?CharacterEncoding=utf
8", "root", "");
```

```

    } catch (ClassNotFoundException | SQLException ex) {
        JOptionPane.showMessageDialog(null, "Error: " + ex.getMessage());
        System.exit(1);
    }

    userRegistrationBtn.addActionListener(new ActionListener() {
        public void actionPerformed(ActionEvent e) {
            userRegistration();
        }
    });

    loginBtn.addActionListener(new ActionListener() {
        public void actionPerformed(ActionEvent e) {
            login();
        }
    });

    exitBtn.addActionListener(new ActionListener() {
        public void actionPerformed(ActionEvent e) {
            try {
                if (con != null) con.close();
            } catch (SQLException ex) {
                JOptionPane.showMessageDialog(null, "Error: " + ex.getMessage());
            }
            System.exit(0);
        }
    });
}

public void userRegistration() {
    String username = JOptionPane.showInputDialog("Enter Username:");
    if (username == null) return; // User canceled

    String password = JOptionPane.showInputDialog("Enter Password:");
    if (password == null) return; // User canceled

```

```

        try (PreparedStatement pst = con.prepareStatement("INSERT INTO tbl_reg (uname,
password) VALUES (?, ?)")) {
            pst.setString(1, username);
            pst.setString(2, password);
            int rowsAffected = pst.executeUpdate();
            if (rowsAffected > 0) {
                JOptionPane.showMessageDialog(null, "User registered successfully");
            } else {
                JOptionPane.showMessageDialog(null, "Failed to register user");
            }
        } catch (SQLException ex) {
            JOptionPane.showMessageDialog(null, "Error: " + ex.getMessage());
        }
    }

    public void login() {
        String username = JOptionPane.showInputDialog("Enter Username:");
        if (username == null) return; // User canceled
        String password = JOptionPane.showInputDialog("Enter Password:");
        if (password == null) return; // User canceled

        try (PreparedStatement pst = con.prepareStatement("SELECT * FROM tbl_reg WHERE
uname = ? AND password = ?")) {
            pst.setString(1, username);
            pst.setString(2, password);
            try (ResultSet rs = pst.executeQuery()) {
                if (rs.next()) {
                    JOptionPane.showMessageDialog(null, "Login successful");
                    displayQuiz(username);
                } else {
                    JOptionPane.showMessageDialog(null, "Invalid username or password");
                }
            }
        }
    }

```

```

    } catch (SQLException ex) {
        JOptionPane.showMessageDialog(null, "Error: " + ex.getMessage());
    }
}

public void displayQuiz(String username) {
    String[] questions = {
        "1. What is the capital of France?\n(a) London\n(b) Paris\n(c) Rome\n(d) Berlin",
        "2. Who wrote 'Romeo and Juliet'? \n(a) William Shakespeare\n(b) Charles Dickens\n(c) Jane Austen\n(d) Mark Twain",
        "3. What is the chemical symbol for water?\n(a) Wa\n(b) Wt\n(c) H2O\n(d) W"
    };

    String[] answers = {"b", "a", "c"};
    int score = 0;

    JOptionPane.showMessageDialog(null, "Welcome, " + username + "! Let's start the quiz.");

    for (int i = 0; i < questions.length; i++) {
        String userAnswer = JOptionPane.showInputDialog(null, questions[i], "Question " + (i + 1), JOptionPane.PLAIN_MESSAGE);
        if (userAnswer == null) return; // User canceled
        if (userAnswer.equalsIgnoreCase(answers[i])) {
            JOptionPane.showMessageDialog(null, "Correct!");
            score++;
        } else {
            JOptionPane.showMessageDialog(null, "Incorrect!");
        }
    }

    JOptionPane.showMessageDialog(null, "Quiz complete!\nYour score: " + score + "/" + questions.length);
}

public static void main(String[] args) {
    SwingUtilities.invokeLater(new Runnable() {

```

```

    public void run() {
        new QuizGUI().setVisible(true);
    }
});
}
}

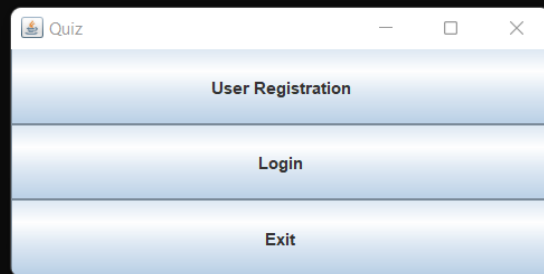
```

```

Administrator: C:\Windows\System32\cmd.exe - java QuizGUI
Microsoft Windows [Version 10.0.22000.1574]
(c) Microsoft Corporation. All rights reserved.

D:\Java_project>java QuizGUI

```



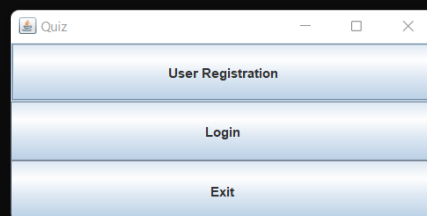
HomePage

```

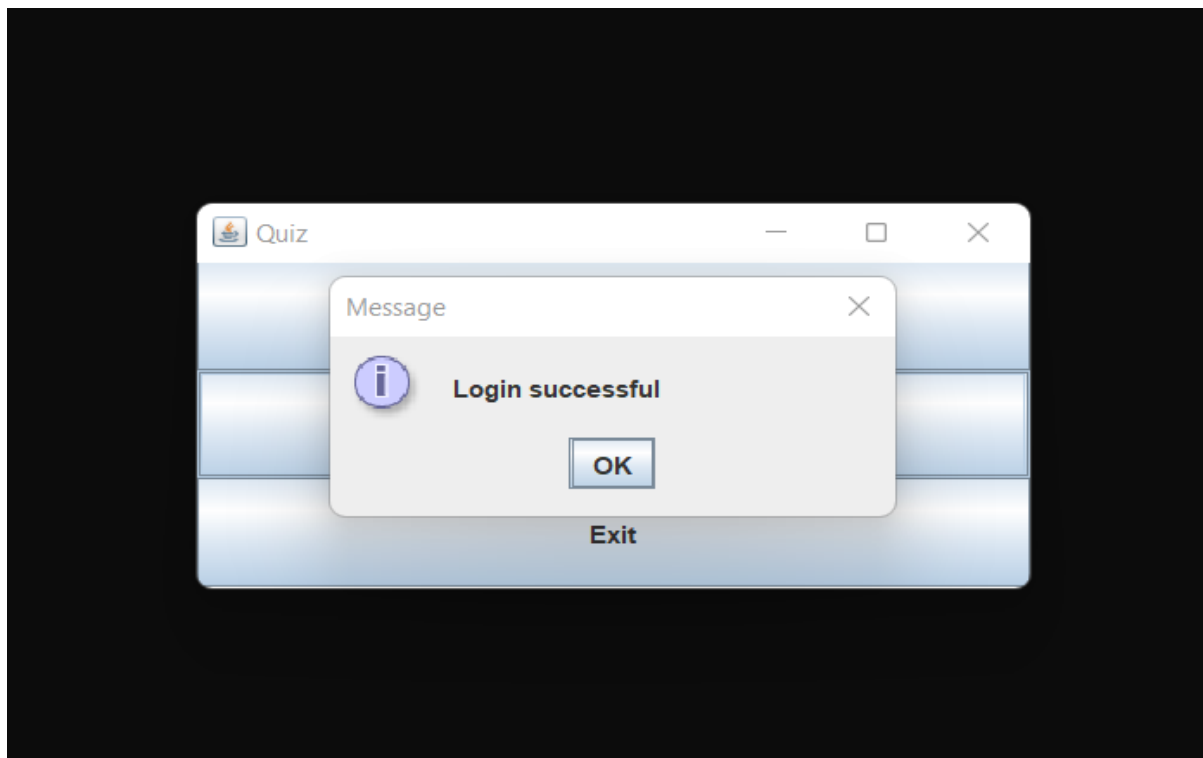
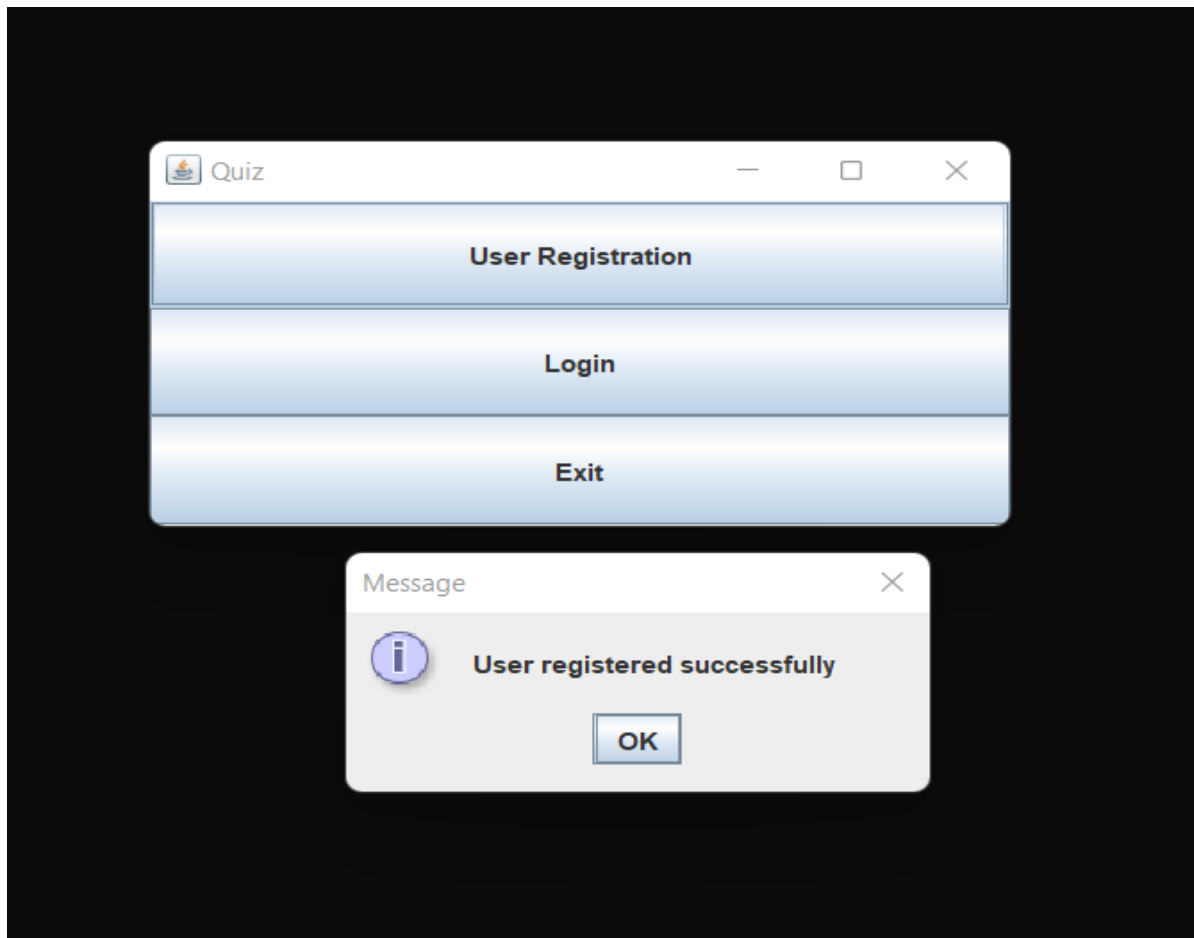
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(c) Microsoft Corporation. All rights reserved.

D:\Java_project>java QuizGUI

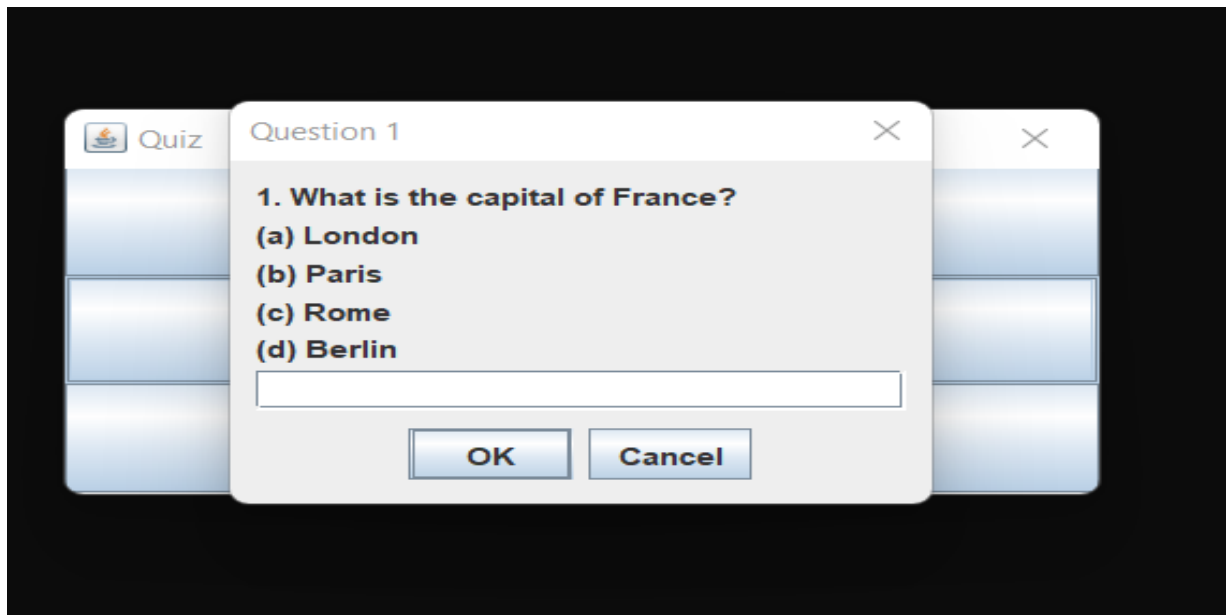
```

 A screenshot of a small Java dialog box titled "Input". It has a light gray background and a close button (X) in the top right corner. On the left side, there is a green square icon containing a white question mark. To the right of the icon, the text "Enter Username:" is displayed above a text input field. At the bottom of the dialog, there are two buttons: "OK" and "Cancel".


Registration Page



Login Page



Quiz Page

