import java.sql.\*;

public class UserManager {

// Database connection details

private static final String URL = "jdbc:sqlserver:// DESKTOP-I8QSSD4\SQLEXPRESS01 ";

// Connection to the database

private Connection conn;

public UserManager() {

try {

conn = DriverManager.getConnection(URL);

System.out.println("Connection established.");

} catch (SQLException e) {

System.out.println("Connection failed: " + e.getMessage());

}

}

// CREATE function

public void createUser(String username, String password, boolean active) {

String query = "INSERT INTO Users (Username, Password, Active) VALUES (?, ?, ?)";

try (PreparedStatement stmt = conn.prepareStatement(query)) {

stmt.setString(1, username);

stmt.setString(2, password);

stmt.setBoolean(3, active);

stmt.executeUpdate();

System.out.println("User '" + username + "' created successfully.");

} catch (SQLException e) {

System.out.println("Error creating user: " + e.getMessage());

}

}

// READ function

public void getAllUsers() {

String query = "SELECT ID, Username, Active FROM Users";

try (Statement stmt = conn.createStatement()) {

ResultSet rs = stmt.executeQuery(query);

while (rs.next()) {

int id = rs.getInt("ID");

String username = rs.getString("Username");

boolean active = rs.getBoolean("Active");

System.out.println("ID: " + id + ", Username: " + username + ", Active: " + (active ? "Yes" : "No"));

}

} catch (SQLException e) {

System.out.println("Error reading users: " + e.getMessage());

}

}

// UPDATE function

public void updateUser(int userId, String newPassword, Boolean newActive) {

try {

if (newPassword != null) {

String updatePasswordQuery = "UPDATE Users SET Password = ? WHERE ID = ?";

try (PreparedStatement stmt = conn.prepareStatement(updatePasswordQuery)) {

stmt.setString(1, newPassword);

stmt.setInt(2, userId);

stmt.executeUpdate();

}

}

if (newActive != null) {

String updateActiveQuery = "UPDATE Users SET Active = ? WHERE ID = ?";

try (PreparedStatement stmt = conn.prepareStatement(updateActiveQuery)) {

stmt.setBoolean(1, newActive);

stmt.setInt(2, userId);

stmt.executeUpdate();

}

}

System.out.println("User ID '" + userId + "' updated successfully.");

} catch (SQLException e) {

System.out.println("Error updating user: " + e.getMessage());

}

}

// DELETE function

public void deleteUser(int userId) {

String query = "DELETE FROM Users WHERE ID = ?";

try (PreparedStatement stmt = conn.prepareStatement(query)) {

stmt.setInt(1, userId);

stmt.executeUpdate();

System.out.println("User ID '" + userId + "' deleted successfully.");

} catch (SQLException e) {

System.out.println("Error deleting user: " + e.getMessage());

}

}

// Close connection

public void closeConnection() {

try {

if (conn != null && !conn.isClosed()) {

conn.close();

System.out.println("Connection closed.");

}

} catch (SQLException e) {

System.out.println("Error closing connection: " + e.getMessage());

}

}

// Main method to test CRUD operations

public static void main(String[] args) {

UserManager userManager = new UserManager();

// CREATE a new user

userManager.createUser("john\_doe", "password123", true);

// READ all users

userManager.getAllUsers();

// UPDATE user with ID 1

userManager.updateUser(1, "newpassword123", false);

// READ all users after update

userManager.getAllUsers();

// DELETE user with ID 1

userManager.deleteUser(1);

// READ all users after deletion

userManager.getAllUsers();

// Close the database connection

userManager.closeConnection();

}

}