

 Marwadi University Marwadi Chandarana Group	NAAC A+	Marwadi University Faculty of Technology Department of Information and Communication Technology
Subject: Advanced Java (01CT1623)	Aim: Create a User Management System with the following Features using MySQL database:	
Task :- 1	Date:- 27-03-2025	Enrollment No:- 92200133003

Objective : Create a User Management System with the following Features using MySQL database

- 1) Admin Users can perform add update delete and view users
- 2) End users can perform login and view their details

CODE :

Main.java

```
package org.example;

import java.util.List;
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {
        UserService userService = new UserService();
        Scanner scanner = new Scanner(System.in);

        while (true) {
            System.out.println("\nUser Management System");
            System.out.println("1. Login");
            System.out.println("2. Exit");
            System.out.print("Choose an option: ");
            int option = scanner.nextInt();
            scanner.nextLine();

            if (option == 2) break;

            System.out.print("Enter Username: ");
            String username = scanner.nextLine();
            System.out.print("Enter Password: ");
            String password = scanner.nextLine();

            User user = userService.loginUser(username, password);
            if (user == null) {
                System.out.println("Invalid Credentials!");
                continue;
            }

            if (user.getRole().equals("admin")) {
                while (true) {
                    System.out.println("\nAdmin Panel");
                    System.out.println("1. Add User");
                    System.out.println("2. Update User");
                    System.out.println("3. Delete User");
                    System.out.println("4. View Users");
                    System.out.println("5. Logout");
                    System.out.print("Choose an option: ");
                    int adminOption = scanner.nextInt();
                    scanner.nextLine();

                    if (adminOption == 5) break;

                    switch (adminOption) {
                        case 1:
                            System.out.print("Enter Username: ");
                            String newUser = scanner.nextLine();
                            System.out.print("Enter Password: ");
                            String newPassword = scanner.nextLine();
                            System.out.print("Enter Role (admin/user): ");
                            String role = scanner.nextLine();
                            userService.addUser(newUser, newPassword, role);
```

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(01CT1623)**Aim:** Create a User Management System with the following Features using MySQL database:**Task :- 1****Date:- 27-03-2025****Enrollment No:- 92200133003**

```
        break;
    case 2:
        System.out.print("Enter User ID: ");
        int userId = scanner.nextInt();
        scanner.nextLine();
        System.out.print("Enter New Username: ");
        String updatedUser = scanner.nextLine();
        System.out.print("Enter New Password: ");
        String updatedPass = scanner.nextLine();
        System.out.print("Enter New Role: ");
        String updatedRole = scanner.nextLine();
        userService.updateUser(userId, updatedUser, updatedPass, updatedRole);
        break;
    case 3:
        System.out.print("Enter User ID: ");
        int deleteId = scanner.nextInt();
        userService.deleteUser(deleteId);
        break;
    case 4:
        List<User> users = userService.getAllUsers();
        users.forEach(System.out::println);
        break;
    }
}
} else {
    System.out.println("Welcome, " + user.getUsername() + "! Your details: " + user);
}
}
scanner.close();
}
```

USER.java

```
package org.example;

public class User {
    private int id;
    private String username;
    private String password;
    private String role;

    public User(int id, String username, String password, String role) {
        this.id = id;
        this.username = username;
        this.password = password;
        this.role = role;
    }

    public int getId() { return id; }
    public String getUsername() { return username; }
    public String getPassword() { return password; }
    public String getRole() { return role; }

    @Override
    public String toString() {
        return "ID: " + id + ", Username: " + username + ", Role: " + role;
    }
}
```

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UserService.java

```
package org.example;
```

```
import java.sql.*;
import java.util.ArrayList;
import java.util.List;
```

```
public class UserService {
    private Connection conn;
```

```
    public UserService() {
        conn = DatabaseConnection.getConnection();
    }
```

```
    // Add User
```

```
    public void addUser(String username, String password, String role) {
        String query = "INSERT INTO users (username, password, role) VALUES (?, ?, ?)";
        try (PreparedStatement stmt = conn.prepareStatement(query)) {
            stmt.setString(1, username);
            stmt.setString(2, password);
            stmt.setString(3, role);
            stmt.executeUpdate();
            System.out.println("User added successfully!");
        } catch (SQLException e) {
            e.printStackTrace();
        }
    }
```

```
    // Update User
```

```
    public void updateUser(int id, String username, String password, String role) {
        String query = "UPDATE users SET username=?, password=?, role=? WHERE id=?";
        try (PreparedStatement stmt = conn.prepareStatement(query)) {
            stmt.setString(1, username);
            stmt.setString(2, password);
            stmt.setString(3, role);
            stmt.setInt(4, id);
            stmt.executeUpdate();
            System.out.println("User updated successfully!");
        } catch (SQLException e) {
            e.printStackTrace();
        }
    }
```

```
    // Delete User
```

```
    public void deleteUser(int id) {
        String query = "DELETE FROM users WHERE id=?";
        try (PreparedStatement stmt = conn.prepareStatement(query)) {
            stmt.setInt(1, id);
            stmt.executeUpdate();
            System.out.println("User deleted successfully!");
        } catch (SQLException e) {
            e.printStackTrace();
        }
    }
```

```
    // View All Users
```

```
    public List<User> getAllUsers() {
        List<User> users = new ArrayList<>();
        String query = "SELECT * FROM users";
        try (Statement stmt = conn.createStatement();
             ResultSet rs = stmt.executeQuery(query)) {
            while (rs.next()) {
                users.add(new User(rs.getInt("id"), rs.getString("username"), rs.getString("password"), rs.getString("role")));
            }
        }
    }
```

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```

    }
    } catch (SQLException e) {
        e.printStackTrace();
    }
    }
    return users;
}

// User Login
public User loginUser(String username, String password) {
    String query = "SELECT * FROM users WHERE username=? AND password=?";
    try (PreparedStatement stmt = conn.prepareStatement(query)) {
        stmt.setString(1, username);
        stmt.setString(2, password);
        ResultSet rs = stmt.executeQuery();
        if (rs.next()) {
            return new User(rs.getInt("id"), rs.getString("username"), rs.getString("password"), rs.getString("role"));
        }
    } catch (SQLException e) {
        e.printStackTrace();
    }
    }
    return null;
}
}

```

DatabaseConnection.java

```

package org.example;

import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;

public class DatabaseConnection {
    private static final String URL = "jdbc:mysql://localhost:3306/UserManagementDB";
    private static final String USER = "root";
    private static final String PASSWORD = "";
    private static Connection connection = null;

    public static Connection getConnection() {
        try {
            if (connection == null || connection.isClosed()) {
                // Load MySQL JDBC Driver
                Class.forName("com.mysql.cj.jdbc.Driver");

                // Establish Connection
                connection = DriverManager.getConnection(URL, USER, PASSWORD);
                System.out.println("Database Connected Successfully!");
            }
        } catch (ClassNotFoundException e) {
            System.out.println("MySQL JDBC Driver Not Found: " + e.getMessage());
        } catch (SQLException e) {
            System.out.println("Database Connection Failed: " + e.getMessage());
        }
        return connection;
    }
}

```

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OUTPUT :

<input type="checkbox"/> Show all Number of rows: 25 <input type="text"/> Filter rows: Search this table Sort by key: None <input type="text"/>				
Extra options				
<div> <div> <div>←</div> <div>T</div> <div>→</div> </div> <div> <div>▼</div> <div>id</div> </div> <div> <div>▼</div> <div>username</div> </div> <div> <div>▼</div> <div>password</div> </div> <div> <div>▼</div> <div>role</div> </div> </div>				
<input type="checkbox"/>				1 admin admin123 admin
<input type="checkbox"/>				2 Krish Mamtara 123456 user
<input type="checkbox"/>				3 Prashant Sarvaiya 123123 user
<input type="checkbox"/>				5 Abhay Nathwani 112233 user

===== User Management System =====

1. Login

2. Exit

Choose an option: 1

Enter Username: admin

Enter Password: admin123

===== Admin Panel =====

1. Add User

2. Update User

3. Delete User

4. View Users

5. Logout

Choose an option: 1

Enter New Username: Kirtan

Enter Password: 8989

Enter Role (admin/user): user

✅ User added successfully!

===== Admin Panel =====

1. Add User

2. Update User

3. Delete User

4. View Users

5. Logout

Choose an option: 3

Enter User ID to Delete: 3

✅ User deleted successfully!

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```

Choose an option: 3
Enter User ID to Delete: 3
✅ User deleted successfully!

===== Admin Panel =====
1. Add User
2. Update User
3. Delete User
4. View Users
5. Logout
Choose an option: 4

===== User List =====
User{id=1, username='admin', role='admin'}
User{id=2, username='Kirtan', role='user'}

===== Admin Panel =====
1. Add User
2. Update User
3. Delete User
4. View Users
5. Logout
Choose an option: 5
Logging out... ⌚

===== User Management System =====
1. Login
2. Exit
Choose an option: 1

```