Lab Assignment 1

SP25-BCS Section B

Assignment Date: 27-02-25
Due Date: 27-02-25 (within lab slot)
Maximum Marks: 10

Simple User Authentication System (CLO4- Creating)

Description
A company's system has one registered user with a fixed username and password. To access the system:

- The user must enter credentials via System.console().
- The password is validated using a non-static inner class.
- If the credentials match, access is granted.
- The login process is handled using a static inner class inside UserManager.

Students must organize their project using the following structure: Each package should contain the appropriate class implementation with proper modularization and encapsulation.

```
C:\JavaLabs>tree C:\JavaLabs /F
Folder PATH listing
Volume serial number is B421-883E
C:\JAVALABS
|   run.bat
|
+---main
|       LoginSystem.java
|
+---users
|       UserManager.java
|
\---util
        PasswordValidator.java
```

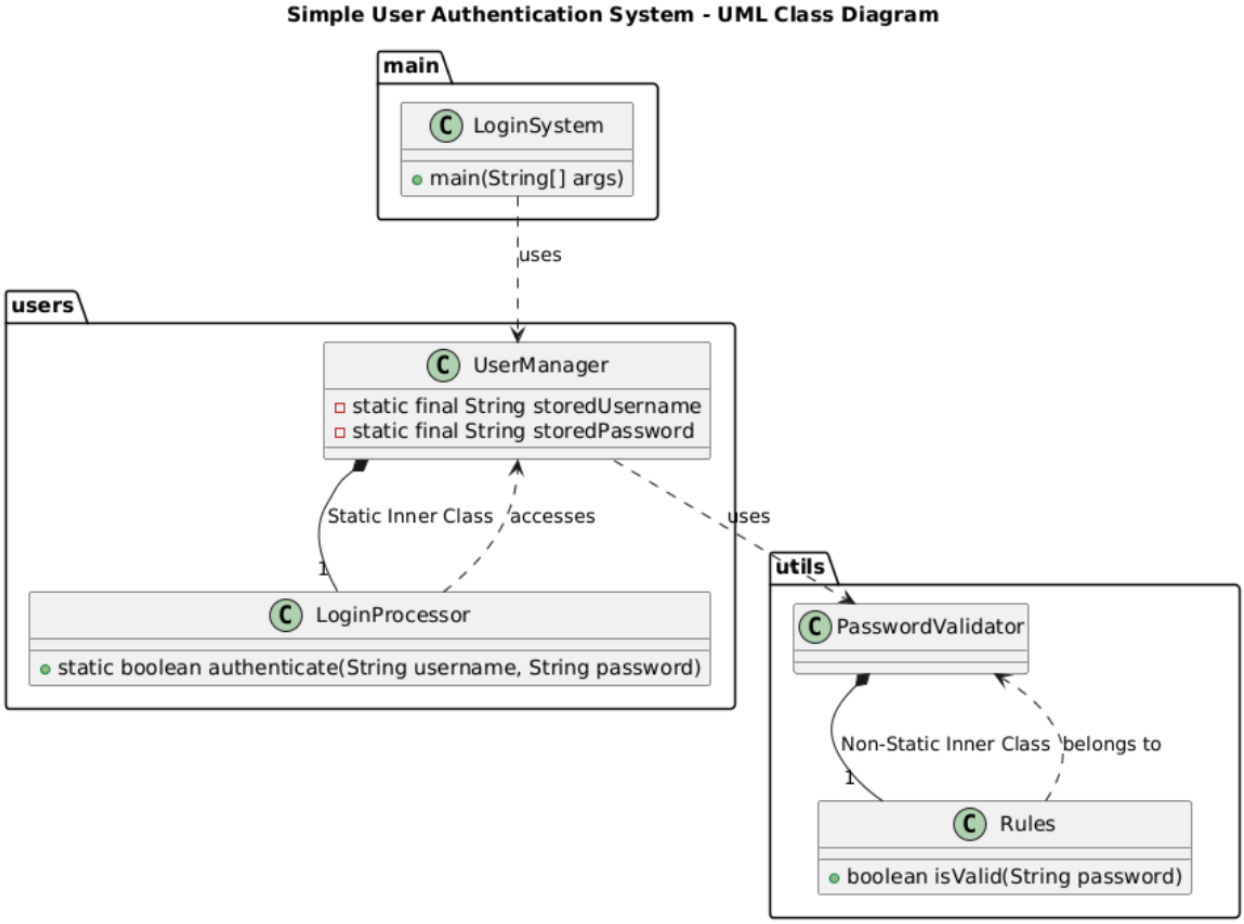
Objective:

By completing this assignment, students will:

- Develop a Basic User Authentication System.
- Implement secure password entry using System.console().
- Utilize a static inner class for login handling.
- Apply a non-static inner class for password validation.
- Properly organize classes into different packages and import them correctly.
- Generate a UML Class Diagram representing the system architecture.

UML Class Diagram:

Students must carefully follow the provided UML Class Diagram while implementing the authentication system. The diagram outlines the class structure, relationships, and method responsibilities, ensuring proper use of static and non-static inner classes. Maintain class names, method signatures, and package structure as shown in the diagram to ensure consistency and clarity in your implementation.



Submission Instructions:

- Git Repository Upload:
- Students must upload their completed project to a Git repository.
- Once uploaded, the repository link must be submitted via the provided form.

Submission Form:

Fill out the submission form with your repository details:

https://forms.gle/YHoCNRAJCqR4wt6K9

Important:

- Once uploaded, do not modify your repository.
- Ensure that your submission follows the correct package structure and naming conventions.
- Late submissions will not be accepted beyond the assigned lab slot.