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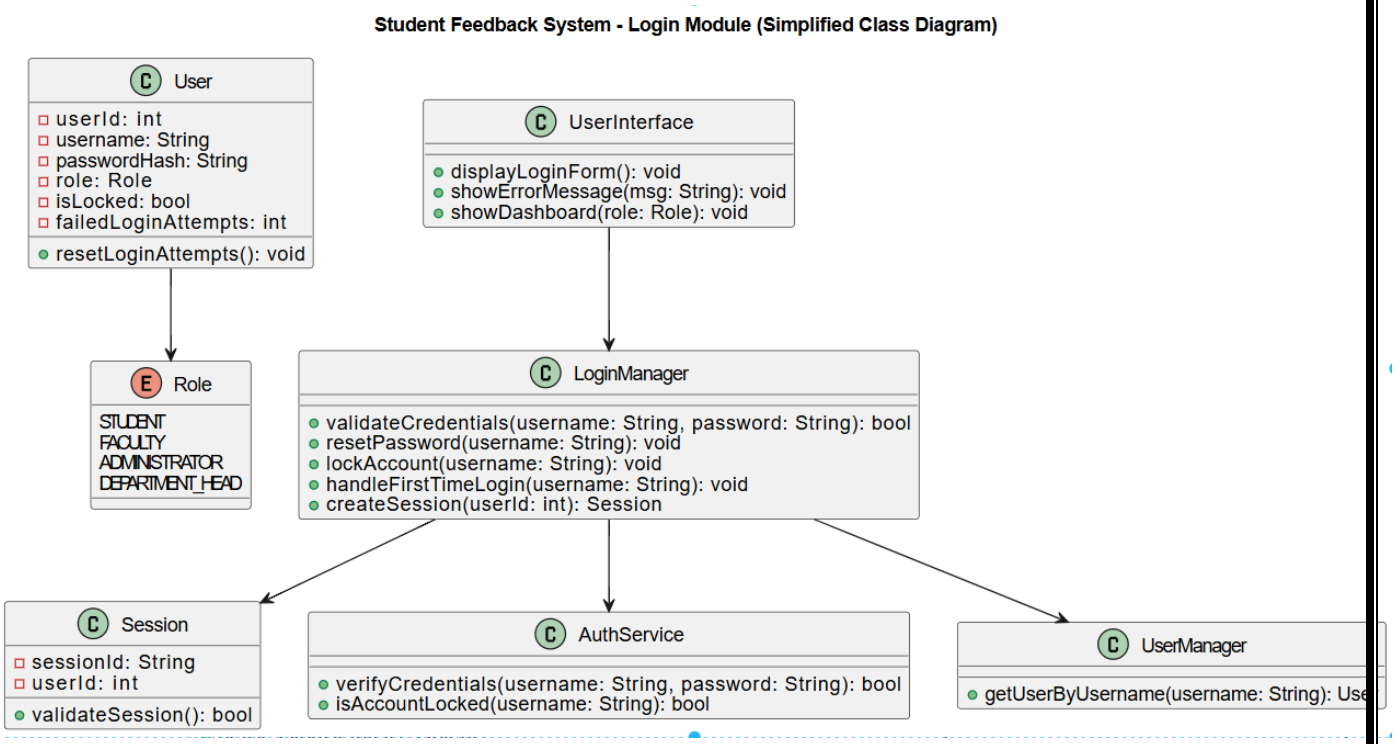
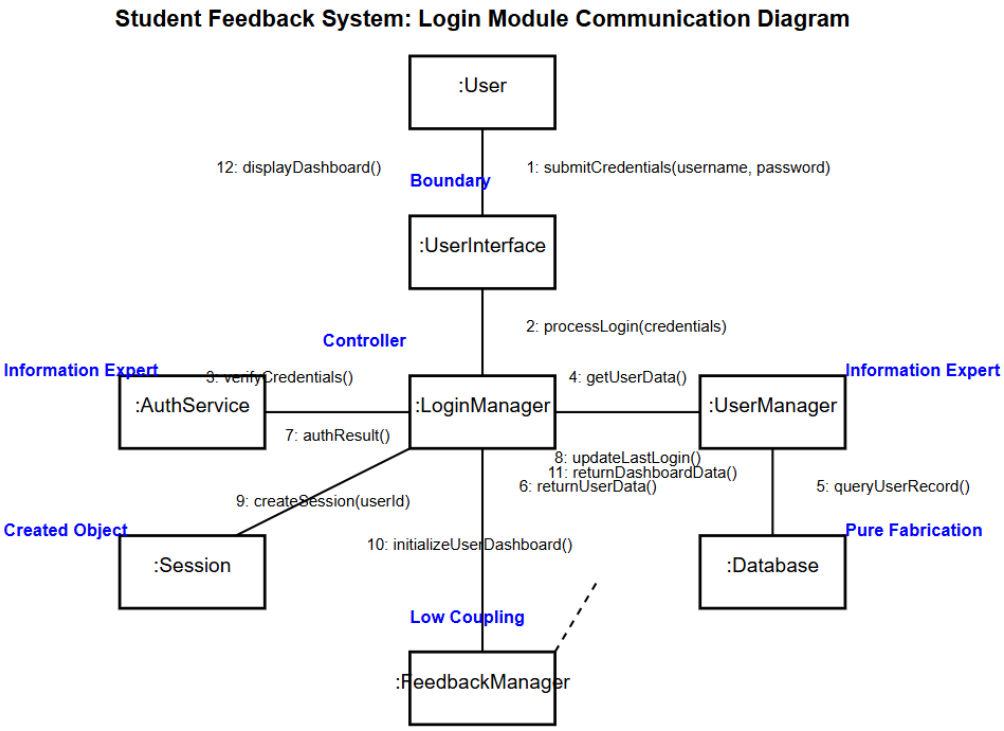
CLASS DIAGRAM FOR ONE MODULE LOGIN IN THE STUDENT FEEDBACK SYSTEM



- **Focus on LoginManager, AuthService, Session, User, and UserManager**
- **Removed unrelated classes like Feedback, Preferences, Profile, Analytics, etc.**
- **Keeps the UML compact for single-page clarity**
- **Keeps only core methods/attributes for authentication flow**



Applying GRASP Design Patterns

Student Feedback System - Login Module Communication Diagram with GRASP Patterns

I've created a communication diagram for the Student Feedback System's Login module, applying GRASP (General Responsibility Assignment Software Patterns) principles to show the interactions between objects during the login process.

GRASP Patterns Applied

1. **Controller Pattern**: LoginManager acts as the controller that handles system events from the user interface and coordinates the login workflow.
2. **Information Expert**:
    - AuthService is the expert in credential verification and security

    - UserManager is the expert in user data management
3. **Creator Pattern**: LoginManager creates Session objects after successful authentication
4. **Low Coupling**: Components are designed with minimal dependencies, communicating only when necessary
5. **High Cohesion**: Each class has a well-defined, focused set of responsibilities
6. **Pure Fabrication**: Database serves as a specialized component for data persistence
7. **Boundary Pattern**: UserInterface serves as the boundary between the system and external actors

Communication Flow

The diagram illustrates the sequence of messages exchanged during login:

1. User submits credentials through the UserInterface
2. UserInterface forwards credentials to LoginManager
3. LoginManager requests credential verification from AuthService
4. LoginManager requests user data from UserManager
5. UserManager retrieves data from Database
6. After successful authentication:
    - A Session is created
    - Login statistics are updated
    - User is forwarded to the FeedbackManager
    - Dashboard is displayed to User

Alternative flows (like password reset and authentication failure) are also represented with their own message paths.

This communication diagram demonstrates how the system components collaborate during the login process while adhering to sound object-oriented design principles through GRASP patterns.