

Spencer Belknap

CS-255

August 12, 2025

Final Project: Design Document

UML Diagrams

UML Use Case Diagram

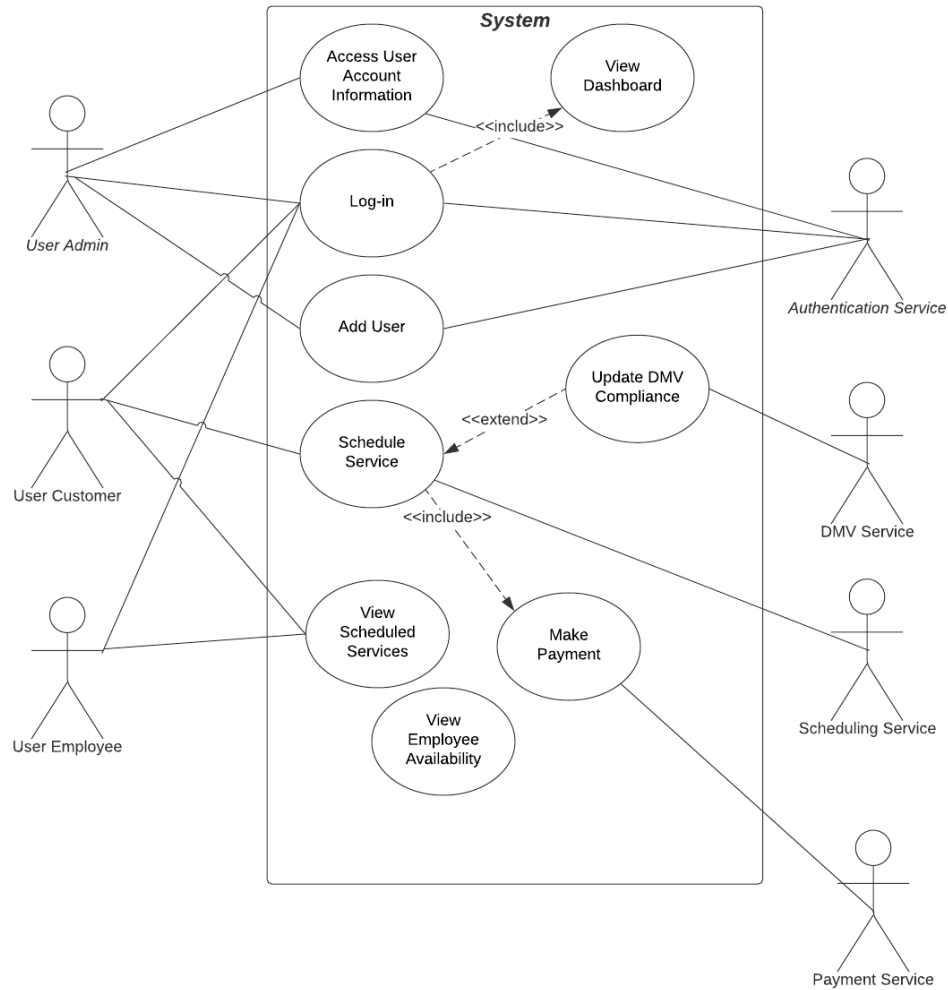
Actors:

- User Admin
- User Customer (Student)
- User Employee (Instructor)
- External Services: Authentication, DMV, Scheduling, Payment

Use Cases:

- Log in
- Add user
- Schedule service
- Make payment
- View dashboard
- Update DMV compliance
- View scheduled services

- View employee availability



UML Activity Diagrams

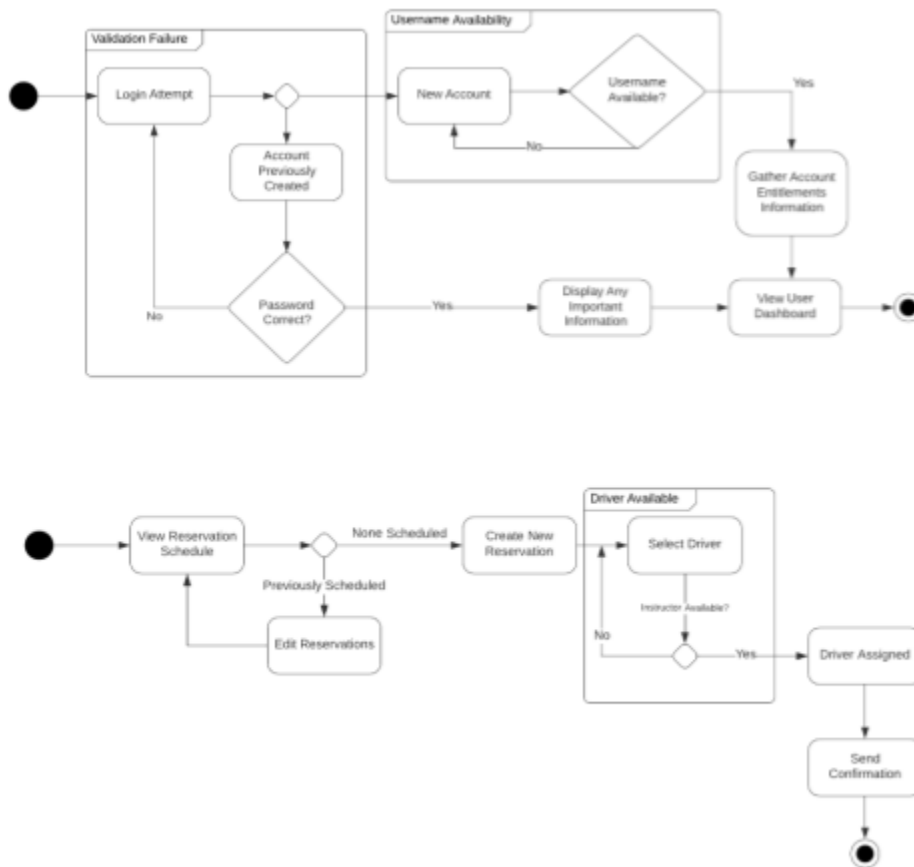
Use Case 1: Account Creation & Login

- Validates credentials
- Checks username availability
- Creates account or redirects to dashboard

Use Case 2: Lesson Reservation

- Views schedule
- Selects driver

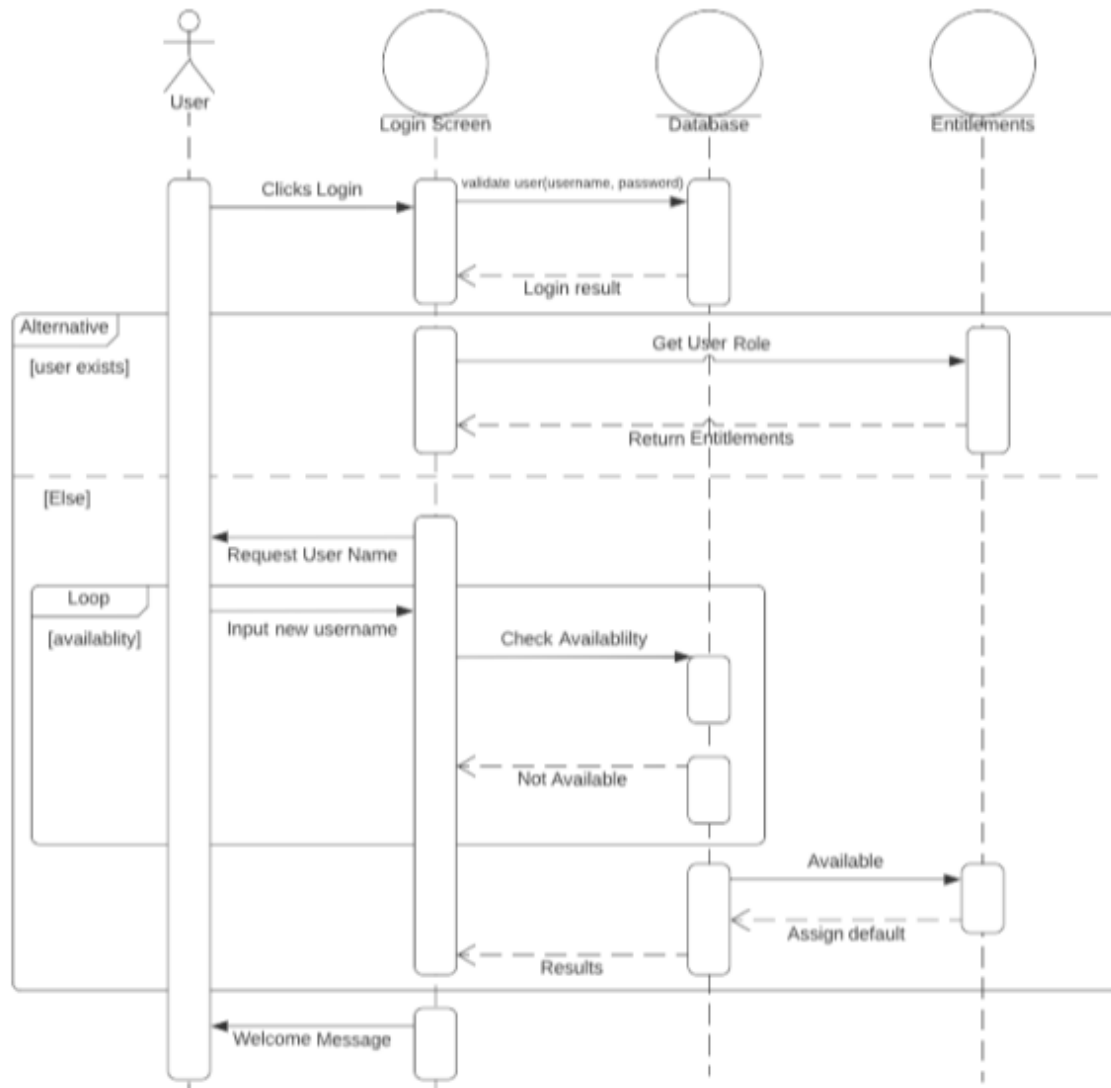
- Sends confirmation



UML Sequence Diagram

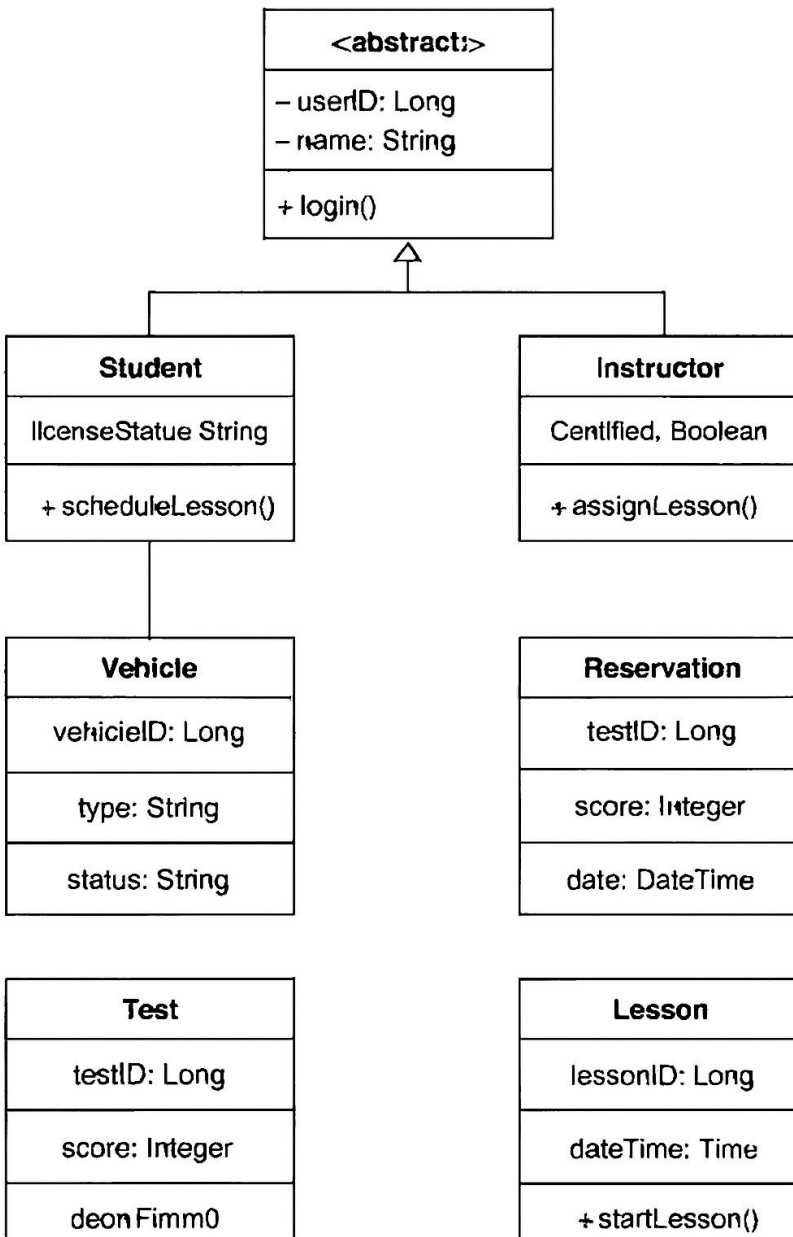
Key Steps:

- **Student selects a time slot** for a driving lesson.
- **System checks instructor availability** based on existing schedules.
- **Instructor is assigned** to the selected time if available.
- **Confirmation is sent** to both student and instructor, completing the scheduling workflow.



UML Class Diagram

- User (attributes: name, role, login credentials)
- Lesson (attributes: date, time, instructor)
- Payment (attributes: amount, method, status)
- Schedule (attributes: availability, reservations)



Technical Requirements

Hardware:

- Cloud-hosted servers for scalability
- Secure storage for user data and backups

Software:

- Web-based front end (HTML/CSS/JavaScript)

- Backend services (Node.js or Python)
- Database (MySQL or PostgreSQL)

Tools:

- Lucidchart for modeling
- Secure payment gateway (e.g., Stripe)
- Authentication service (OAuth or custom)

Infrastructure:

- HTTPS encryption
- Role-based access control
- API integration with DMV and scheduling services