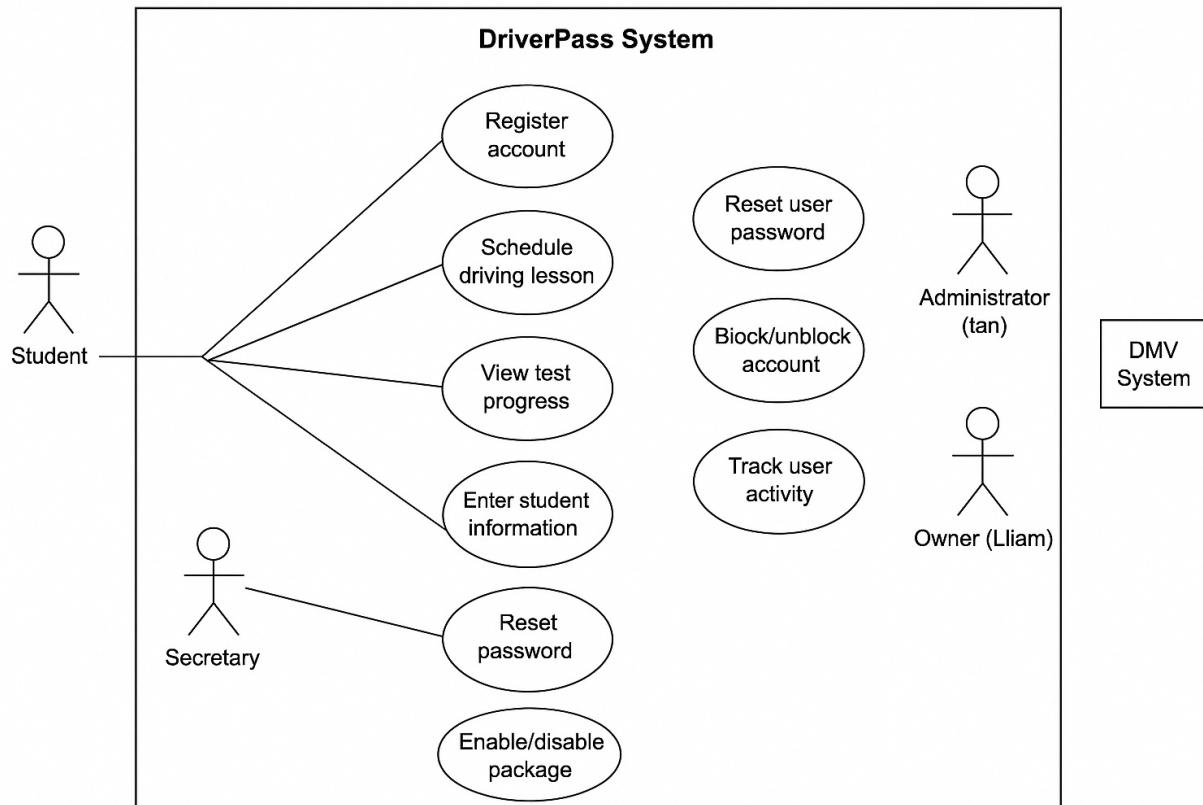


CS 255 System Design Document Template

Tania Boursiquot

UML Diagrams

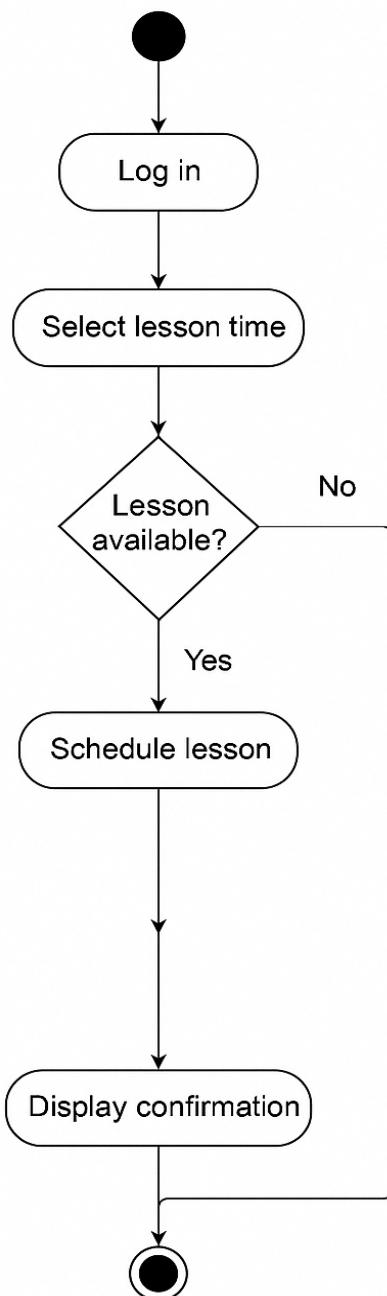
UML Use Case Diagram



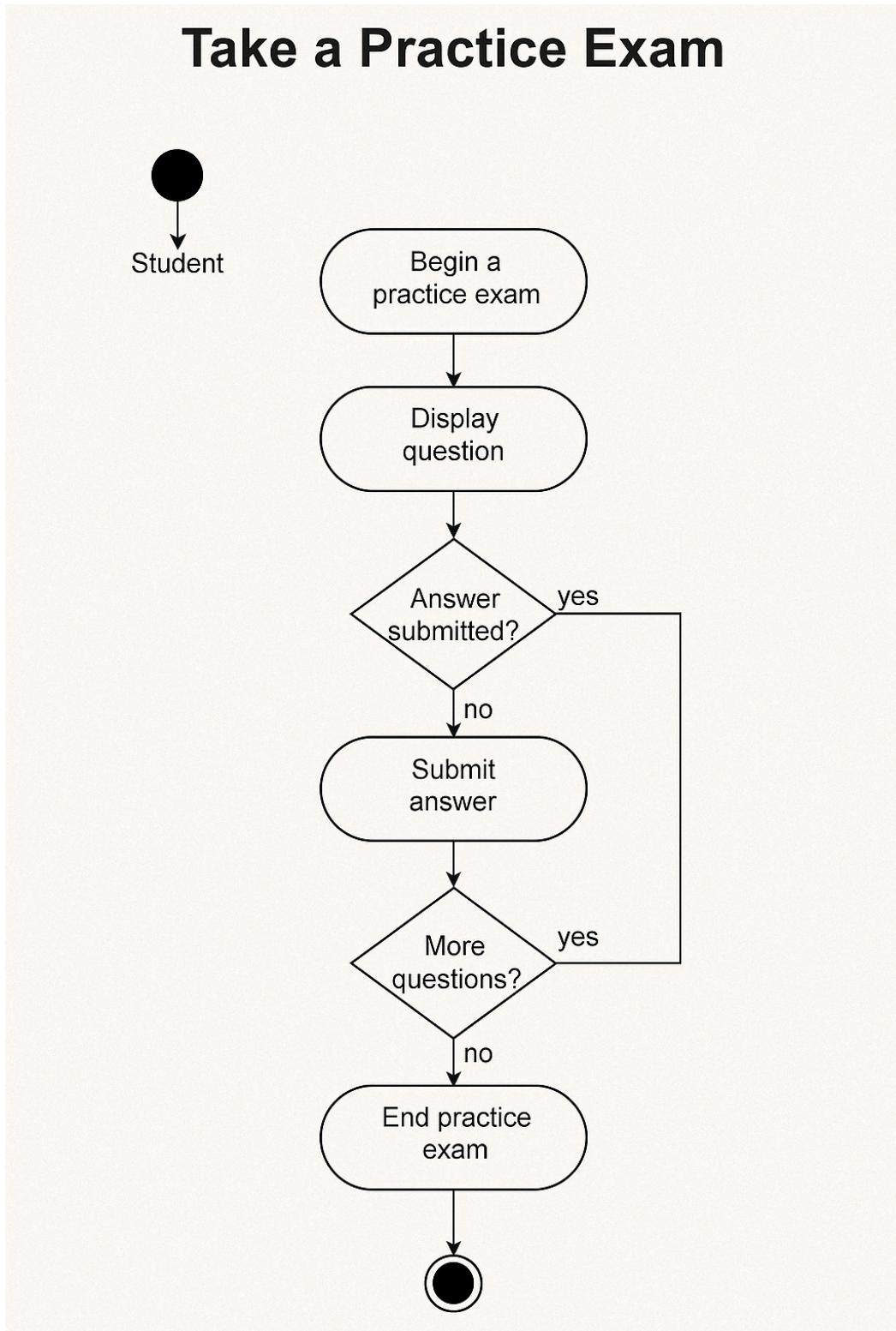
UML Activity Diagrams

Activity Diagram: Schedule Driving Lesson

Schedule Driving Lesson

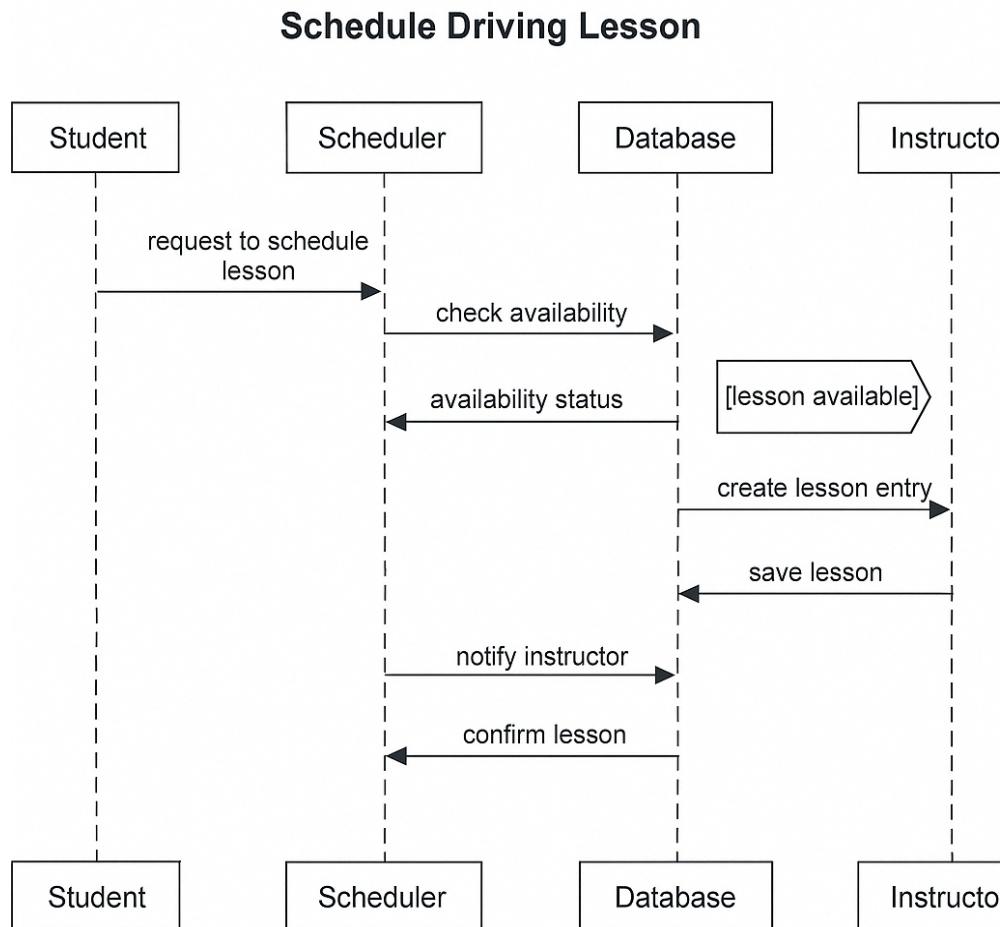


Activity Diagram: Take a Practice Exam

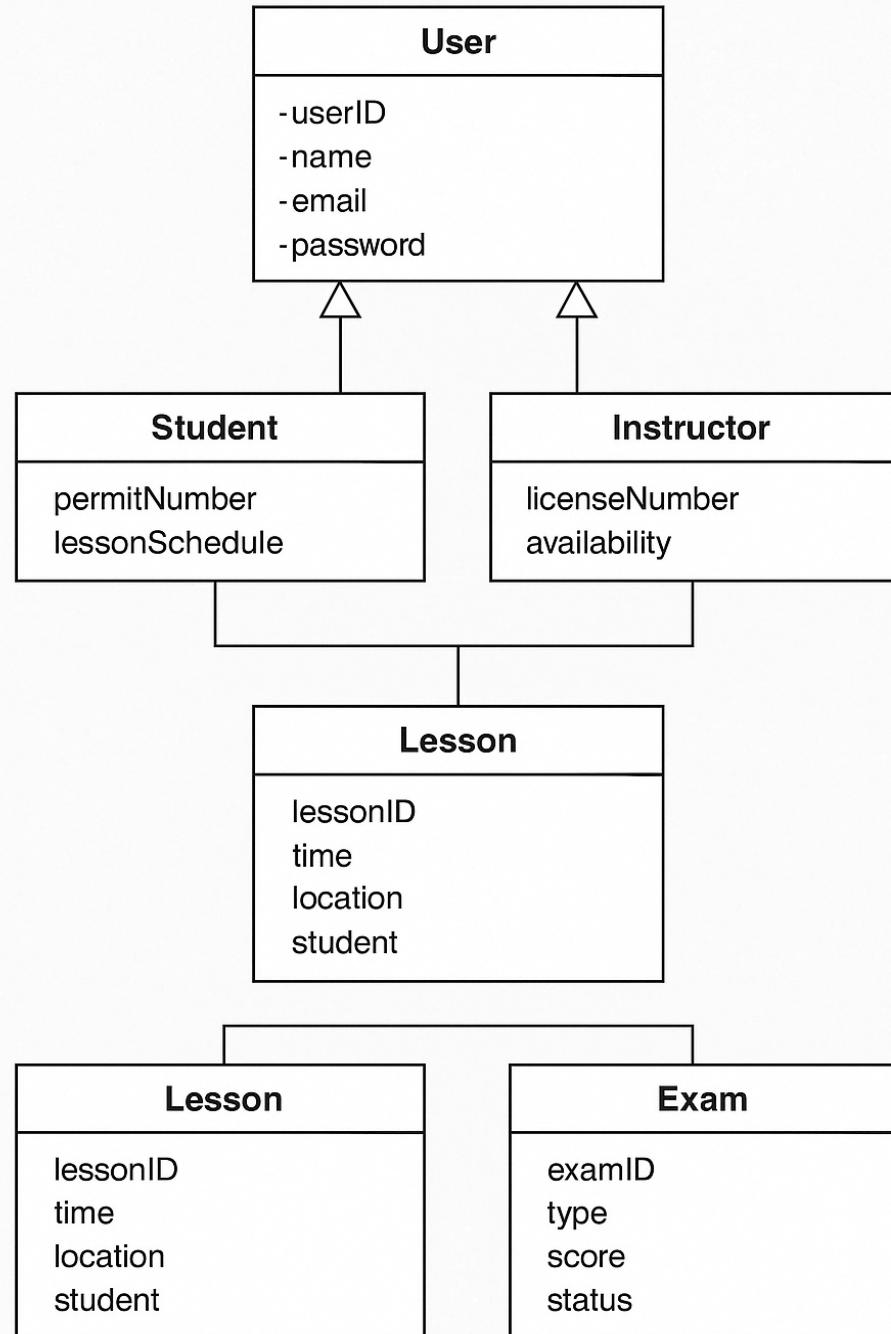


UML Sequence Diagram

Sequence Diagram: Schedule Driving Lesson



UML Class Diagram: DriverPass System





Technical Requirements

Hardware Requirements

- Web Server: A reliable server with a multi-core processor and at least 16GB of RAM to support concurrent users.
- Client Devices: Laptops, desktops, or tablets with modern web browsers for users (students, secretaries, instructors).
- Backup Storage: External or cloud-based storage solution for daily system backups to prevent data loss.

Software Requirements

- Operating System: Linux-based server OS (e.g., Ubuntu Server) for stability and compatibility.
- Web Framework: A framework like Django (Python), Spring Boot (Java), or Laravel (PHP) to manage backend development.
- Frontend Tools: HTML5, CSS3, JavaScript, and a front-end framework like React or Bootstrap for responsive UI.
- Database Management: Relational Database System such as PostgreSQL or MySQL for managing user, exam, and scheduling data.
- Authentication & Security: Software libraries for password encryption, two-factor authentication, and user access control.

Development & Design Tools

- Lucidchart: For designing UML diagrams (Use Case, Activity, Sequence, Class).
- IDE: Visual Studio Code or IntelliJ IDEA for writing and managing code.
- Version Control: Git and GitHub for collaboration, versioning, and change tracking.
- Testing Frameworks: Unit testing and integration testing tools like JUnit (Java), pytest (Python), or PHPUnit (PHP).

Infrastructure Requirements

- Cloud Hosting Platform: AWS, Google Cloud, or Microsoft Azure to deploy the application with scalability and high availability.
- CI/CD Pipelines: GitHub Actions, Jenkins, or GitLab CI/CD for automated builds, testing, and deployments.
- HTTPS Protocol: Secure communication between clients and the server using SSL/TLS encryption.
- Email Service Integration: To send password reset links, exam results, and notifications (e.g., SendGrid or AWS SES).