# CS 255 System Design Document

## UML Diagrams

### UML Use Case Diagram

*A diagram of a system

Description automatically generated*

### UML Activity Diagrams

***Case 1 Diagram****:  
A diagram of a system

Description automatically generated*

***Case 2 Diagram:***

***A diagram of a system

Description automatically generated***

### UML Sequence Diagram

*A diagram of a system

Description automatically generated*

### UML Class Diagram

*A diagram of a computer

Description automatically generated*

## Technical Requirements

The business requirements for Project One encompass a range of functional and nonfunctional elements that directly influence the technical requirements of the proposed system. In terms of performance requirements, the system demands a web-based environment with fast response times and regular updates to stay current with DMV regulations. This necessitates a robust server infrastructure, capable of handling concurrent user requests, and a dedicated database server with ample storage capacity to manage user data, reservations, and lesson information. The need for regular updates further emphasizes the importance of a reliable backup system to ensure data integrity and prevent loss in the event of server failures.

In addressing platform constraints, the system should be designed to run on various platforms, including Windows and Unix. This dictates the selection of an appropriate operating system for both the main server and the database server. Additionally, the backend requires a database for storing user data, reservations, and lesson information, indicating the need for a robust Database Management System like MySQL or PostgreSQL. The case-sensitive nature of user input, the requirement for seamless adaptability to platform updates, and the demand for secure authentication processes underscore the importance of careful consideration in selecting the appropriate programming language, web framework, and security software.

From a tools and infrastructure perspective, the business requirements call for a web server to handle HTTP requests, collaboration tools for project management, and testing tools for ensuring code quality. The mention of an online interface accessible through various devices, including mobile and browsers, suggests a need for a responsive web design. Furthermore, the integration with the DMV for regulatory updates and the emphasis on security compliance necessitate the implementation of robust security measures, including firewalls, encryption, and secure authentication protocols. In terms of infrastructure and network, cloud services are highlighted for scalability and flexibility, indicating a potential cloud-based deployment model. The system design needs to be carefully designed to meet the demands of a web-based, responsive, and secure platform, with a focus on performance, adaptability, and compliance with regulatory standards.