# CS 255 System Design Document

Noah Stubbs

## UML Diagrams

*(Diagrams are inserted as .jpeg’s for aesthetic benefit but are also embedded as .PDF’s if additional clarity/zoom/functions are required)*

### [A diagram of a diagram AI-generated content may be incorrect.](Use%20case%20diagram.pdf)UML Use Case Diagram

### [A diagram of a diagram AI-generated content may be incorrect.](Driving%20Lesson.pdf)[A blue and yellow diagram AI-generated content may be incorrect.](Activity%20diagram.pdf)UML Activity Diagrams

### *[A diagram of a diagram AI-generated content may be incorrect.](Sequence%20diagram.pdf)*UML Sequence Diagram

### [A diagram of a diagram AI-generated content may be incorrect.](UML%20class.pdf)UML Class Diagram

## Technical Requirements

Hardware Requirements

|  |  |
| --- | --- |
| Client Devices | All students, instructors, and administration personnel will need access to a computer, tablet, or smartphone with an internet connection and modern web browser. |

Software Requirements

|  |  |
| --- | --- |
| Web Application Framework | A backend framework (e.g. Node.js, Django) for user authentication, scheduling, testing, and role-based actions. |
| Responsive Frontend | A modern JavaScript-based frontend to support users across most platforms. |
| Relational Database Management System | Cloud-hosted RDBMS (e.g. MySQL) to store structured data (see class diagram) like users, lessons, and vehicles. |

Infrastructure Requirements

|  |  |
| --- | --- |
| Third-Party Hosting Provider | System hosted by a third party service (e.g. AWS, Azure) to support scalability and uptime. |
| Automated Backup Services | Third party backup and disaster recovery services integrated to preserve critical system data and/or restore from back-ups if needed. |
| Role-Based Access Control | Users can only access permitted features; steps to achieve this in both the frontend and backend. |
| Secure Communications | All traffic secured using HTTPS and TLS encryption. Passwords hashed. Sensitive operations (e.g. payments) require elevated security. |
| Notification Integration | Alerts, appointment reminders, and updates sent to users via email or in-system notifications. |