# CS 255 System Design Document

## UML Diagrams

### UML Use Case Diagram

A diagram of a system

Description automatically generated

### UML Activity Diagrams

A diagram of a phone

Description automatically generated

### A diagram of a project Description automatically generated

### UML Sequence Diagram

A diagram of a project

Description automatically generated

### UML Class Diagram

A diagram of a program

Description automatically generated

## Technical Requirements

**Hardware:**

**Web Servers:** Required for hosting the online training, practice tests, and scheduling system.

**Backup Servers:** For regular backups, ensuring data reliability.

**Workstations:** For company owner, IT officer, secretary, and other internal staff to manage operations and handle reservations.

**Software:**

**Database Management System (DBMS):** Required to store customer information, class details, test scores, appointments, and package details.

**Web Server Software:** For example, Apache or Nginx to facilitate the web interface.

**Cloud Service:** To host the application ensuring accessibility from anywhere.

**Encryption Software:** To ensure secure transactions and protect sensitive customer information.

**Content Management System (CMS):** To manage online driver training content and practice tests.

**Integration Middleware:** For interfacing with DMV's database to stay compliant and updated with rules.

**Tools:**

**Version Control System:** For example, Git, to track changes and ensure collaborative development.

**Continuous Integration/Continuous Deployment (CI/CD) tools:** To automate the deployment process ensuring swift and smooth updates.

**Project Management Tools:** Such as JIRA, for tracking progress, tasks, and goals.

**User Interface (UI) and User Experience (UX) Design Tools:** Such as Adobe XD or Figma for designing the web interface.

**Testing and QA Tools:** For both manual and automated testing of functionalities and UI/UX.

**Infrastructure:**

**High-Speed Internet Connection:** Ensuring uninterrupted service and access to the cloud.

**Secure Firewall:** For protecting against potential cyber threats.

**Load Balancers:** To efficiently manage incoming traffic, especially during peak hours or high-demand periods.

**Backup and Recovery Solution:** To ensure data integrity and availability in case of unexpected incidents.

**API Gateway:** To manage connections, especially if considering integrations with DMV or other third-party services.

**Security:**

**User Authentication & Authorization:** Implementing role-based access controls to differentiate between company owners, IT officer, secretary, and customers.

**Data Encryption:** Especially for payment and personal information.

**SSL Certificate:** Ensuring secure browsing and protection against man-in-the-middle attacks.

**Regular Security Audits & Penetration Testing:** To check vulnerabilities in the system.

**Integration:**

**DMV Database Interface:** A secure API or middleware for real-time updates from the DMV about rules and notifications.

**Payment Gateway Integration:** For processing payments when customers purchase driving lesson packages.