# CS 255 System Design Document Template

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## UML Diagrams

### UML Use Case Diagram

### A diagram of a network Description automatically generated

### UML Activity Diagrams

*A diagram of a student login

Description automatically generated*

*A diagram of a test

Description automatically generated*

### UML Sequence Diagram

*A diagram of a system

Description automatically generated*

### UML Class Diagram

*A diagram of a lesson

Description automatically generated*

## Technical Requirements

**Hardware Requirements:**

* **Dedicated Server**: The system needs to be hosted on a reliable, dedicated server to ensure that both the website and database function without interruptions.
* **Stable Internet Connection**: A strong and consistent internet connection is essential so students, instructors, and administrators can access the platform at all times without delays.
* **Sufficient Storage**: Adequate storage is required to manage and store user data, lesson schedules, practice test results, and other important records.
* **User Devices**: The system should be accessible via desktop computers, laptops, or mobile devices, providing flexibility for users to log in and use the platform from anywhere.
* **Firewall Protection**: A firewall is essential to prevent unauthorized access and protect the system from external threats, ensuring a secure environment.

**Software Requirements:**

* **Windows Server**: Using Windows Server provides a stable environment for both the website and database, allowing for seamless integration and support.
* **SQL Server**: This is recommended for managing the system’s database, including student data, lesson bookings, progress tracking, and practice test results.
* **Backup Software**: It's critical to have a reliable backup solution in place to regularly save and restore data in case of any system failures.
* **Apache Web Server**: This will serve as the web hosting platform for users to interact with the system, ensuring fast load times and stability.
* **Security Software**: Implementing robust security software is key to defending against malware, hacking attempts, and other cyber threats that could compromise data integrity.

**Geographic Considerations:**

* **U.S.-Based Accessibility**: The website needs to be optimized for access by users primarily located in the United States, ensuring compliance with local regulations and user expectations.
* **Secured Data Center**: The server and database should be hosted in a highly secure data center to protect sensitive user data and ensure the system is resilient against physical and cyber threats.

**Centralized Server Location**: To minimize latency and maximize performance, it’s ideal to host the server in a central location that optimizes response times for users across different parts of the country.