# CS 255 System Design Document Template

## UML Diagrams

### UML Use Case Diagram

Diagram

Description automatically generated

### UML Activity Diagrams

Diagram

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### UML Sequence Diagram

Diagram

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### UML Class Diagram

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## Technical Requirements

* The system needs to run in a web-based environment.
* The system will be primarily used for scheduling a driving lessons and taking practice tests, which only requires standard performance. No high-performance tasks like video streaming will be needed, so the standard performance will suffice.
* Since we want users to be able to reserve times for their driving lessons, we only want them to make reservations for times that are actually available, so we want to update the system in real-time so users can see the most current information.
* The web-based application should run on the most common browsers, independent of the operating system being used, so that the system is usable for as many users as possible not only through desktops and laptops, but tablets and mobile devices as well.
* The system server will be cloud-based so that the owners do not have to worry about backup and security. There are different options for the operating system of the servers, most common using Linux or Windows. We will use Linux due to it being the cost-effective, stable option that our developers are already familiar with.
* The back end will require a database to store users and all their information such as logins, quizzes progress, payment information, reserved driving lessons, etc.
* The system will distinguish the different users through authentication. Each user will have a unique username and password login, which will identify them and allow them to view and update their personalized and permitted information.
* The input for passwords should be case-sensitive so we can have secure passwords that require lower-case and upper-case letters. Case-sensitive passwords are more difficult to guess than case-insensitive passwords due to the due to the expanded number of possible combinations.
* The input for user-names can be either case-sensitive or case-insensitive.
* When users forget their passwords or they are locked out of their accounts due to too many incorrect attempts, instead of having to notify the admin to reset the password, the user should be able to automatically reset it.
* The system should allow changes to the user without changing code. For example, new users can be added, removed, modified as needed. Their user’s information should also be changeable. For example, the user should be able to update their contact info, payment info, scheduled driving lessons and other information, all without needed to change the code base.
* The system will adapt to platform updates with regularly scheduled system maintenance, so that the system is continuously updating to the recent updates to browsers, since browsers are constantly changed. This will help the system to continue to be used across multiple browsers, even when these are upgraded.
* The IT admin needs full-access to the system so they can provide support to the other users and make system updates as needed.
* A user-name and password are required for the user to log in.
* The connection between the client and server will use the secure SHTTPS protocol to secure information transmitted. Sensitive information such as credit card information should be encrypted to protect and transmit it securely.
* The system will prevent “brute force” hacking by limiting the number of login attempts of a user, that way the hacking does not have opportunity to try an unlimited number of passwords for a user. Once the number of login attempts is exhausted, the user account will be locked and need to be reset.
* If a user forgets their password, they will have the option to automatically reset their password. Options for resetting can include sending a password-reset link to their registered email, or answering security questions that identify the user.