# CS 255 System Design Document by Paul Kenaga

## UML Diagrams

### UML Use Case Diagram

Diagram, schematic

Description automatically generated

### UML Activity Diagram 1

Use Case: Log In

Diagram

Description automatically generated

### UML Activity Diagram 2

Use Case: Make Reservation

Diagram

Description automatically generated

### UML Sequence Diagram

Use Case: Log In

### Diagram Description automatically generated

### UML Class Diagram

System for DriverPass

Diagram

Description automatically generated

## Technical Requirements

A technical requirement of the DriverPass system is a cloud service provider that will host the web application. This requirement serves to facilitate the maintenance and security of the system. Additionally, making the system cloud-based creates high availability, reduced latency, and scalability. A Windows server provided by the cloud provider will store the base code for the web application. It is important that this hardware is configured properly to optimize the system’s performance. Windows is chosen as the operating system because of ease of use, software compatibility, and familiarity.

The web application will have an interface that consists of multiple web pages. These web pages will include a login page, a page to create and modify an account, a customer homepage dashboard, a page to purchase a package, a page to view online course content, a page to take tests, and a page to make, modify, or cancel a reservation. Multiple databases will be used to store information. One database will be used to store reservations and implement a logging tool to track changes and produce a log report. This log report will be used for the manager’s activity report. The reservation database will also be queried to display the schedule of reservations for a given day. Another database will used to store customer account information, usernames, and lessons. This database will be accessed when a customer creates an account and a driver updates lesson notes. The secretary will also access this database when they make reservations or update accounts on behalf of a customer. Two separate databases will be used to store passwords and payment information. These databases will have extra security that includes a checksum to hash sensitive data and adhere to regulations.

Customer Relationship Management (CRM) software will be integrated into the system to enable functional requirements like automatic password resets and customer support provided by the secretary. The Driver will use the CRM tool to update lesson notes for customers. If the DMV has a mailing list that send emails out for new rules, policies, and sample questions, then the email addresses for the manager and IT Officer should be placed on it. The manager may decide on content changes, but the IT Officer is responsible for updating the system; therefore, they should both be notified. In lieu of or addition to a mailing list, a Python script can be created to monitor the DMV website for changes and push a notification to the manager and IT when one is made .

Role-based Access Controls (RBAC) that follow the principle of least privilege will be used to distribute functionality among users. Multi-factor Authentication (MFA) will be used to secure the roles for the manager and IT Officer through either SMS or a physical code generator tool. This requirement will allow the IT Officer to access and modify the system and content when updates are needed and for the manager to access activity reports created by the reservation database logging tool.