# CS 255 System Design Document Template

## UML Diagrams

### UML Use Case Diagram

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### UML Activity Diagrams

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### UML Sequence Diagram

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### UML Class Diagram

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## Technical Requirements

The above UML diagrams (use case, activity, sequence and class diagrams) have been created for DriverPass to exhibit both object and process modeling. The use case diagram displays all six users that the system requires for basic functionality, being the student, the administrator, the secretary, the driving educator, the classroom educator, and the DMV database. This displays functionalities for the course registration, driving lesson registration, driving test practice work, notes on student progress, data logs, and account maintenance.

The activity diagram illustrates the processes of logging into the account and scheduling a drive time. When logging into the account, the system has a safeguard in effect if the student enters their single user authentication incorrectly. After a set number of times, the account will be locked. As shown in the use case diagram, only the secretary and the administrator can unlock the student’s profile manually once authentication has been completed. The scheduling drive time activity diagram exhibits a similar scenario, where the system verifies if the drive slot chosen is currently available. When available, the student can book it, and the student and driver both receive confirmation of that time slot, as well as both of their user profiles being updated. Similarly, the sequence diagram illustrates the student booking a drive time and uses and If/Else clause to display the systems response to a time that is available as well as a time that is unavailable.

The class diagram establishes the different classes of users within the DriverPass system and their attributes. The users of the system include the student, the driver, the administrator, and the secretary. Automated users such as DriverPass database and the DMV database were not included in this, as they do not have roles or relationships. In addition to their relationships and core function, the user capabilities are indicated through their abilities such as booking and cancelling lessons and roles related to user management.

The necessary technical requirements for the DriverPass system include a system that can run off a multitude of devices being handheld or desktop computers through internet access. The system must have the ability to be run across different platforms, such as Windows, Linux, iOS, and Android, etc. Encrypted communication between the users and the systems along with single user authentication provides security that only authorized users are accessing the system. Data encryption shall be instilled to safeguard any potential data breaches and loss of information, thus in the event of an attack on the infrastructure, the information obtained is unreadable. Assigning roles and responsibilities through strict access or authorized controls ensures relativity to the users’ capabilities. The user can securely change things within their own user profile, including the password to further guarantee that they are the only person prohibited to use their single user authentication credentials. Through monitoring and logging data logs, the administrator shall review security incidents and activities regularly to monitor the need for increased security efforts.