# CS 255 System Design Document Template

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## UML Diagrams

### UML Use Case Diagram

*This diagram represents the use cases of the DriverPass System. Starting with the Student actor, the student must register or login to access the rest of DriverPass services. If login or student account has issues, the IT admin will be able to support the account. Once the student has access to the site, they will be able to choose between the 3 main services that DriverPass will provide. This pathway will be represented with the yellow color, other actors may be involved but the student actor will be the primary and targeted user of these use cases. The blue color represents the admins abilities and support to the numerous features and functionalities with the system. The red color represents additional key aspects that support the system. The DMV will provide updated policies throughout all content and aspects of the site. The instructor will be heavily involved with on-the-road sessions and can leave comments for the student to analyze.*

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### UML Activity Diagrams

*The two use cases I depicted was Taking practice test and taking an on-the-road session. These are two core services that DriverPass offers. In both use cases, the user must first access the DriverPass system which requires a valid login. The login can either be successful, failed or denied. Failed means that the credentials exists however there is issues with validation, Admins or further validation will grant access and the system will continue. Denied means the login has not been registered or the admin has blocked access in which case the use case will end. The two use cases differ once the user gets to the site. Within the practice test use case the system will validate if the content is complaint with the local DMV’s laws, regulations and policies. If it is not validated, the system will update promptly. The user will then proceed to take the test. The results and activity will be reported to DriverPass admins and test results will be generated. All wrong answers should carry explanations and can be reviewed. For the On-the-road session the admin will manage the 3 available packages if necessary. The user will then schedule a session based on the package, time and instructor chosen. If a reschedule is needed for whatever reason the user can choose a new session based on time and instructor. If reschedule is not chosen and session is canceled, the system will report the activity to the admin and the use case will end. Otherwise, the use case will proceed as normal where the session is completed, instructor leaves feedback and reports are generated.*

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### UML Sequence Diagram

*The use case depicted here is the Practice test. There is 4 objects involved with this use case. The user who is the primary user for the use case, DriverPass site to represent the delivery of the test and interactions of the user, IT admin to represent the backend and support, DMV to verify and update compliance to local DMV rules, regulations and policies. It begins with the student logging in which leads to an if-else statement. If credentials are invalid additional exchanges take place to grant access. Next the DriverPass object will send information about the test content, which will then be sent to the DMV to validate its contents compliancy’s. If it is not compliant the DMV will send its updated changes. From here the user can take the test and reports sent to admins and generated.*

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### UML Class Diagram

The student class holds attributes about the student’s information and profile. This will be where the student logins or registers for their account. Payment class is dependent on the student class. The DriverPass Site class holds a compositional relationship to the student class and will be the way the user will access DriverPass’s services. The DriverPass Site class will hold attributes that will be displayed in the interface or hold relevant data that will influence the numerous services. The services are represented with their own respective classes. Practice Test, Online Courses and On-the-road Sessions. They all hold their own relevant attributes. These classes all have a compositional 1 to many relationship with the DriverPass site class. The instructor class holds an inheritance relationship with the on-the-road session class. The instructor will hold attributes that will aid the on-the-road service. The DMV has an inheritance relationship with the DriverPass system to represent the class’s dependency on some of the attributes in the DriverPass Site class. The DMV has a relationship with the IT Admin which then holds a direct relationship with the student and DriverPass. The admin will support user profiles, manages all services, download tracked reports and maintain DMV compliance integrity.



## Technical Requirements

*Devices must be connected to the internet to access the DriverPass system. The system was not designed to be accessed or operate properly in offline conditions. The system is web-based and not application-based. Devices and hardware must be modern and must be able to run recent versions of modern operating systems. Older operating systems may have issues with accessibility and performance, these issues are not accounted for with these diagrams. The IT admin will require many back-end tools to achieve their many responsibilities within this system. Cloud services and tools will be needed. These diagrams hint at database being rapidly accessed but not created and stored directly into the system. Numerous scripts and coding IDE’s and other tools are necessary for many of the non-functional requirements within the system. IT admins will be primarily responsible for these tools. Front-end tools will be responsible for many interface functions and displaying for the user. SSL’s, server deployment tools, etc., are all tools that can greatly benefit the system and aid in maintaining the systems integrity and performance.*