# CS 255 Business Requirements Document

## System Components and Design

### Purpose

* This project is for our client, DriverPass. The purpose of this project is to offer DriverPass’ customers an online platform in which they can access practice exams and make appointments for on-the-road training with verified DriverPass drivers to better prepare for driving tests.

### System Background

* Taking into consideration the number of people who fail their driving tests at their local Department of Motor Vehicles (DMV), DriverPass feels there is a lack of available resources for students. DriverPass plans to take advantage of this void in the market by offering better driving training through online practice exams and on-the-road driving appointments. Specifically, the different components needed for the system to meet DriverPass’ needs are:
* The system must be cross-platform. The data should be able to be accessed across various types of devices, such as mobile and PC. As long as they have a stable internet connection, the user should be able to access account data from virtually anywhere, at any time.
* The system should be designed in a cloud-based web environment as this type of architecture will handle backup and security for the program, in turn allowing DriverPass to focus more of its attention on customer needs and the business itself.
* The system will provide customers with online practice exams and ways to schedule on-the-road training appointments with DriverPass drivers.
* The system will provide the users with ways to track their progress with practice exams and appointment history.
* The system will be directly connected to the DMV so DriverPass can be automatically updated with new rules, policies, or sample questions for exams.

### Objectives and Goals

* The DriverPass system will provide the user with the following functions:
* Access to the system from various types of devices (mobile devices and PCs).
* Ability to automatically re-set account password.
* Ability to take online practice exams and track progress.
* Ability to view and purchase on-the-road training packages offered by DriverPass.
* Ability to create, modify, or cancel on-the-road appointments with DriverPass drivers online or by calling DriverPass HQ.
* Ability to view on-the-road training history with driver notes from each appointment.
* Ability to download reports and track record changes (depending on system role).
* Ability to disable on-the-road training packages (depending on system role).

## Requirements

### Nonfunctional Requirements

#### Performance Requirements

* DriverPass needs to run in a web-based environment. A web-based environment will allow DriverPass users the ability to access the system across various types of devices (PCs, mobile devices, etc.) from anywhere they have a stable internet connection; this means users will be able to access the system on-the-go or from the comfort of their home. The web-based system will also need to run over the cloud, this way back-ups and security are already taken care of for the DriverPass admins and they can instead focus their efforts on the business itself.
* To ensure a good user experience, the DriverPass system needs to run and process requests very quickly. Many users accessing the system and its resources simultaneously can usually slow it down, however, since the DriverPass system will run over the cloud, it will already be equipped to handle a large number of system requests and can easily be adjusted or scaled to accommodate more users as the business continues to grow.
* Automatic updates are another advantage of utilizing a cloud-based architecture. With regular updates and system backups, the DriverPass team can be rest assured that their system is up-to-date and free from any potential bugs or security threats. DriverPass will also need a direct connection to the Department of Motor Vehicles (DMV) to ensure the rules, policies, and sample questions shared throughout the system are accurate. DriverPass will most likely establish this connection through a secure cloud API.

#### Platform Constraints

* DriverPass should be cross-platform and run on all commonly used operating systems:
* Windows
* Mac
* Linux
* Unix
* Android OS (mobile)
* Apple OS/iOS (mobile)
* To support this application, the system’s back end will require a customer database to store and keep track of user information. Not only will DriverPass need to store the information of its students, but for legal reasons, they will also need to keep records for their DriverPass driving instructors.
* The system’s back end may also benefit from the use of a cloud reporting tool. Cloud reporting tools, which are usually subscription based, will give DriverPass’ management greater insight into how the system is being used. Cloud reporting can identify patterns in data, monitor the system’s performance, and ultimately, help inform business decisions.

#### Accuracy and Precision

* To distinguish between the different users in the system, each person should have their own personal account complete with unique login credentials. The login credentials would include an email address and account password.
* The input for login credentials needs to be case-sensitive as this will enforce account security and that only the account’s rightful owner can access its data.
* DriverPass’ admins should be informed by the system when a user has reached the maximum number of failed attempts to log in to their account.

#### Adaptability

* The DriverPass system will need to be updated when there are changes to the DMV’s rules, policies, and sample questions as well as when Liam, DriverPass’ owner, decides to add or remove driving packages. Because the system will be cloud-based, modifications to the system will be easier to make and updates will take much less time to complete. Another advantage of using a cloud computing architecture is if changes made to the system are unsatisfactory, it can easily be restored to its previous version.
* DriverPass’ IT officer, Ian, will need full access to all user accounts and the system permissions to add, remove, or modify users. He is also responsible for modifying and maintaining the parts of the system not handled by the cloud provider.

#### Security

* For the user to log in, it will be required that they enter the login credentials (email address and password) associated with their personal DriverPass account. In addition to the password being case sensitive, an SSL connection will be established to secure the connection and data exchange between the client and the server. The SSL connection will be supplied by the cloud provider and will work by encrypting and decrypting the information and communications exchanged between the client and the server.
* To protect against “brute force” hacking attempts, the system will lock the user out after a certain number of failed attempts to log in.
* If the user forgets their password, there will be an option to automatically reset it. To reset their password, the user will click a button stating something along the lines of, “forgot my password” and a link to reset it will be sent to the email address registered to their account.

### Functional Requirements

* The system shall prompt a new user to create an account and a returning user to login to their existing account.
* The system shall validate user credentials when logging in.
* The system shall provide an option for the user to reset their password to their DriverPass account should they have trouble logging in.
  + If the user selects the option to reset their password, the system shall send them a link to do so to the email address registered to their account.
* The system shall allow the user to complete online practice exams and the ability to track their progress.
* The system shall allow the user the ability to view and purchase any of the on-the-road training packages offered by DriverPass.
* The system shall give the user the ability to create, modify, or cancel appointments with DriverPass’ trained driving instructors either online or by calling DriverPass HQ directly.
* The system shall give the user the ability to view their on-the-road training history and driver notes from each appointment.
* The system shall offer the ability to download reports and track changes to DriverPass records. Access to this functionality and data will depend on the user’s role within the system.
* The system shall offer the ability to add or disable the on-the-road packages offered by DriverPass. Access to this functionality will depend on the user’s role within the system.

### User Interface

* The interface should be intuitive and easy to navigate for all users. The different users for the DriverPass system would be their management, trained driving instructors, and customers.
* Each user will be assigned a role within the system that comes with its own unique set of permissions, detailing what they can or cannot do.
  + DriverPass’ owner, Liam, and possibly some other employees in management will need to be able to pull reports, track user records, and modify the available driving packages.
  + Ian, DriverPass’ IT officer, will need full access to all user accounts and the ability to add, remove, or modify users.
  + DriverPass’ secretary will need to be able to view, create, and modify on-the-road appointments between customers and DriverPass’ driving instructors.
  + DriverPass’ drivers will need to be able to view upcoming appointments between themselves and DriverPass customers as well as the ability to leave appointment comments.
  + DriverPass customers will need the ability to create or delete an account, reset their password should they forget their login credentials, take online practice exams and track progress, view, and purchase on-the-road driving packages, create and modify on-the-road driving appointments with DriverPass driving instructors, view driving instructor’s comments from appointments, and the ability to contact DriverPass HQ directly for any questions or concerns.
* Users will interact with the interface through various types of devices, such as personal computers or mobile devices. Since the system will run over cloud, DriverPass can be accessed via any device or platform as long as the user is connected to the internet.

### Assumptions

* The users are all geographically located within the same area. If this is not the case, DriverPass will need to ensure the DMV info they provide is up to date for each individual area they serve as driving laws may differ depending on state.
* DriverPass’ management and development team are already familiar with cloud-based architectures. Although cloud-based systems can be cost-effective and easy to maintain, transferring everything over from a traditional structure may be time-consuming and initially complex.

### Limitations

* The project is expected to be completed within about four months (end of January – beginning of May), however, as noted above in the assumptions, moving data over from a traditional structure to a cloud-based architecture can take a little bit of time and may cause a delay in the project’s expected completion date.
* DriverPass has not shared their budget. It would be important to have this information before starting work on this project as it will dictate which cloud services can be used to build and design the system.

### Gantt Chart

A colorful rectangular object with text

Description automatically generated with medium confidence

(For a better view, Gantt Chart is also attached as PDF to project submission)