# CS 255 Business Requirements Document

## System Components and Design

### Purpose

*What is the purpose of this project? Who is the client and what do they want their system to be able to do?*

* The client is DriverPass.
* The purpose of the project is to better prepare drivers for the exams at the DMV.

### System Background

*What does DriverPass want the system to do? What is the problem they want to fix? What are the different components needed for this system?*

* The problem is that too many drivers are failing their DMV exams.
* DriverPass wants to create a training program to better prepare drivers for these exams.
* The system will need a web interface for users to create an account and schedule training sessions.
* The web interface will need to be supported by a database that stores user information.

### Objectives and Goals

*What should this system be able to do when it is completed? What measurable tasks need to be included in the system design to achieve this?*

* Allow users to register for the service
* Allow users to edit profile information
* Allow users to choose from one of three training packages
* Allow users to schedule, modify, or cancel on-the-road training sessions
* Display user progress through the course
* Let users view data offline and edit data while online
* Allow users to reset their password through an automated system
* Allow administrators to edit and update user data
* Allow administrators to download reports for offline use
* If customer has selected the top-tier package, allow user to take online practice exams

## Requirements

### Nonfunctional Requirements

*In this section, you will detail the different nonfunctional requirements for the DriverPass system. You will need to think about the different things that the system needs to function properly.*

#### Performance Requirements

*What environments (web-based, application, etc.) does this system need to run in? How fast should the system run? How often should the system be updated?*

* This application will be web-based.
* The client would like the application to work on desktop and mobile devices.
* The system needs to be responsive enough to keep users engaged.
* The system should be updated whenever there is a DMV rule change, data should be updated whenever a user makes a change or completes a practice test or training session.

#### Platform Constraints

*What platforms (Windows, Unix, etc.) should the system run on? Does the back end require any tools, such as a database, to support this application?*

* The client would like the system to run on a cloud platform.
* The application would require a database to store user information.

#### Accuracy and Precision

*How will you distinguish between different users?* *Is the input case-sensitive? When should the system inform the admin of a problem?*

* Users would have separate accounts with distinct usernames and passwords.
* The system should provide immediate notification of critical errors.
* The system should allow the administrators to pull logs of non-critical errors as needed.

#### Adaptability

*Can you make changes to the user (add/remove/modify) without changing code? How will the system adapt to platform updates? What type of access does the IT admin need?*

* Users would be able to modify their profile without changing code, entries in the back end’s database would be updated to reflect user changes.
* Administrators would also be able to make changes, with entries reflected in database.
* Code may occasionally need to be refactored/updated to adapt to changes in web browsers/user hardware.
* Administrators would need access to the back end and database to make changes and perform maintenance.

#### Security

*What is required for the user to log in? How can you secure the connection or the data exchange between the client and the server? What should happen to the account if there is a “brute force” hacking attempt? What happens if the user forgets their password?*

* Each user must have a unique username and password.
* The application should use standard SSL encryption to keep data exchanged private.
* User accounts should be locked/user passwords should be reset after a set number of failed login attempts.
* User should be able to use an automated system to reset their password if they forget it.

### Functional Requirements

*Using the information from the scenario, think about the different functions the system needs to provide. Each of your bullets should start with “The system shall . . .” For example, one functional requirement might be, “The system shall validate user credentials when logging in.”*

* The system shall validate user credentials
* The system shall lock the user’s account or change the user’s password after multiple failed login attempts
* The system shall allow the user to reset their password
* The system shall update course progress/scores after user completes a session/exam
* The system shall allow the admins to update the database
* The system shall show user available drive sessions
* The system shall let the user schedule a session
* The system shall let the user modify a scheduled session
* The system shall let the user cancel a scheduled session
* The system shall let the admins schedule a session on a user’s behalf
* The system shall alert the admins of critical errors
* The system shall generate error logs for the admins to download
* The system shall inform users and admins of DMV rule changes

### User Interface

*What are the needs of the interface? Who are the different users for this interface? What will each user need to be able to do through the interface? How will the user interact with the interface (mobile, browser, etc.)?*

* The user interface will display a user’s course progress/test results.
* The user interface will display available appointments.
* The user interface will let the user schedule, modify, or cancel an appointment.
* The different types of users for this interface will be: customer users, admins, and potentially drive instructors.
* Users will need to be able to use the interface to book appointments and view progress.
* Admins will need to be able to view error logs, modify user data, and schedule appointments on users’ behalf.
* If instructor-type users are implemented, instructors will need to be able to submit customer user test results and update users’ course progress.
* The interface will need to allow users to interact on either mobile or desktop devices.

### Assumptions

*What things were not specifically addressed in your design above? What assumptions are you making in your design about the users or the technology they have?*

* I am assuming the users will have access to a modern web browser, either on their desktop computer or mobile device.
* I am assuming that the users will have existing email accounts.
* I am assuming that there will be some way for the back end to interface with the DMV’s systems to track rule changes.

### Limitations

*Any system you build will naturally have limitations. What limitations do you see in your system design? What limitations do you have as far as resources, time, budget, or technology?*

* DrivePass is a fairly small company, so budget is on the lower side.
* DrivePass has opted for a cloud platform, so there will be a lesser degree of control over the hardware and operating system the software runs on.
* There isn't really a way to know in advance when or if the DMV will implement a rule change.
* It’s impossible to make a web application that works with every single browser. Each browser uses a slightly different web implementation, so code will need to be robust to be widely compatible.

### Gantt Chart

*Please include a screenshot of the GANTT chart that you created with Lucidchart. Be sure to check that it meets the plan described by the characters in the interview.*

