# CS 255 Business Requirements Document

## System Components and Design

### Purpose

* Client: DriverPass, a company that provides training for students before their driving tests. They want to provide practice tests and driving lessons to students.
* People often fail their driving tests at the DMV due to lack of proper training. DriverPass wants to offer online classes, take practice tests, and on-the-road lessons.
* DriverPass wants to help students pass their DMV tests more readily.
* Purpose: Access DriverPass information from anywhere. Manage lesson reservations from the DriverPass side. Allows students to manage their own lesson reservations. Allows students to practice written tests and track their progress.

### System Background

* DriverPass wants this system to allow customers to make, modify, and cancel appointments.
* The administrators’ side of the system should be able to view, make, modify, and cancel appointments as well.
* The client side of the system will be run on Windows computers.
* A database to hold user and reservation information will be hosted on a server.
* The system will connect to the server and the database over an internet connection.

### Objectives and Goals

* The system will provide users with the following functions:
  + Register as a customer
  + Purchase packages
  + Make, modify, and cancel appointments
  + Reset password
  + Practice tests
  + View practice test progress
* The system will provide administrators with the following functions:
  + Make, modify, and cancel appointments
  + View who made, modified, and cancelled appointments
  + Print out reports of appointment modifications
  + View which drivers and which cars were used for different appointments
  + Disable the purchasing of particular packages
  + Reset passwords
  + Administrators will be notified if the local DMV has an update in their rules, policies, or sample questions

## Requirements

### Nonfunctional Requirements

#### Performance Requirements

* The system should be an application that connects to the web.
* The time it takes for a user to connect to the system should not exceed 3 seconds.
* The system should run quickly even with multiple users connected to the system.
* The system should be updated when a user makes any change to data in the system.

Rationale: DriverPass wants to easily access the system from anywhere. An application allows information to be stored locally if Internet connection is lost. The application can then update the system once the connection is restored. The system should be cloud-based, and multiple users might be connected to the system at one time. The system should not slow down due to multiple users. Any change that a user makes to data within the system should be pushed to the cloud immediately.

#### Platform Constraints

* The system should run on Windows.
* The system should also run on smartphones, including iPhones and Android phones
* The system should be connected to a database, which holds user information and reservation information. APIs will be needed to connect to the database.

Rationale: The system will run on laptops and personal computers. Memory isn’t limited due to this, but memory use should be monitored. A database is efficient in holding user and reservation information, and a cloud-based server with the database will allow users to access the system from anywhere.

#### Accuracy and Precision

* The system should distinguish customers from administrators and receptionists. The system should do this by assigning roles to users. A user who registers a new account should automatically be assigned the customer role.
* Input for passwords should be case sensitive. Emails, which should be used as part of a user’s credentials, are not case-sensitive.
* The system should inform the admin of a problem when the problem happens. An email should be sent and a notification should pop up the next time an admin logs in.

Rationale: Accuracy and precision include distinctions between users, input validation, and when an admin should be notified of problems. Referencing the DriverPass transcript, the system should have “customer” users, “system administrator” users, “IT administrator” users and “receptionist” users. Roles should be assigned to users through the back-end, and the system will be able to differentiate between types of users using those roles. Admins should be notified of problems as soon as possible. Ideally, an admin will be logged in and see a notification, but, if no administrator is logged in, emails are a secondary way of notifying administrators.

#### Adaptability

* The system should allow administrators to make changes to users from within the application.
* The system should adapt to weekly updates received from Microsoft and Apple as they are released.
* The system should notify administrators when the DMV has an update or change.
* IT administrators should see the system from the administrator side. They should not have the ability to make changes to the user, but they should be able to see system and user information.

Rationale: Administrators will need to add new users when customers call to register. They might need to delete users if an employee is let go. Allowing administrators this kind of access is easier than manually changing access in code. The system should also be built to adapt to platform updates to prevent the application breaking each time there is an update. IT administrators need to see the system, but they shouldn’t have the same access as system administrators, since IT administrators only need to maintain and modify the system, not the users.

#### Security

* A user can log in with an email and password. After 5 incorrect tries, the system will lock the user’s account. The user may retrieve their account by verifying their identity with an administrator (would this amount of security be necessary?)
* The system should allow the user to reset their password by entering their email.
* The data should be encrypted when coming from the server and when coming from the client.
* The system should protect credit card information.

Rationale: The data in the system includes personal information, including credit card information, which is the most sensitive piece of data held in the system. To protect customers’ information, the system should prevent users from seeing the entire credit card number. Guidelines for securing credit card information should be referenced.

### Functional Requirements

* The system shall validate user credentials when logging in.
* The system shall show customers options to view, make, modify, and cancel their own reservations.
* The system shall show administrators all reservations.
* The system shall offer practice tests to customers.
* The system shall track changes to reservations, including who made the change and when it was changed.
* The system shall print out a report containing changes to a reservation.
* The system shall provide different packages for customers to buy.
* The system shall present administrators options to disable purchase packages.

Rationale: Customers need to view their reservations. They also need to have the ability to change them. Administrators should be able to see customers’ reservations and changes made to them. DriverPass also wants to offer practice tests for customers, so those should be included. There are different packages, and the system should offer a way for administrators to disable packages if they don’t want customers registering for it anymore.

### User Interface

* The interface will be in a windowed application on a computer screen.
* The system will take input from the user’s keyboard and trackpad/mouse
* The interface will show customers a list of their reservations, their testing progress, and options to make/change reservations.
* The interface will show admins options to view all of their customers' information and their reservations. Admins will also have an option to view non-customer users, such as IT administrators, and make changes to the user.
* A separate page should be shown for both admins and customers to create a new customer user. This will be a form to collect customer information.

Rationale: Customers only need to view their own information, but administrators will need to have access to all their customers’ information. Creating a new customer account should share the same page to prevent redundancy.

### Assumptions

* Users have consistent access to internet
* Users have a working computer with a screen, a keyboard, and a trackpad/mouse

Rationale: The system needs consistent internet to stay up to date. A user also needs a working computer to interact with the system.

### Limitations

* *The system cannot update unless the device is connected to the internet.*
* *The estimated timeline for the project is about 15 weeks.*
* *The development team has five people.*

Rationale: A user can work offline temporarily, but some functions, such as viewing available times for reservations, might not work while offline. The system will eventually need to connect to the internet for any data to change. Based on the DriverPass transcripts, the project’s timeline is 15 weeks, and the team consists of five developers.

### Gantt ChartCS 255 Module 4 Gantt Chart.png