# CS 255 Business Requirements Document Template

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## System Components and Design

### Purpose

* Client DriverPass wishes to provide both online and practical driving lessons and wishes to build an online portal system to handle the logistics of booking client reservations and providing online classes.
* The client wishes to use DMV resources to create online courses and practice tests that clients can then log in and take from anywhere, on a computer or mobile device.
* The client would like to offer two-hour practical lessons reserved of their ten available cars and ten available driving instructors.

### 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?*

* Client DriverPass seeks to fill a void in new driver education. They wish to provide training and practical classes to improve the pass rate of new drivers taking their driving tests.
* DriverPass wishes to have a user hierarchy for managing the system, allowing the company to make modifications and updates to certain aspects of it, like packages and reservation details.
* A CMS (content management system) is necessary to provide a segregated content system that will allow content distribution to specific clients while also storing their information in an associated database
* A CMS will allow modifications without requiring the client’s administrators to make adjustments to technical source code.
* DriverPass would like clients to be able to register as well as purchase different packages depending on the level of support needed.
  + These packages shall include online coursework and an online portal within which a student can use to check their progress and appointments.

### Objectives and Goals

* The system shall have a registration system the collects their clients’ information, including first name, last name, address, phone number, state, credit card information, pick-up location, and drop-off location.
* The system shall be cloud-based and online, with backups and security handled automatically.
* The system shall be served by a Content Management System to provide a functional backend for administrators and frontend for client users.
* There shall be a hierarchy of users: Admin with all rights, IT Officer with read/write access, Secretary with the ability to add users and create/modify reservations, as well as a student role who can log in, change their password, take online classes, and view their portal.
* The system shall track the modification of client reservations.
* Reservations should be made for DriverPass’s 10 cars and 10 drivers.
  + Reservations are in two-hour time blocks.
  + Cars and drivers shall be reservable for those two-hour time slots without conflict.
  + Secretary shall be able to add and modify reservations.
  + Clients shall be able to book reservations online while logged into their account.
* Clients shall be able to register online for one of three packages, depending on their needs.
* Clients shall be able to see the status of their appointments and training via an online portal.
* Clients shall be able to reset their account password as needed.
* The interface shall be web-based, and online, but should have exportable reports for business use only.
* The user portal shall show the status of classes, reservations, grades, etc.
* The application shall notify DriverPass when the DMV changes their rules, policies, or sample questions.
* The interface shall be browser-based and shall work on both desktop and mobile platforms.

## Requirements

### Nonfunctional Requirements

#### 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?*

* The platform shall be web-based and supported by all modern browsers on all major platforms.
* The platform shall be fast enough to serve content and lessons without any distinguishable performance loss on the client’s side.
* The lessons shall be served in a video or slideshow format that has high reliability and support from all browsers.
* This system should be updated as needed to reflect changes in DMV content and rules.
* The content of the system shall be editable, with content updates pushed immediately.
* Client information shall be editable by all users with appropriate permissions using a back-end CMS interface.
* The system shall have little downtime and shall be accessible at all times of the day.

#### Platform Constraints

* The platform shall be served by a browser-based Content Management System.
* Due to the system’s browser-based nature, it will be available on all platforms running modern browsers, including Windows, MacOS, and Linux distributions.
* The platform shall use a database that maintains customer records and information, indexed by unique ID.
* This database shall also store appointment information so that information can be accessed by both clients, drivers, and platform administrators.
* This database shall be editable by a back-end CMS system for ease of modification by DriverPass’s secretary and IT personnel.

#### Accuracy and Precision

* Each user shall be assigned a unique ID to distinguish them within the system’s databases.
* Each user’s unique ID shall be associated with a unique e-mail address and user password that will be used for login verification.
* All customer data shall be verified by third party API.
  + Client’s home address should be verified by Address Verification Web Service
  + Credit/Debit card information should be verified by Payment Account Validation API
* User inputs shall be case-sensitive and verified to ensure proper entry. Clients will be notified of invalid entry upon form submission.
* Administrators should be notified if customer information is detected as incomplete or invalid.

#### Adaptability

* The system shall utilize a back-end Content Management System that allows specific admin users to be able to add, remove, and modify content from the browser without having to make edits to system code.
* The back-end Content Management System shall only be available to users with specific permissions established in the system code, gated by login credentials.
* Platform updates shall be seamless, tested on a production server, then pushed to only replace edited components.
* IT administrators shall have permissions to edit provided content and package information, including reservations as needed to fix conflicts.

#### Security

* Each user shall have a unique ID, but also a system e-mail address and an associated password used to validate log-in credentials.
* If that password is forgotten, the system shall allow the user or admin to reset it by sending the user a reset code to their e-mail address on file.
* If it is not possible for the client to reset their password, they can call DriverPass to have it reset manually by the Secretary or IT-admin.
* In order to prevent brute force attacks, password creation shall be restricted to an established complexity requirement.
* The connection between the browser and system servers shall be encrypted end to end and verified with a certificate.
* The cloud-based hosting platform will handle security, encryption, and back-ups.

### 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.”*

* This system shall create new client users and store their personal information.
* This system shall validate user credentials when logging in
* This system shall serve a user portal based on the user’s log in ID, permissions, and associated database entries
* This system shall generate reports based on user activity.
* This system shall track the modification of client records.
* This system shall enforce a user hierarchy that distinguishes between client users and administrators.
* This system shall associate purchases with unique user IDs.
* The system shall send a notification to administrators when DMV guidelines have been updated.
* The system shall serve a user profile dictated by user identification.
* The system shall store and retrieve client appointment information.

### User Interface

* The user interface shall be browser-based and shall work both on desktop and mobile browsers.
* The system’s servers should be cloud-based, and therefore served by a cloud-based service like Amazon Web Services.
* The client user interface shall offer a portal-like experience where users are able to log in with a user e-mail and password.
* After logging in, clients shall be brought to a portal homepage where information pertinent to them shall be viewable, including the following:
  + Online test progress
    - This includes information about if the test is not taken, in progress, or passed.
  + Driver notes from previous practical classes
  + Lesson appointment information
    - This shall include: Lesson time, Start Hour, End Hour, Driver Comments
  + The client’s personal information
  + Special needs
  + A photo of the driver and student
* In the administrative view of this portal, a form should be available for adding new client information, such as: first name, last name, address.
* There shall be a “Contact Us” page so that clients can contact DriverPass.

### Assumptions

* Because the client wishes the system to be cloud-based, it will be served by a cloud-based service like Amazon’s Web Services.
* We assume that all team members of DriverPass will have access to a modern personal computer or mobile device as well as a stable internet connection.
* We assume the chosen cloud-based provider covers data encryption and database services that will tie into the provided content management system.
* We assume the chosen cloud-based provider covers aspects like back-ups and data restoration.
* We assume that the administrators will be able to train on the functionality and use the content management system as it is designed.

### Limitations

* Accessing this service requires both a computer with a modern browser and an internet connection.
* Because this system is web-based, performance will not be as optimized as a desktop-based solution.
* Lessons can only be accessed with a stable internet connection.
* The back-end user interface may be complex for users with average tech experience.
* This project is limited by an expected delivery date of three months and eighteen days.

### Gantt Chart

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