# CS 255 Business Requirements Document

## System Components and Design

### Purpose

* DriverPass (who may be referred to as “the client” throughout this document) is a company that provides driver training services for those seeking to pass examination at the DMV.
* DriverPass wishes to implement a system that books and manages appointments, host courses and practice examinations on a web page, and contains a web interface where clients can interact with each of these features.
* DriverPass also requires access to and the ability to edit this system’s data remotely.

### System Background

* This system will help DriverPass fill the void in the driver training market by fulfilling various functionalities and infrastructure that the client currently lacks.
* As the client requires multiple different functions from the system, various integrated components will have to be developed.
* (A) database(s) will be required to store booking information, client profiles, reports, course materials, vehicle inventory and personnel schedules, and billing information.
* Some databases will require the ability to be accessed over a WAN connection.
* A web interface must be built that will allow for client-side reservation of driving lessons, purchases of course packages, and access to online courses.
* The system also requires a web method separate from the client interface where employees can create reservations for clients who call over telephone.
* The client requests that this system exist in the cloud as IaaS.
* Live updates must be queried from the DMV to ensure DriverPass is in compliance with the latest regulations.
* An administration subsystem will be requierd to differentiate actions that accounts with different privileges may take (authorization).
* The system will require an Admin account to manage the website and other account types.
* A User account must be created to track client’s access to paid content and appointments.
* An employee account must exist to input appointments that are booked from outside of the online system.

### Objectives and Goals

* DriverPass wishes to have a system which automates the act of scheduling appointments, which tracks available driver employees and cars on hand in order to do so.
* Provide courses that are hosted on a web interface.
* Account (in the sense of security) any changes to the system or databases.
* Provide users the ability to manage and book appointments, whether online or with an employee.
* Aggregate and provide access to schedules, inventory, and user information for properly authenticated employees.

## Requirements

### Nonfunctional Requirements

#### Performance Requirements

* DriverPass wishes for a web-interface front-end that will be accessible by clients through a browser.
* Interaction with web pages should occur in less than one second.
* Interactions with systems that process payments or update the appointment database should take less than 5 seconds.
* Multiple forms of media (video, pictures, text) should load on course pages within 1 second.
* The system should handle a load of at least 1,000 simultaneous users with the possibility of scaling based on demand.
* The system should undergo scheduled weekly maintenance to account for downtime during updates.

#### Platform Constraints

* Most likely, the cloud system will run in a container that is platform-agnostic, as the user-facing interface will be web-based. A unix-based system is most common.
* A database will be required for keeping track of: user course progress, driver notes, appointments, driver schedules, car inventory, and users and their privilege levels.
* The web-interface should function regardless of platform (Windows, Linux, iOS, MacOS, Android).
* The chosen cloud infrastructure provider should provide an interface for the maintenance of the system where updates and changes can be made.

#### Accuracy and Precision

* All registered users will be assigned a unique ID.
* All input will be case sensitive.
* Modifications cannot be made to any information until an internet connection is established to ensure that changes are not made “out of sync.”

#### Adaptability

* The cloud service chosen shall be scalable so that the infrastructure can grow with the needs of DriverPass.
* User information, appointment information, and changes to driver and vehicle avaiability can be made without inherently altering any components of the system.
* The technician user role will have the ability to modify web page layouts and modify databases and process logic.

#### Security

* All registered users will require password authentication.
* User accounts will be authorized to different functionalities based on roles: client, administrator, secretary, driver, and technician.
* The web interface should only be accessible through a secure HTTPS connection (an established certificate handshake).
* Administrator, secretary, driver, and technician accounts will have their passwords expire every 90 days.
* An account will be temporarily locked if more than 5 unsuccessful authentication attempts are made within 10 minutes.
* Users may request an email to reset their password using an email that was established with the account after successful authentication.

### Functional Requirements

* A client is able to go to a web interface and book a reservation for driving instruction.
* A client is able to purchase and take practice exams and courses through a webpage.
* Employees are able to create and manage reservations for driving instruction.
* Real time notifications are created when the DMV announces changes to rules or regulations.
* An employee can track all reservation information over a WAN connection.
* The system shall log appointment information in an appointment database.
* The system shall track user course progress in a database.
* Authentication shall be performed to access privileged (admin, secretary, technician, or driver) web pages and functionalities.
* A secretary may enter client information into the interface to update (create, modify, or cancel) appointments.
* A driver may enter notes into an interface that are visible to the pertinent client.
* The system shall automatically modify the appointment schedule based on information from the available drivers, vehicles, and the client’s web request.

### User Interface

* A web-interface will provide interaction for users through use of a browser.
* Users will be authorized for different functionalities based on whether they are a client, administrator, secretary, driver, or technician.
* Users will have access to their test scores, courses, their own information, their driver’s information, and notes from drivers.
* Users can view a page that will allow them to book, manage, or cancel an appointment
* Drivers will have the ability to enter notes that are visible to clients.
* Administrators will have an interface where they may monitor the activity of other users, modify appointments and driver schedules, and update car inventories.
* Secretaries will be able to enter client information into the interface to book, modify, or cancel appointments.

### Assumptions

* Electricity and internet will be available on-site for employees to access the system.
* Clients will provide all the necessary information that ensures they are legally permitted to pilot a vehicle.

### Limitations

* Being cloud-based and off-site, the system will not provide all functionality if an internet connection is not available or the cloud provider is undergoing an outage or maintenance.
* When clients miss appointments, a driver and car will be unavailable in the system, but not in reality.

### Gantt Chart

