# CS 255 Business Requirements Document

## System Components and Design

### Purpose

* The client is DriverPass. We sat with Liam and Ian to discuss this project. They would like their new system to be able to schedule appointments online, over the phone, and in person. They also want the system to be able to communicate with DMV to get up to date information. Our goal is to create a secure online system where users can access various services, such as practice tests, access driver notes, study guides, and schedule driving time. The system will also need to be accessible to Liam and staff in ways that give them access to user data (Creating new clients or deleting client data). The system should also log all changes made either by the user or by DriverPass employees and have the ability to access those logs. System security should be password protected and give users options for changing passwords. System access can be revoked or changed based on company need. This system must be online, and cloud based to lessen the burden put on DriverPass as far as system maintenance and upkeep.

### System Background

* DriverPass is a company that wants to help new drivers by providing better driver training. They want to make sure that more drivers are better prepared for the driving tests held at the DMV. Liam noted in our interview that, “there is a need for better driver training. So many people fail their driving tests at the DMV. I’m starting this company to provide this type of training for my customers. I want them to be able to take online classes and practice tests. My company will also provide them with on-the-road training if they wish. I need you guys to help me build a system that will handle all of this”. Customer should be able to use DriverPass to access the necessary information to help them prepare for a driving test. This would include practice tests, notes, and study guides, and driving hours with DriverPass instructors and cars.

### Objectives and Goals

* The system should be accessible online from various platforms. The client asked that this system be stored in the cloud for easier maintenance and access. Multiplatform access is crucial. System needs the ability for certain administrative access to download reports.
* System should give different access to different employees based on security level.
* Must have the ability for tracking user activity as well as employee activity. Need to be able to access changes to appointments (cancellations, reservations, etc.) and be able view and print system logs.
* The system should allow user to create a user account. An account will require the user’s first name, last name, address, phone number, state, and their credit card number, expiration date, and security code.
* Users need to be able to schedule appointments for driving lessons. Each lesson will be 2 hours. The user should be able to specify the date and time when they would like to be scheduled. Users should have the ability to create the appointment online, or if they wish to call or visit a location an employee of DriverPass will be able to schedule the appointment. Should have a calendar that will block days that have no available time slots.
* System needs to be able to assign available drivers to appointment as well as the car that will be used during each session. A session should show the user’s name, time, driver info, and car info.
* Users will have ability to make changes to appointments online if they wish.
* System will show different packages to users. The user will have the ability to choose the package that best fits their needs.

• Package One: Six hours in a car with a trainer

• Package Two: Eight hours in a car with a trainer and an in-person lesson where we explain the

DMV rules and policies

• Package Three: Twelve hours in a car with a trainer, an in-person lesson where we explain the

DMV rules and policies—plus access to our online class with all the content and material. The

online class also includes practice tests.

* Since each session is 2 hours long packages will be broken up into multiple days.
* System should give administrator access to disable packages if it is no longer available.
* System needs to have access to the DMV to have up to date information on practice tests, or other new information.
* UI will allow users to see previous practice tests results (in progress, failed, passed), notes from drive instructors, past drives, and upcoming drives, as well as user information, driver photo, user photo, and an area designated for special need for users.
* UI should also include a page with contact information for DriverPass to let users schedule appointments over the phone and get directions to a location. Contact with the student should also be included on a page so DriverPass can get in touch with the user.

## Requirements

### Nonfunctional Requirements

#### Performance Requirements

DriverPass wants this system to be accessible anywhere on the go. Ideally the system will be fast and responsive for all users on any device connected to the internet. These are the requirements laid out by Liam on how the system should perform. Some liberties were taken since information is missing within the sit-down transcript.

* The system must be web-based.
* System must use a cloud sever for easier maintenance and security
* Load times should be responsive and as fast as possible. Requiring faster storage devices such as SSDs.
* The system needs to be updated as often as the user needs it to be. It will need to be accessible for the administrators to make changes to content as well as credential information for both the users and staff.

#### Platform Constraints

DriverPass head, Liam stated he wanted to access the system anywhere from his computer or mobile device. Additionally, Liam wants to be able to download system reports to use offline in programs such as Excel. This would require the system to have backend access for admins.

* DriverPass will need to be able to run on traditional systems like Windows, Mac, iOS, Android, and Chrome OS.
* For mobile devices system should adjust the page layouts to accommodate the aspect ratios of various mobile devices. (Mobile version of the page)
* Back end must store user information as well as system logs to track activity for download.
* The system is using the cloud to manage all the security, which will also take care of the databases required for the back end.

#### Accuracy and Precision

The system will need to have checks in place to verify user accounts. Using user created credentials to verify information is the way Liam wants this system to use. In addition, system error reports are important in maintain the integrity of the system. Critical errors will need to be addressed immediately to prevent system crashes, hacks, and compromised user data. These ensure the accuracy and precision of the overall system.

* Web end will utilize session cookies to differentiate between users.
* Users will have user accounts with username and password. Both will be case sensitive.
* System should have multi factor authentication to protect user account.
* Daily reports will be sent to admin culminating all errors
* Critical errors will be delivered to admin as soon as they happen.

#### Adaptability

As times change and new information becomes available, systems will also need to be able to accommodate changes that come throughout the course of its system life. As the DMV updates, or employees leave or are hired, the admin needs to be able to add and remove staff accounts as well as user accounts without changing any code. This is important in maintaining the original functionality of the system.

* Making changes to users will be done on the backend without changing code
* Web application will need to stay up to date with browser updates.
* The IT admin will have full access to the system to make any changes necessary or remove former staff from accessing the system.
* IT admin will need to make changes to system when updates are needed.
* The system will need to be able to update to the lates and most accurate DMV information as it becomes available.

#### Security

This is security for the system as far as user accounts go. The overall system will be stored in a cloud-based server. Cloud based servers handle the security side on their end while the client can focus more on running the business and less time on maintenance. This we specifically requested by Liam during the sit down. “Cloud security, also known as cloud computing security, consists of a set of policies, controls, procedures and technologies that work together to protect cloud-based systems, data, and infrastructure”.(forcepoint.com)

* Users will be required to enter in a username and password to access the system, and more specifically their own user profile
* The cloud bases system will be responsible for securing the connection between the client side and server side.
* System should lock accounts after a certain number of attempts to brute force into the account.
* If a user forgets their password, they will be prompted to provide information (email or phone number) to authenticate identity. Once complete a link to reset the password will be sent to user to perform a password reset.

### Functional Requirements

These are the requirements that the system needs to function as DriverPass has laid out in the initial conversation with Jennifer and Sam. These represent the must haves if the system is to functions properly. Functional Requirements are exactly what they sound like, that is, this is how the system will function once completed. These requirements are the system.

* The system shall validate user credentials when logging in.
* The system shall make reservations when made by the user or staff.
* The system shall provide practice tests, and classes.
* The system shall show the driver the user is paired with.
* The system shall allow user to select a pickup and drop-off location for each driving session.
* The system shall offer three different driving packages (6 hr, 8hr, 12hr).
* The system shall provide up to date DMV information.
* The system shall provide custom access based on the user profile.
* The system shall show the tests and work the user has already completed.
* The system shall show upcoming user driving appointments.

### User Interface

Based on the template that was laid out in Liam’s drawing these are the user interface objects that are going to be needed to meet the requirements of DriverPass. This section illustrates the look and feel of the final webpage.

* The interface must provide the user with options to make appointments for driving packages, take online classes, and tests.
* The interface must allow DriverPass staff to make changes to user accounts, and update the system as needed.
* The user should be able to interact with the interface from a mobile devices, laptop, and computer systems capable of internet connection.
* The interface must show the user upcoming events and updated information and allow the user to make changes to content shown or appointments.
* The interface will have an area where instructors can leave notes for the user on past driving session.

### Assumptions

We are assuming that the budget for this project can accommodate every request that DriverPass has requested, and additionally, that the deadline can be reasonably met with the current staff that is working on the system. Assumptions are things that we assume to be true when designing the system. We assume these things because without these, the system would not function or be accessible.

* We have not considered cost for this system. For example, it will need to be cloud based and require the client to acquire a web-based cloud storage service. We are assuming that the client will be able to afford all the services that this system needs to accomplish.
* We assume that each user will have access to the internet.
* Assume all vehicles and instructors will be able to perform duties as expected. (No breakdowns, no sick days)

### Limitations

These would be constraints that we could face through out the process of building this system, and things that can affect the overall quality of the system based on outside factors. There are out of the control of the development team. We can plan of many different scenarios but ultimately, we can’t have a contingency for everything. Much of the shortcomings of the design and the design process will make themselves know once the product is getting real world use. “Constraints force a more methodical analysis of people and their problems. They push designers to be strategic about the processes they use and energies they expend” (Bowers).

* We were given about five months to build this system and were not given a budget.
* A major limitation is we little staff right now to build the website. We need more employees to build the website in the five-month time frame much more efficiently.
* Cannot control how the DMV will change over time.

### Gantt Chart

The Gantt chart breaks down the development cycle by showing who is working on what and how much time is given for each phase. Finally, we see the overall timeframe for completion of the project. Since we assume this is a full team of project leaders, designers, and tester, there are sections dedicated to “dev team” and “test team”.

Chart, timeline, waterfall chart

Description automatically generated

Work Cited

Bowers, Micha. (n.d). *Design Constraints Are Not Restraints – They Stoke Creativity* <https://www.toptal.com/designers/ui/design-constraints>

ForcePoint. (n.d). *What is Cloud Security? Cloud security defined, explained, and explored,* <https://www.forcepoint.com/cyber-edu/cloud-security#:~:text=Cloud%20security%2C%20also%20known%20as,systems%2C%20data%2C%20and%20infrastructure>.

Valacich, J. S., & George, J. F. (2019). Modern systems analysis and design (9th Edition). Pearson Education (US).