# CS 255 Business Requirements Document

## System Components and Design

### Purpose

Allow students to be able to view and modify their accounts.

The purpose of this project is to take advantage of a void in the market when it comes to training students for the driving test at their local Department of Motor Vehicles (DMV). The Client is DriverPass, a company that wishes to provide driving training to local students to help them pass the driving tests at the DMV. They want their system to be able to provide students with online classes, practice tests, and on-the-road training.

### System Background

DriverPass wants the system to provide students in the local area with a means to learn and practice the driving skills necessary to pass the driving test for the DMV. The problem they want to fix is that there are too many students failing the exams and there is a void in the market for quality online education. The different components needed for this system are online courses to educate the students, practice tests to help the students pass the DMV tests, and a way to book teachers for on-the-road training.

### Objectives and Goals

Once this system is finished, it should be able to take students who do not have any knowledge of the DMV driving test content and teach them everything they need to know to pass. In order for the system to educate students, it must be able to deliver educational content to the student in an accessible manner, keep track of the student's progress, tailor the content based on where the student is at, offer the student on-the-road lessons, and get the DMV test requirements from the DMV.

The measurable tasks that need to be included in the system design to achieve these objectives are the following:

* Allow user login.
* Allow users to access course materials.
* Allow users to message other users.
* Allow student users to take online practice tests.
* Hold student's information in the database.

## Requirements

### Nonfunctional Requirements

#### Performance Requirements

According to “w3schools,” Google Chrome had 78% of the web browser market share this October, so this will be our targeted environment. Google Chrome runs on the V8 JavaScript engine. The system needs to be able to run moderately quickly, allowing the students to move at a pace that is best for learning. The system should be updated anytime there are big shifts in student enrollment, to account for performance dips, or anytime the DMV test curriculum is changed.

#### Platform Constraints

The platform that the system should run on is Google Cloud, so the upfront costs can be minimized, and allow the system maximum flexibility to account for the number of students enrolled. A database will be required to store the students’ information such as their names, addresses, course progress, practice test results, and whether they have graduated or not. This information will be used to keep track of the student's information and will provide valuable insights into what demographic is taking courses, how well they are doing on the courses, and how that is affecting the chances of passing the test at the DMV.

#### Accuracy and Precision

The system will differentiate between users by having a general class that has all of the login functionality, that can be inherited by different types of user accounts. The input will be case-sensitive and will follow all of the general guidelines for password safety, such as sufficient length and complexity. The system should alert the admin: with routine checkup reports, when there is a system error that isn’t fixable by a moderator, or when a message is received from the DMV.

#### Adaptability

Because the basic login class will be inherited from all other accounts it can be modified, the updates will affect all user accounts and additionally, more types of accounts can be created that inherit it. The system will adapt to platform updates by using a modular design that can be scaled up or down to account for the needs presented. The type of access the IT admin needs is the same access as the main admin but without the ability to make major changes with the admin's approval.

#### Security

All users will be required to have a unique username and a password that is at least 8 digits long and has at least one symbol and one capital letter. We can secure the security of the connection when exchanging data from the client to the server, by using HTML security features. HTML uses a representational state transfer that ensures that the backend is only interacted with in the way it is meant to be. If there is a “brute force” hacking attempt, in that they try to guess every single combination, then that account will be locked until reset with the user's phone number or email. The user can reset their password anytime from the login menu.

### Functional Requirements

* The system shall validate user credentials when logging in.
* The system shall allow for online and offline access.
* The system shall allow students to book 2-hour chunks of driving time.
* The system shall be able to reset student’s login should they forget.
* The system shall be connected to the DMV so that it can receive updates.
* The system shall be hosted on a cloud server.
* The system shall have a built-in messaging system.

### User Interface

The needs of the interface are to provide the students and teachers with an efficient way to navigate their learning resources. The students will need to be able to view the course content, submit homework assignments, and view their online test progress. The teachers and admin need to be able to see students' grades, driver notes, their information, special needs, and driver’s license photos. Each user will have to either use a web browser with an internet connection or download the app on a mobile device to access offline.

### Assumptions

The things that are not specifically addressed above are that the user will have an internet connection with a V8 engine web browser, or they will download the app. Either way, before they can access the system offline, they must first access it online, and they must reconnect to the internet for their changes to be saved.

### Limitations

Any system will naturally have limitations, the ones I see in my system design are that it will not be designed to support multiple courses or different types of courses. The student will be taking one course with this system and then will move on, so no time will be wasted on making a system that can have multiple courses. Cloud servers require a steady flow of income in order to rent the server space.

### Gantt Chart

A graph with different colored squares

Description automatically generatedA graph with blue rectangular objects

Description automatically generated

**Sources:**

Refsnes, H., Refsnes, S. & Refsnes, J. (2023) Browser Statistics*.* *W3schools.* https://www.w3schools.com/browsers/