# CS 255 Business Requirements Document

## System Components and Design

### Purpose

* The client is DriverPass, a business built around helping students pass their DMV driving tests.
* We will design and implement a web-based system that will provide services to the client’s users.
* The client has a clear vision for what they want the system to do and look like; we will provide a workable platform for the client that fulfills all of their expected criteria.
* The client may have changes for their system and wants us to be able to execute these updates at a future date.

### System Background

* DriverPass has identified an issue with society in which many people fail their driving tests at the DMV.
* DriverPass wants to take advantage of the void in this market by helping these students.
* DriverPass wants their system to be a full-service resource for students by teaching them in multiple ways i.e. testing, driving practice, and classes.
* DriverPass wants all of their information to be as up-to-date as possible in order to help students successfully pass their test.
* The system will provide a scheduling service so users can easily make appointments when it's convenient for them.
* The user interface will provide the user with a clean and easy-to-understand display of information to make the process as easy as possible for them.
* The system will be hosted using a cloud-based service to allow the client to be more user-focused.

### Objectives and Goals

* The system will display online classes and practice tests to authorized users.
* The system will utilize role-based access control to implement user, secretary, IT, and admin roles in order to allow different levels of access to the system and its functions.
* The system will provide the admin role the ability to export reports and relevant data.
* The admin role will be able to export activity reports for reservations that show who booked it, who canceled it, and who last modified it.
* The admin role will be able to use the functions necessary to reset passwords and block/remove employees/users from the system.
* User and secretary roles need to be able to create, modify, and cancel reservations for driving lessons. The lesson block should be two hours long. The user/secretary will be able to enter the date and time of when the lesson should start.
* The system will match a user with a driver and a car. The system will track and provide reports for this information in order to prevent overbooking past 10 drivers/cars.
* The system will offer three different packages that the user can choose from:
  + Package One: 6 hours of in-car driving lessons.
  + 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.
* The admin role will be able to disable specific packages.
* Secretaries will be able to create accounts. When creating an account the following information shall be gathered from the user: their first name, last name, address, phone number, state, pick-up and drop-off location (same location), and their credit card number, expiration date, and security code.
* The system will provide a form for users/secretaries to fill out all the necessary account creation information.
* If a user wants to create an account they will be prompted to call the business.
* Users should be able to reset their own password via a “forgot password” function.
* The system will connect to the DMV system in order to notify employee roles when changes have been made to DMV rules, policies, or sample questions.
* The user interface will match the diagram given by the client and include the following sections: online test progress, user information, driver notes, special needs, driver photo, and user photo.
* The test progress section will include the test name, time taken, score, and status. Possible status states are taken, in progress, failed, or passed.
* The driver notes section will include a table with the following information: Lesson Time, Start Hour, End Hour, and Driver Comments.
* The website will include a “contact us” page with the relevant contact information i.e. email and phone.
* Employee roles will be able to contact users directly from the website using email.

## Requirements

### Nonfunctional Requirements

#### Performance Requirements

* The system needs to be able to run as a web-based application that is compatible with most common browsers.
* The system should respond to user input within 4 seconds.
* The system should regularly update to keep up with current security practices.

#### Platform Constraints

* The system should be compatible with all popular platforms (Windows, Linux, Mac, mobile) from a client-side perspective.
* The system should utilize Windows for the server-side development to create an easily managed application that is able to efficiently integrate the resources and tools provided by Azure including and not limited to the Azure database and Microsoft servers.

#### Accuracy and Precision

* The system will differentiate between users utilizing username and password authentication that will be supported by multi-factored authentication.
* Username and password combinations are case-sensitive.
* The system should lock-out the account after 5 failures to log-in to the user account.
* The system should notify the admin of a problem after multiple lock-outs for a user or if the user’s input is flagged for a potential injection attack by an input validation/sanitation method.

#### Adaptability

* The system will utilize access control to grant the admin role the methods needed to perform changes to users.
* The system will continuously update with any minor platform updates.
* The system will notify users of any major updates that may require down-time.
* The system will utilize monitoring and logging to catch any issues with updates after they are released.
* The IT admin will be granted access to any methods related to maintenance or modification of the system, but restricted from accessing user data or reports.

#### Security

* The system will utilize a password and username combination for authenticating a user with additional protection from multi-factor authentication.
* The system will utilize HTTPS and TLS 1.3 to securely communicate between client and server.
* The system will lock-out any user that experiences a potential “brute force” hack signaled by over 5 consecutive failed log-in attempts.
* The system will support password resets for users via an admin control. The user will have to contact the admin for this support as there will be no user-facing method for this action.

### Functional Requirements

* The system shall validate user credentials when logging in.
* The system shall allow admins to reset user passwords.
* The system shall allow admins to add, modify, and delete user accounts.
* The system shall utilize role-based access control.
* The system shall utilize multi-factor authentication.
* The system shall allow users to enroll in different training packages.
* The system shall allow users to schedule, modify, and cancel driving lessons online.
* The system shall allow users to view their training progress, including completed lessons, upcoming lessons, and trainer comments.
* The system shall allow users to take online practice tests and track their scores and progress.
* The system shall create reports that summarize users’ lesson, class, and test performance.
* The system shall allow admins to monitor user activity and generate activity reports, including details on who made, modified, or canceled reservations.
* The system shall support offline access for viewing downloaded reports.
* The system shall allow users to make reservations for driving lessons online.
* The system shall allow secretaries to create reservations for users.
* The system shall allow admins and secretaries to view, modify, and cancel reservations for users.
* The system shall allow users to specify their preferred pickup and drop-off locations for driving lessons.
* The system shall track which driver and car are assigned to each reservation.
* The system shall provide notifications and reminders to users regarding upcoming lessons and reservation changes.
* The system shall encrypt sensitive user data, such as passwords and payment information, both in transit and at rest.
* The system shall notify admins of suspicious activities, such as consecutive failed login attempts.
* The system shall comply with relevant data protection regulations, such as GDPR.
* The system shall integrate with the DMV to receive updates on rules, policies, and sample questions for practice tests.
* The system shall notify admins of these incoming updates from the DMV.
* The system shall support automatic updates for minor patches and improvements.
* The system shall allow IT admins to manage system settings.

### User Interface

* The interface needs to be intuitive,easily navigated, accessible, and responsive.
* The interface should support all four roles built into the system – user, secretary, IT admin, and owner.
* The user should be able to see online test progress, driver notes, user information, special needs, driver photo, and student photo.
* This user interface should be focused on the following:
  + Enroll in driving training packages.
  + View training progress and upcoming lessons.
  + Take online practice tests and view results.
  + Schedule, modify, and cancel driving lessons.
  + Specify pickup and drop-off locations.
  + Receive reminders for upcoming lessons and test dates.
  + Provide feedback on lessons and trainers.
* The secretary’s interface should be focused on the following:
  + Creating and modifying customer accounts.
  + Schedule, modify, and cancel reservations on behalf of customers.
  + View and manage the schedule for all drivers and cars.
  + Contact customers via email.
  + Generate and print reservation reports.
* The IT admin’s interface should be focused on the following:
  + Manage system settings and configurations.
  + Monitor system performance and security.
  + Add, modify, and delete user accounts.
  + Assign roles and permissions to users.
  + Monitor and respond to security alerts and incidents.
  + Implement security policies and procedures.
* The Owner’s interface should be focused on the following:
  + Access various reports regarding user information and system changes.
  + Manage user accounts and employee permissions.
  + Customize system settings and configurations.
  + Receive notifications regarding system status, updates, and security concerns.
* All interactions with the application will be web browser-based, however, mobile/tablet dimensions should be considered when designing the user’s interface.

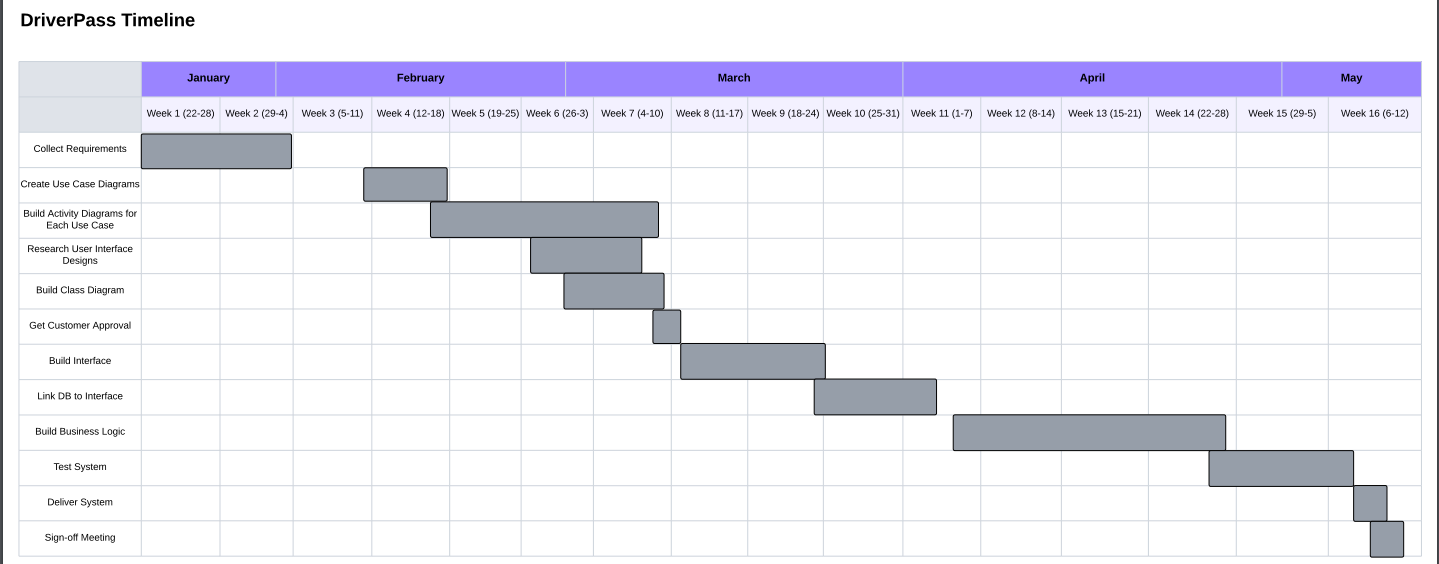
### Assumptions

* The user has access to the internet.
* The user is utilizing an up-to-date browser.
* The user’s device is utilizing relevant hardware.
* The user has basic knowledge about navigating web-based applications.
* Users will utilize the application for the purpose it was created for.
* All functionality will be supported by popular browsers and platforms.
* Users will be able to understand English.
* Users will be able to understand how to utilize the scheduling functionality.

### Limitations

* This system will be mainly designed for desktop viewing, so mobile/tablet devices may have a less-than-optimal interface.
* This system will be designed to handle the current operations of a single location. If the business decides to expand, more resources will need to be devoted in order to scale correctly.
* This system will require professional development if further changes need to be made to the functionality of the application.
* This system will utilize standard and sufficient security measures according to regulations. However, every system can still be susceptible to security attacks.

### Gantt Chart



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