# CS 255 Business Requirements Document Template

Complete this template by replacing the bracketed text with the relevant information.

This template lays out all the different sections that you need to complete for Project One. Each section has guiding questions to prompt your thinking. These questions are meant to guide your initial responses to each area. You are encouraged to go beyond these questions using what you have learned in your readings. You will need to continually reference the interview transcript as you work to make sure that you are addressing your client’s needs. There is no required length for the final document. Instead, the goal is to complete each section based on your client’s needs.

## System Components and Design

### Purpose

* The purpose of this project is to build a system for DriverPass to offer training to students working towards their driver’s test. DriverPass is a company owned by Liam, and he wants to prove online drivers tests and training, along with an accessible way of scheduling physical driving lessons. The end goal will be an online website that allows customers to utilize DriverPass’ offerings while also allowing DriverPass to manage their clients.

### System Background

* The original problem that DriverPass wants to fix is the high fail rate of drivers at their DMV.
* In the backend, DriverPass will need a database that tracks usage and information regarding their site. The backend will house a scheduling system as well that allows efficient scheduling of customer training.
* On the Front-end, DriverPass wants to have an accessible website that allows customer to use all their offerings.
* Multiple roles will be utilized for access, designated to types of accounts.
  + An owner role for access by the owner with full permissions.
  + An IT role for the IT officer with full permissions.
  + A secretary role for use by the secretary to be able to add, remove and change reservations.
  + A driver role for use by the drivers to be able to view appointments and modify schedules.
  + A user role for customers using the service. They will have access to creating appointments and modifying their accounts.

### Objectives and Goals

* DriverPass needs to be able to access data online and download reports to work on offline. (Reports and usage information)
* From the interview with Liam and Ian, They would prefer managing information on the backend to be done via a role-based access system.
* Tracking information about which customer is with which driver should be accessible and available.
* Scheduling system will need to be implemented in order to provide efficient way to correctly set time and date for one of DriverPass’ 10 cars and drivers to pick up and drop off a customer.
* User should be able to create an account with their information and log back into that account whenever they access the site. Information from this account could be used by the company on the backend to be able to contact the user.
  + This functionality will need to be easily managed by the user as well, including being able to reset their own password.
* The site needs to be a website consisting of several pages that are easy to use and display information to the customer regarding their past usage (Tests taken, training completed, etc.).
* There will need to be an interface for employees like DriverPass’ secretary to schedule appointments for customers through phone calls.
* DriverPass will need to receive notifications whenever a change is made to DMV rules and policies.
* DriverPass will need access to disabling one of their three packages of training for customers

## Requirements

### Nonfunctional Requirements

#### Performance Requirements

* DriverPass will be web-based, hosted from a cloud environment.
* The application will need to be compatible with all current major browsers such as Microsoft Edge, Safari, Google Chrome, and Firefox.
* The system should also be efficient at network intensive activities due to the information being scraped from DMV sites and from its own database, and have load times under two seconds for users.
* The DriverPass application will need to update any databases anytime a change is made within the system. These changes may include:
  + Any time progress is made on exams.
  + Any time reservations are created, updated, modified, or cancelled.
  + When information is scraped from DMV sites for current rules and regulations.

#### Platform Constraints

* Due to the web-based nature of the DriverPass system, the application will be cross-platform. It will run on web browsers across all operating systems such as Windows, MacOS, and any Linux distributions running major compatible web browsers.
* The back end of the application will require at least one database.
  + The information needing to be housed in a database will consist of user tables, scraped DMV data, billing information, driver information and schedules, appointment information and any other relevant data.

#### Accuracy and Precision

* The system will distinguish between users using unique user IDs and encrypted passwords.
* Users will be able to create username, which shall not be case sensitive, and can be modified later.
* Users will need to create passwords for their account, set within system guidelines, that are case sensitive, and can be modified later.
* At account creation, the system will designate a unique user ID, separate from the user created username and password.
* If a problem is to occur within the system, the admin should be notified within two minutes of the error being found through error-checking operations.

#### Adaptability

* There should be a method for users with admin roles to be able to add/remove/modify other users without adapting source code.
* All users shall be able to create accounts with the ability to delete the accounts they have created, while admin accounts will have access to add/remove/modify.
* User information shall be modified by the users or admins through POST requests on the site.
* Platform updates will be implemented into web browsers on user computers. This will not directly affect the DriverPass system, however it will be important for the DriverPass application to continue to be updated for compatibility consistently.
* When the DriverPass application is updated, it will be completed during off-peak hours to reduce user impact.
* IT admins will need full access to the system in order to repair issues. They will have access to full account information for all users, so that they may modify and repair account issues.

#### Security

* For a user to log in, they will need their created username and password.
* The server shall use HTTPS requests to secure communication between client and server.
* If the system is using HTTPS, then TLS encryption will be utilized between the client and the server. This encryption will utilize *handshakes* between systems to ensure correct information is being communicated using certificates.
* To protect information, all secure user information and passwords being communicated will need to be encrypted.
* If there are five sign-in attempts on a username with an incorrect password, the account will be locked out and an email will be sent to the user with next steps. This will protect each account from brute force hacking attempts.
* Each user will be able to initiate a password reset using a prompt at sign-on. If the user inputs an email address on file, an email will be sent with links that allow the user to reset their password to a new one.

### Functional Requirements

* The system shall allow user registration using user created credentials that fall within requirements.
* The system shall register user credentials with user information.
* The system shall email the user when an account is created.
* The system shall email the user when any account information is changed.
* The system shall validate user credentials when logging in.
* The system shall lock user logins after 5 unsuccessful attempts.
* The system shall email password reset information when requested by user through link during login.
* The system shall allow registration for three different course package types and allow deactivation of packages by admin.
* The system shall email receipts to customers when a package is purchased.
* The system shall schedule reservations with drivers when selected by a user, for on the road training.
* The system shall notify drivers of appointment times when created and/or modified.
* The system shall track when user modification and creation of appointments.
* The system shall allow administrators to view changes to appointments and view activity reports.
* The system shall administer online tests and virtual classes.
* The system shall track user progress within classes and exams.
* The system shall display online exam progress.
* The system shall alert administrators when DMV compliance regulations have been changed.
* The system shall generate reports for administrators to review user usage and progress.
* The system shall periodically back up site information to database.
* The system shall permit communication with instructors and administrators.

### User Interface

* The interface should consist of several different pages:
  + Landing/home page after visiting from URL.
    - Presents visually appealing introduction screen with several links to other pages of interface.
  + Account registration page
    - Accessed from selecting *new user* link from home page or login page.
    - Consists of a form for creating student account utilizing user information
      * First name
      * Last name
      * Address
      * Billing Information
  + User login page
    - Accessed from selecting login link from home page.
  + “On the road” lesson reservation page
    - Based off package purchase, allows users to schedule road tests, visually showing calendar with available dates and times.
  + Online course material page
    - Based off package purchase, allows users to access online content and material, along with practice tests.
  + Student info page
    - Different sections of the page should consist of user information, online test progress, driver notes, special needs, driver photo, and student photo.
    - The driver notes should consist of table format with columns for lesson time, start and end times, and driver comments.
    - Test progress should show test name and progress, with a status of the user’s interaction with the test or course.
  + DriverPass contact page
    - This page should give contact information and message forms for communicating with DriverPass.
* Users will have different roles assigned based off access needs.
  + All administrative functions will be hidden from users with *customer/student* role.
  + Users logged in with an administrative role (Owner, IT and Secretary) will have access to other user accounts through account management page.
* Since the system is web-based, the user will interact through the web browser they will be using. The site will need to have optimization for use on mobile devices through allowing mobile-friendly versions of pages.

### Assumptions

* The cloud provider will have 24/7 runtime, allowing the site to consistently stay online.
* The cloud provider will be able to maintain high usage and reliably keep consistent load times.
* DriverPass users will have access to high-speed or reliable internet access that can communicate efficiently with the site.
* Users will be accessing the site from up-to-date browsers on their device.
* Assuming DMV compliance regulations are easily accessible and available and can be scraped from the site.

### Limitations

* Due to potentially using a cloud-based model, if the cloud service has down-time, the DriverPass site will be affected as well with no error fixing on this end.
* Due to the site being web-based and online, scheduling appointments can only be done online. Therefore, even if a call is made to the secretary, if there is an outage, appointments cannot be made online.
* Some clients may slower access times due to regional access.
* The system has a planned deliverable timeframe of 16 weeks.

### Gantt Chart

*Timeline

Description automatically generated*