# CS 255 Business Requirements Document

## System Components and Design

### Purpose

* The client is DriverPass, a company that seeks to provide driving training via online classes, on-the-road training, and practice tests.
  + Liam is the owner
  + Ian is the IT officer
* In summary, they want their system to be able to make reservations for in-person training, store customer and driver information (e.g., usernames, passwords, photos, special needs, notes, test progress), and offer an online class that culminates in a practice exam.
  + All of this is meant to address (and hopefully fix) the problem described in the next section.

### System Background

* The problem DriverPass seeks to fix is: Driving students are failing their tests due to a lack of high-quality training. Liam believes this is a void in the market to be filled with what DriverPass has to offer.
  + The client is addressing this problem by offering 3 packages as products for customers to choose from:
    - Package One: 6 driving hours with trainer
    - Package Two: 8 driving hours with trainer + in-person lesson on DMV rules
    - Package Three: 12 driving hours with trainer + in-person DMV lesson + access to online class and practice test
  + Different web pages will assist the users, drivers, and other workers in navigating the system for their respective purposes. These are described in greater detail in Objectives and Goals.

### Objectives and Goals

* When the system is completed, it should be able to perform the following capabilities via different webpages:
  + - Drivers will leave post-lesson comments
    - Secretaries will input student/customer information
    - Students/Customers will be able to take a course with a test, reserve lessons, and/or read their driver’s comments
    - Admin will be able to make any necessary changes (unrestricted access)
    - Student/Customer and driver information will be visible and accessible
      * Students can be easily contacted by DriverPass and vice versa
    - Students/Customers will be able to reset their passwords automatically

## Requirements

### Nonfunctional Requirements

#### Performance Requirements

* This system needs to run in a web-based environment.
* The system should be updated every time a request is made to the cloud-based server.
* The system should not exceed 2% CPU usage on a user’s desktop device.
* The system should scale to its user count, which can easily be done through a cloud service provider.
* The system should not exceed 4 seconds of loading time per webpage or button clicked.

#### Platform Constraints

* Data cannot be modified or updated unless the user/administrator is online (cloud-based backend).
* The system should run on both desktop and mobile platforms (unspecified which ones).
  + The system should run on common platforms like Windows, Linux, Mac, Android, and iOS, as well as common web browsers like Chrome, Edge, Firefox, and Safari.
* The backend requires a database to store, update, and retrieve customer information in/from.

#### Accuracy and Precision

* Role-based access control (RBAC) is used to distinguish between different users with types like User and Admin.
  + Customers are differentiated by their login information and stored personal information.
    - Each customer is assigned a unique identifier in the database.
    - Input for user passwords is case-sensitive.
* The system should inform the admin when a user changes a record (i.e., track the user and the change).
* The system should inform the admin when a user has scheduled, rescheduled, or cancelled an appointment online rather than over the phone.
* The system should inform the admin when it detects a security breach or strange user activity (such as removing large amounts of records).

#### Adaptability

* The user can register, modify, and remove their account by calling DriverPass with their relevant information.
  + The user can access their account through an email address and password login after registration.
  + User changes will be reflected in the database using a language like SQL.
* The IT admin needs full access over all accounts.
* The system will adapt to platform updates by scheduling them during non-peak hours.

#### Security

* A username and password are required for the user to log in.
  + The username is the user’s email address.
  + The password must be at least 10 characters long, a mix of numbers and letters, and contain at least 1 special character.
    - The system checks for these components through input validation.
* If a user forgets their password, it is reset by the IT officer (who has Admin privileges).
* RBAC is used to give different employees and users different rights and roles.
* The website will be secured using HTTPS to encrypt data exchanges between the client and server.
* If there is a “brute force” hacking attempt, the user’s account will be temporarily denied website access via a Blocked role.

### Functional Requirements

* The **system** shall…
  + Manage user access via RBAC (role-based access control)
    - Admin has full access to all actions
  + Store user reservation and login information
    - Store a log of changes made to reservations along with who made the changes
    - Offer “download data report” function for admin-level users
  + Offer 3 packages for users to choose from
  + Provide a reservation-making interface for the user to schedule their driving lesson(s) based on package type
    - Make reservations upon users’ requests
  + Notify DriverPass when the DMV has new rules, policies, and/or practice test questions
  + Operate fully online via cloud services and storage

### User Interface

* The varying **users** shall…
  + Make online reservations for 2-hour in-person driving lessons and/or in-person DMV rules lesson (second option only for Package Two users)
    - Specify day and time for the reservation
  + Pick from one of 3 packages
  + Take an online course
    - Only for Package Three users
  + Take an online test
    - Only for Package Three users
  + View personal and driver information on dashboard interface
  + View online course/test progress (only for Package Three)
  + Use mouse click or touchscreen controls to interact with the website
    - Mouse clicks for desktop, touchscreen for mobile
  + Reset account passwords when requested
    - Only for IT-related admin
  + Download data reports (ideally as Excel-compatible files)
    - Only for admin
* The **user interface** shall…
  + Display online test progress (not taken, in progress, failed, or passed)
  + Display customer information
    - First name, last name, address, city, state, zip code, phone number, email, etc.
    - Special needs
    - Photo
  + Display driver information relevant for the customer
    - Lesson time (start and end hour)
    - Comments/notes
    - Photo
  + Have pages for…
    - The student/customer to view all information at once, take their course, and take their test (respective pages for each)
    - The secretary to fill in student information (same as information listed above), which is gathered over the phone
    - The driver to fill in post-lesson comments
    - *Possible* but unspecified page additions:
      * Log in page with username and password fields
      * Separate user interface for drivers, administrators
      * Multiple pages for course lesson sections, exam questions

### Assumptions

* It is assumed that the system will operate on common platforms (e.g., Windows, iOS) and browsers (e.g., Chrome, Safari).
* It is assumed that DriverPass will account for major security breaches and provide a plan for protecting customers’ data.
* It is assumed that all user payments are made by giving DriverPass payment details over the phone rather than inputting them online.
  + It’s also assumed that DriverPass then charges the card on file anytime a package is purchased after the first time.
* It is assumed that, after initial registration over the phone, customers will be able to log in using an email address and password to use the system in a personalized way.

### Limitations

* The client’s requirements or vision may change at any point in development, making the Gantt chart timeline more of a “first draft” than a final vision.
* It is unclear what the budget is for this project.
* It may not be feasible to create a pleasant system for both desktop and mobile devices in the given timeframe.
  + The mobile system would need a different visual interface to accommodate smaller screens and touch controls, but it could still be usable as a subpar version of the desktop system.
* It is unclear how the system will automatically notify admin upon DMV rule/guideline changes.

### Gantt ChartA screenshot of a project Description automatically generated

A diagram key with text and a few circles

Description automatically generated with medium confidence

Figure 1 - Gantt Chart Key

A screenshot of a document

Description automatically generated

Figure 2 - Close-up of Task/Dates Sections