# CS 255 Business Requirements Document

## System Components and Design

### Purpose

*What is the purpose of this project? Who is the client and what do they want their system to be able to do?*

* The client, DriverPass, requires a system capable of processing purchases for various driving lesson packages. The system must include a web interface featuring online tests. Additionally, it should enable employees to access data offline while tracking any changes made by individual employees. All data edits, however, must be conducted online.

### System Background

*What does DriverPass want the system to do? What is the problem they want to fix? What are the different components needed for this system?*

* **Problem**: A considerable number of students are failing their driving tests.
* **Database**: Stores customer details, driver availability, and scheduled session information.
* **Frontend**: Includes an employee interface for entering information and booking reservations for customers who call, a web interface allowing customers to make reservations and access online tests

### Objectives and Goals

*What should this system be able to do when it is completed? What measurable tasks need to be included in the system design to achieve this?*

* **Data Access and Editing:** Employees can access data offline but can only edit data online.
* **Data Tracking and User Management**: The system should track all data edits and support multiple user roles with appropriate permissions.
* **Reservation Management**: Employees should be able to make reservations for customers, and customers should have the ability to make reservations online themselves.
* **Package Management**: The system must support and process multiple types of driving lesson packages.
* **Password Management**: Customers should be able to reset their own passwords independently.
* **DMV Rule Change Notifications**: The system should receive notifications whenever the DMV updates or changes its rules.
* **Customer Web Interface**: The web interface should allow customers to take online tests, view their scheduled lessons, and make new reservations.

## Requirements

### Nonfunctional Requirements

*In this section, you will detail the different nonfunctional requirements for the DriverPass system. You will need to think about the different things that the system needs to function properly.*

#### Performance Requirements

*What environments (web-based, application, etc.) does this system need to run in? How fast should the system run? How often should the system be updated?*

* **System Requirements**:
* The system should be web-based.
* The website must be a responsive, modern web application.
* It should have load times of no more than 2 seconds for the majority of users.
* System updates should occur monthly or as needed, with a maximum downtime of 2 hours per update.

#### Platform Constraints

*What platforms (Windows, Unix, etc.) should the system run on? Does the back end require any tools, such as a database, to support this application?*

* **Frontend and Backend Requirements**:
* The web frontend should be compatible with most desktop and mobile browsers, including Internet Explorer, Chrome, Firefox, Safari, and their mobile equivalents.
* The user interface (UI) should automatically adapt for mobile browsers.
* The backend requires a database to store user information and system logs.

#### Accuracy and Precision

*How will you distinguish between different users?* *Is the input case-sensitive? When should the system inform the admin of a problem?*

* **Frontend and System Requirements**:
* The web frontend should use session cookies to distinguish between users.
* Passwords should be case-sensitive, but other user inputs are not.
* The system should generate a daily aggregate report of all error reports and provide immediate notifications for critical errors.

#### Adaptability

*Can you make changes to the user (add/remove/modify) without changing code? How will the system adapt to platform updates? What type of access does the IT admin need?*

* **Web App and Admin Requirements**:
* The web app must remain up to date with breaking changes to browsers to ensure compatibility.
* User changes should be managed in the backend without requiring code modifications.
* The IT admin must have database access and access to the server running the web app.

#### Security

*What is required for the user to log in? How can you secure the connection or the data exchange between the client and the server? What should happen to the account if there is a “brute force” hacking attempt? What happens if the user forgets their password?*

* **Security Requirements**:
* A password is required for login.
* Two-factor authentication (2FA) via SMS is optional.
* Accounts will be locked after 5 failed login attempts.
* If a password is forgotten or an account is locked, an email will be sent to the user with a temporary password.

### Functional Requirements

*Using the information from the scenario, think about the different functions the system needs to provide. Each of your bullets should start with “The system shall . . .” For example, one functional requirement might be, “The system shall validate user credentials when logging in.”*

* **System Requirements**:
* The system shall validate the user password during the login process.
* The system shall send a verification SMS to the user’s registered phone number when two-factor authentication (2FA) is enabled.
* The system shall lock user accounts after five consecutive failed login attempts.
* The system shall send an email with a temporary password if an account is locked or if the password is forgotten.
* The system shall update user information on the backend based on user or admin commands.
* The system shall track available appointment times and user appointments.
* The system shall schedule user appointments based on user or admin commands.
* The system shall notify admins whenever DMV rules change.

### User Interface

*What are the needs of the interface? Who are the different users for this interface? What will each user need to be able to do through the interface? How will the user interact with the interface (mobile, browser, etc.)?*

* **UI and User Access Requirements**:
* The UI will be web-based and designed to adapt to both desktop and mobile environments.
* Users will access the frontend through desktop or mobile browsers.
* Customer users will have access to their own accounts, including purchase and order history, and will be able to purchase packages.
* Admin users will have access to the entire schedule and will be able to impersonate customer accounts to make appointments on their behalf

### Assumptions

*What things were not specifically addressed in your design above? What assumptions are you making in your design about the users or the technology they have?*

* **Assumptions**:
* It is assumed that most customer users have access to the web and use a modern web browser.
* It is assumed that most customer users have an active email address.
* It is assumed that DMV rules changes can be tracked automatically through an API or other interface.

### Limitations

*Any system you build will naturally have limitations. What limitations do you see in your system design? What limitations do you have as far as resources, time, budget, or technology?*

* **Project Constraints and Considerations**:
* The project must be completed within 15 weeks.
* It is difficult to anticipate changes to web browsers, which could affect the system's functionality.
* The system cannot control or predict changes made by the DMV.
* The front end must be designed to be broadly compatible with all major web browsers.

### Gantt Chart

*Please include a screenshot of the GANTT chart that you created with Lucidchart. Be sure to check that it meets the plan described by the characters in the interview.*

A screenshot of a computer screen

Description automatically generated