# 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.

**Tip:** You should respond in a bulleted list for each section. This will make your thoughts easier to reference when you move into the design phase for Project Two. One starter bullet has been provided for you in each section, but you will need to add more.

## 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?*

* Passing the driving exam can be challenging for many students. DriverPass has noticed a lack of quality learning resources for students practicing for the driving exam. DriverPass wants to develop a system to help train students for their driving test by offering online classes, practice tests, and driving lessons.

### 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?*

* DriverPass wants to help more students pass their driving tests by offering online classes, practice tests, and driving lessons.
* DriverPass requires a system for users to be able to make reservations for driving lessons and access online resources like classes and practice tests.
* This system needs to be accessible online from anywhere and allow some data such as reports to be exported for offline access.
* A role/permissions system needs to be developed to control what information can be accessed and modified by different types of users. For example, administrators need to be able to reset passwords or disable user accounts, other staff members should be able to view the information associated with a user’s account and modify that information as well as make reservations on behalf of customers, and customers should be able to make their own reservations and view/modify some information associated with their account.
* Any modifications to a record should be stored in a log containing details about the change, the time the changes took place, and who made the changes.
* When making a reservation, the user can select from several different packages. Administrators should be able to disable a package.
* Information about a user should be stored in their record including name, address, phone number, state, billing information, the driver they are assigned to, and pick-up/drop-off location.
* This project should utilize cloud infrastructure to minimize the resources necessary for backups and security.
* When a change is made to the DMV requirements or resources, the staff should receive a notification.
* When viewing the user’s record, the online test progress section should include information about the status of tests, including not taken, in progress, failed, or passed.
* When viewing the user’s record, the driver notes section should include information about driving lessons including time and driver comments.
* The user’s record should also store information about which driver they are assigned to.
* The user’s record page should allow the student or staff to enter information about the student.
* There should be a messaging system to allow the student and staff to contact each other.

### 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?*

* User Record Page
  + Account Creation: This section should allow the student or staff member to initialize their account and fill out the required information including name, address, phone number, state, billing information, password, and pick-up/drop-off location.
  + Online Test Progress: This section of the user record should show information about the user’s progress on various online tests (not taken, in progress, failed, or passed).
  + Information: This section of the user record should display information stored about the user including name, address, phone number, state, billing information, the driver they are assigned to, and pick-up/drop-off location. This section should allow the user or a staff member to edit the information.
  + Driver Notes: This section should display information about driving lessons including the time and driver comments.
  + Driver/Student Photo: This section should display a photo of the student and their assigned driver.
* Class & Tests
  + Students can access various online classes and take practice tests.
* Reservation System
  + Students or staff members can make reservations for driving lessons.
* Other Systems
  + Package Manager: Administrators should be able to select which packages are currently active.
  + DMV Notifications: Staff members should be notified when the DMV makes a change to their requirements or new resources become available.
  + Messages: This section allows the student to contact a staff member or a staff member to contact the student.
  + Activity Log: Every time a modification is made to a user’s record, information about the modification should be stored in a log viewable by administrators. This log should include details about the modification, the time the modification was made, and who made the modification.
  + Permissions: Some additional functions are available to staff members or administrators including changing the user’s password or disabling their account.
  + Password Reset Function: If a user forgets their password, they need to be able to reset it.

## 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?*

* Web-based application utilizing cloud technology.
* Loading times should be kept to a minimum.
* Updated as needed to maintain security and modify or add content.

#### 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?*

* As the system will be a web-based application, it will function on most operating systems and platforms through a modern web browser (Chrome, Safari, Firefox, Edge).
* UI considerations must be made for mobile devices like smartphones and tablets.
* UI should automatically adapt based on the device type (desktop, smartphone, tablet).
* The back end will use databases to store user information.

#### 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?*

* Each user account will be assigned to a role which dictates their permissions.
* User passwords will be case-sensitive, but usernames will not be case-sensitive.
* The system will keep logs of all issues and user actions to be reviewed at any time.
* A daily summary of these events will be sent to the system administrator.
* In the case of a critical issue, the system administrator should be notified immediately.

#### 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?*

* Changes to user accounts can be made by modifying the database on the back end or using an account with administrator privileges within the application.
* System administrators will need access to the server running the application, the databases, and administrator permissions within the application.
* As the application is web-based, platform updates are unlikely to interfere with the functionality of the application. However, major updates to web browsers or web standards may require changes in the application to maintain full functionality.

#### 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?*

* Users must use their usernames and passwords to login to the system. Users can also opt-in to two factor authentication, requiring a security code sent via email or SMS to login. Two factor authentication is required for accounts with administrator permissions.
* Encryption will be used to maintain the security of user information on the back end including passwords.
* To prevent brute force hacking attempts, an account will be locked after 5 incorrect login attempts. An email will be sent to the user notifying them of the incorrect login attempts and include information (general location, device type) about the login attempt so the user can verify whether it was a third party trying to access their account. To restore access to a locked account, the user must reset their password. Incorrect login attempts to an account with administrator permissions will immediately notify a system administrator.
* All information associated with login attempts will be stored in the logs.
* If a user forgets their password, they can access a forgot password page to send a password reset link to the email address associated with the account. A staff member with administrator permissions can also reset the user’s password upon verifying their identity.
* All connections between the server and client will require HTTPS to ensure security.

### 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.”*

* The system shall validate user credentials when logging in, utilizing two-factor authentication when enabled.
* The system shall allow users to create and manage their account.
* The system shall store user information in a database.
* The system shall allow users to take practice tests, record their progress, and display that progress.
* The system shall allow users to view online class materials.
* The system shall allow users to make reservations for practice with a driving instructor.
* The system shall allow users and staff to message each other.
* The system shall store information in the logs about account logins, actions taken by users, and modifications made to the system.
* The system shall allow accounts with administrator privileges to complete additional actions such as managing package availability, resetting user passwords, and modifying user profiles.
* The system shall allow administrators to export data reports for offline use.
* The system shall allow administrators to be notified when a change is made at the DMV.

### 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.)?*

* There are two types of users who will be using the interface: students and administrators.
* Students will be able to: view/update their profile information, view their progress in the online course materials and practice tests, take practice tests, access online course materials, book a session with a driving instructor, and communicate with staff via the messaging system.
* Administrators will be able to: view/update a student’s profile information, export data reports for offline use, customize the availability of packages, communicate with students via the messaging system, and view system logs.
* Users will interact with the interface through a web browser. The user interface should automatically adapt to suit the device type (mobile, desktop).

### 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?*

* Users will have access to a device with an internet connection and be competent at operating them.
* DriverPass only operates in one state, as driving regulations are likely to vary by location.

### 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?*

* Time Limitations: Project development is estimated to start on January 22nd and end on May 10th.
* Ongoing development may be needed to maintain compatibility with browser updates and update course materials to adhere to new DMV regulations.

### 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 colorful rectangular object with text

Description automatically generated with medium confidence