# CS 255 Business Requirements Document

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?*

* The purpose of this project is to develop an application which provides better drivers training to clients through online tests and in person training.
* The client is DriverPass and they want their system to be able to allow clients to create an account and select a package course they would like to purchase. Then, they can schedule an appointment for the in person training either online or via phone. They also need to be able to see who their driver will be and access any feedback the driver provides. The client should also be able to see the status of their tests online via test name, time taken, score, and status. The system should also be cross-platform by being accessible on any computer or mobile device and possibly accessed via cloud so that a third-party can handle security. Lastly, the system should save data involving the making of reservations and any modifications to them.

### 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 a system that allows customers to register, schedule lessons, and access online training and practice tests, while also giving employees tools to manage reservations, track activity, and handle account security.
* The main problem they want to fix is that too many people are failing their DMV driving tests, so they aim to provide a more effective and convenient way for students to prepare through online learning, practice tests, and on-the-road training.
* To achieve this, the system will need several components, including user accounts with role-based security, a scheduling and reservation system for lessons, training packages with DMV updates, an online learning and testing module, reporting and tracking tools, customer and payment management, and a cloud-based infrastructure for accessibility and reliability.

### 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?*

* When completed, this system should be able to have users create an account with a username and password, and the ability to recover their password or create a new one with a “forgot password” feature. Users should also be able to schedule or cancel appointments and access training packages that include online courses and DMV practice test. Employees should be able to manage reservations, track activity, and handle customer information. The system also needs to be connected with the DMV for updates, have varied accessibility via different roles, and be accessible on both computers and mobile devices using cloud software.
* The measurable tasks that need to be included in the system design include:
* Creating customer accounts with password reset options
* Building a reservation system that assigns cars and drivers to lessons
* Developing training packages with flexible options
* Providing online practice tests with progress tracking
* Generating activity and performance reports
* Enforcing role-based security for different users
* Integrating automatic DMV updates
* Hosting everything on a secure, cloud-based platform accessible by computer and mobile device.

## 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?*

* The system needs to run in a cloud-based, web environment that allows data to be downloaded into an Excel document for offline use.
* The system should load pages within 0.5 seconds of user interaction to ensure smooth performance. The system should be updated regularly to maintain security, apply bug fixes, and ensure compatibility with platform and DMV policy changes.

#### 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?*

* The system should be compatible with web-based platforms across major operating systems, including Windows, macOS, and Linux, and accessible through common browsers such as Google Chrome, Edge, and Safari. It should also support mobile platforms such as Android and iOS.
* The back end will require a **relational database** (such as MySQL or PostgreSQL) to store user accounts, lesson schedules, and transaction data. It will also require **server-side technologies** such as **Java or Python** to process data, manage user authentication, and handle system logic.

#### 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?*

* The system will distinguish between different users by requiring each user to create a unique account with a case-sensitive username and password. The input will be case-sensitive to maintain data accuracy. The system will automatically notify the administrator when an error is detected, and it will also allow users to manually report issues that trigger admin alerts.

#### 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?*

* Yes, you can make changes to the user without changing code. We can grant the admin the ability to add, modify, or remove user accounts using an admin interface, which can only be accessed after verifying that the account has admin privileges. Users should also be able to update their information through a “Settings” page where they can delete their account or update personal details. The system can adapt to platform updates by implementing modular and scalable architecture that separates the core application logic from the user interface and platform dependencies. Using APIs and version control will help ensure that updates or migrations to new platforms cause minimal disruption. The IT admin will need **full administrative access** to the user management system, including permissions to view all user accounts, assign roles, reset passwords, monitor activity logs, and manage system configurations.

#### 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?*

* The user must create a unique username and a secure password associated with their account.
* To protect data exchanges between the client and server, the system will use encryption protocols and implement role-based access controls to restrict unauthorized access.
* If a brute force hacking attempt is detected, the system should temporarily lock the account after multiple failed login attempts and notify the user by email. The system should also alert the administrator to investigate and help prevent future security breaches.
* If a user forgets their password, they should be able to reset it securely through a “Forgot Password” option that sends a verification link or code to their registered email. Administrators should also have permission to reset passwords for internal employee accounts when necessary.

### 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
* The system shall allow users to create a new account with a unique username and password.
* The system shall enable users to update their personal information, including email, contact number, and password.
* The system shall allow users to delete their account upon request.
* The system shall provide an admin interface to add, modify, or remove user accounts.
* The system shall assign roles to users, such as Admin and IT roles, to control access levels.
* The system shall enforce case-sensitive username and password validation.
* The system shall lock user accounts temporarily after a defined number of failed login attempts.
* The system shall notify users and admins of suspicious login attempts.
* The system shall secure all data transmission between the client and server using HTTPS.
* The system shall maintain an audit log of user actions for security and monitoring purposes.
* The system shall allow users to recover their password securely through email verification or security questions.
* The system shall manage user sessions with automatic logout after a period of inactivity.

### 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.)?*

* The system will operate as a web-based platform, preferably hosted on the cloud. Backup and security services will be managed by a trusted third party. The interface must provide users with the following key features and displays:
* online test progress which show the tests the customer took
* what tests are in progress and the ones that the customer completed
* Tests display test name, time taken, score, and status.
* Tests display status could be not taken, in progress, failed, or passed
* Display drivers notes which show any comments the driver left as well as the times for the lessons
* A page including an input form, where the student (or secretary) fills in the student information, such as first name, last name, address, et cetera
* A page for contacting DriverPass
* A way to contact the student
* The different users for this interface are the Customer, Admin, and IT. Each user would need to do the following:

**Customer:**

* Create a new account with a username and password.
* Log in and log out securely.
* View and update personal information
* Delete or deactivate their account if desired.
* Access support or help options through the interface.
* Receive notifications about account activity or security alerts.

**Admin:**

* Log in with elevated privileges.
* Add, modify, or remove customer accounts.
* Assign or change user roles
* View all user accounts and monitor activity
* Unlock accounts after failed login attempts or security flags.
* Receive alerts for suspicious activity or system errors.
* Generate system usage or user activity reports.

**IT:**

* Access all system configuration and maintenance tools.
* Manage platform updates, patches, and integrations
* Control data backups and recovery operations.
* Oversee system security, including encryption and firewall settings.
* Monitor performance logs and troubleshoot system issues.
* Manage admin permissions and enforce security policies.
* The user will interact with the interface through both a web browser and mobile application.

### 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?*

* It is assumed that all users (Customers, Admins, and IT staff) will have access to a stable internet connection and a compatible device (computer, tablet, or smartphone) to use the web or mobile interface.
* It is assumed that users will have basic technical skills to navigate the interface and perform tasks such as logging in, updating information, or submitting forms.

### 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?*

* Integration with third-party services for cloud hosting, backups, and security could introduce dependency risks, such as service downtime or additional costs.
* Time constraints and budget may limit the ability to add more advanced features in the initial release
* Limited technical resources or personnel may affect the speed of development, testing, and maintenance.
* Regular updates and security patches will be required to maintain system integrity, which may add ongoing maintenance costs.

### 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 graph with a bar chart

AI-generated content may be incorrect.*