# 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?*

* The purpose of the Driver Pass project is to develop a system which will provide lessons for customers to take towards earning their license. The system will have an online website that offers the online courses along with practice tests, as well as a way to set up appointments for in-person 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 the system to be able to make reservations, update reservations, advertise and update training packages, as well as offer online training resources and driving appointments. This involves an online storefront, a database for employee and customer records, and a system for managing reservation as well as track passing or failing tests from customers,

### 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?*

* Allow customers to create a profile which shows their progress along with their appointments.
* Have courses for customers to take practice tests and participate in online classes.
* Have a system where employees can access customer information, book reservations for customers, and track a customer’s progress.
* Be connected to the DMV pertaining to crucial updates that will necessitate changing of course materials to stay up to date with the DMV’s requirements to get a license.
* Have a security system where there are role-based access control where employees can reset passwords, block access to ex-employees and other administrative tasks.
* Have a system that can track reservations based on when they were made, who made it, if it was canceled, and who was the last person to modify a reservation.
* Have a flexible reservation system that can be updated based around new packages that Driver Pass may offer in the future.

## 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 is going to be hosted on a web-based application, meaning it needs to be able to be accessed from any device that can access the internet.
* The system needs to be able to run smoothly even with high volume of user traffic, though depending on the course material it would not need to be hosted on the best of the best in terms of server hardware as it shouldn’t take that many resources.
* The system should be updated whenever an admin makes a change to reservations or training packages as well as when a crucial update from the DMV necessitates a change in training resources.

#### 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 for hosting the system should be hosted on a cloud-based environment due to their flexibility, offered security tools, as well as being scalable for user volume and data storage. Several cloud providers also have their own SQL Server that could be used for the database.
* Since this is a web-based resource it should run on any standard browser from a home computer as well as be accessible by mobile devices as every customer may not have access to a computer.

#### 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?*

* I believe the system should distinguish between users based on unique credentials, such as unique usernames associated with an account specific password. The role is then tied to the user at the time of creation, for example an employee can create an employee role account, a customer can only make a user account.
* Yes, the input should be case-sensitive so strong passwords can be used.
* The system should notify an admin in the case of multiple failed password attempts on an account, as well as in the case of any security breach so accounts can be locked to protect sensitive data.

#### 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?*

* The system needs to be flexible to add, remove and modify user information but this should not require any coding changes. Users should be able to modify personal account details, such as updating a password, account associated email address, and contact info. The ability to do this should be built into the code from the start. Admins should also have access to additional features such as in the case an account would need to be locked in the case of a security breach or if an employee quits so they cannot access data they shouldn’t be able to. Prices for driving packages should also be able to be updated as well as removed if they are no longer supported.
* However updates to driving packages that require adding entirely new packages may require a developer to work on them.
* IT admins need access to:
* Reset, lock, or modify user accounts.
* Monitor employee and user activity, such as in the example of being able to see who updated a reservation last.
* Enable and disable courses or driving packages.

#### 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?*

* A unique account name, associated with an email address, as well as a password is required for a user to log in. Employees may use a unique given employee ID as their account name so they do not have to use their personal email.
* To secure client and server communications all traffic should be encrypted to prevent being retrieved while they are in traffic. Token authentication should also be used, as in the server has an amount of tokens for a client to use in the case of a failed login attempt. Passwords as well as account names can be stored after being hashed. Two-Factor identification can also be used, such as a one-time code being sent to a user or employee’s cell phone or email in the case of suspicious activity.
* If there is a brute force hacking attempt the server should be rate limited to lessen the attempts a hacker can use in brute forcing an account. Also, the account associated with the brute force attack should be locked and an admin notified.
* If the user forgets their password they should be able to try again by a small token limit, say 3. If they cannot log in that account should be halted and an email sent to the owner of the account who would need to verify their identity to the employee designated to work in that department.

### 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 track lessons based on users that have taken them.
* The system shall track in-person training package availability based on current bookings.
* The system shall notify an administrator in the case of any malicious attempts to access data.
* The system shall keep customer and employee information stored in hashes and encrypted.
* The system shall allow for employees to update customer accounts.
* The system shall allow for employees to create/update/cancel driving reservaitons.

### 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 interface needs to provide a method for employees and users to log in. It also needs to have a “catalogue” that advertises courses and driving lessons that when clicked on will direct the customer to further information on that course or a system for making a reservation for a driving lesson. The interface also needs to have a place to show progress for a customer, or progress for all customers in a course by an employee.
* Different users who will be using this interface will be customers, employees, as well as Admins and IT personnel.
* Customers: Have access to booking lessons, taking lessons, managing their account, make reservations, and be able to see their progress.
* Employee: Have access to the customer database to update their accounts as needed, see customer’s progress, and manage reservations.
* IT/Admin: Can access all of the above systems as well as resetting employee and customer accounts, as well as the ability to enable and disable courses, and the ability to lock an account based on suspicious activity.
* The user should be able to interact with this interface on any device that can access a web browser.

### 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?*

* We assume that users have the ability to access the internet in some way, as well as the ability to navigate a web page well.
* We are also assuming that the DMV has a way to connect this program to them in a way that will notify DriverPass on any updates from the DMV.

### 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?*

* Large modifications to what DriverPass offers will most likely require hiring developers to assist them with the new changes.
* Budget was not discussed, but is assumed to be a limitation on any start-up business or program that does not have certain success in the market.

### 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 project

Description automatically generated