# 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?*

* Our client, DriverPass, would like to implement an online training environment that offers learning resources and practice tests to help people succeed with their driving tests. Their system will need to be accessible anywhere, both online and offline, but the data cannot be modified unless you are online. They would like the data to be accessible on mobile devices as well as PCs. Authentication services will need to be implemented as well as access control to handle the different rights and roles within the company. Tracking needs to be a part of the system so that user reservations may be traced back to the individual as well as any cancellations or modifications, and a way to track who last modified the reservation by providing an activity log. The system will need the capability of allowing users to register online and schedule their reservations through the system.

### 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 can handle all aspects of their intention to provide training and assistance to new drivers to help them succeed in their driving test. The system must have authentication and access control for users within the organization to protect user data and abide by the various laws regarding confidentiality. Also, the system must provide a way to log activities regarding reservations that the user makes online by tracking who last modified a reservation, cancelled a reservation, or scheduled a reservation along with which driver is scheduled to go out with the customer. Logging is a critical step that must be performed in the case of an incident so that whoever is responsible can be tracked. In the future, the system will have modules added to it, but that is not a main priority as of now. Notifications will need to be added to notify the company of different user scheduling requests. Finally, the system will need to be accessible from a mobile device as well as a computer, it will need to run off the web through a cloud server. Security and backup will need to be implemented into the system by us.

### 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?*

* The system will need to be able to store media files and practice tests on the web and provide user access through authentication while allowing the users to schedule their reservations and trainings by selecting one of three packages online. Once the user creates or modifies an existing reservation, the team will need to be notified and a driver needs to be assigned to the reservation. The features regarding online resources for training will need to be made available both online and offline, but reservation modification must only be available while online. Mobile device support will be required as well as computer support. An activity log must be stored that tracks the user who made the reservation and when, if a modification to a reservation is made, and who is responsible for the reservation as far as which driver. The interface must match the design from DriverPass. A database will need to be created to store the various customer information as well as assignments, and user access control will need to be implemented to ensure that only those who are supposed to see protected information will be able to do so.

## 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 DriverPass system will need to be accessible on the web while also offering offline capabilities so that Liam may download reports and other required information to work offline. The system must be fast and responsive so that reservations can be made quickly. Also, the system must have high uptime and reliability to ensure it is available around the clock. Updates should be scheduled for off-peak hours to minimize user disruption and security patches, functionality improvements, and system enhancements can be addressed.

#### 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?*

* From the interview with Liam, he specified that the system should be accessible from any device, including mobile devices. Web-based technologies must be implemented that are compatible with multiple operating systems and offer cross-platform compatibility. The back end will require the use of a DBMS (Database Management System) such as MySQL or a Microsoft SQL Server to manage structured data such as user profiles, reservations, and package details. Cloud storage should also be implemented as a backup system for the stored data.

#### 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 should have an assigned Unique Identifier or a User ID to identify them. Role-based access control will need to be implemented to ensure that sensitive data is protected, and the user is only able to see what they are intended to. The username of the user should not be case-sensitive, but the password absolutely should be. By ensuring that passwords are case sensitive, an extra layer of complexity of security is added. The system should notify the administrator when a critical error occurs, such as a system failure, security breach, or a data integrity issue arises. Administrators should also be notified when a reservation is either made or cancelled.

#### 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 should include a user management module that allows admins to add, remove, or modify user accounts without needing to change the underlying code. This can be facilitated through a dedicated admin dashboard with forms and controls designed for managing both user roles and permissions.

#### 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 should have unique credentials such as a unique username or their email, and a strong password. To secure the connection or data exchange between the client and the server, we should utilize the SSL/TLS encryption protocols to ensure that all data transmitted between the client’s browser and the server is encrypted. Secure headers should be implemented using CSP, X-Frame-Options, and X-Content-Type-Options to help mitigate risks involving XSS and clickjacking. If an account is detected utilizing a brute force hacking method, an account locking mechanism should be in place to lock the access of the account to prevent further attempts. Alerts should also be put in place to notify both the user and the administrator when there are multiple failed login attempts. If the user forgets their password, they should have the ability to request a reset link that is sent to their registered and confirmed email address. The link should have a time limit and should be encrypted 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 to ensure that only authorized users can access the system.
* The system shall offer multi-factor authentication for an added layer of security during the login process.
* The system shall allow users to reset their passwords via a secure, time-limited link sent to their registered email address.
* The system shall lock user accounts temporarily after multiple failed login attempts to prevent brute force attacks.
* The system shall provide a role-based access control system to manage different levels of user permissions based on their role within the company.
* The system shall enable administrators to add, modify, or disable user accounts through a user management dashboard.
* The system shall allow customers to schedule, modify, and cancel reservations for driving lessons through a web interface.
* The system shall enable the customer to choose from predefined driving packages and schedule appointments according to availability.
* The system shall track and record all user activities such as logins, modifications to reservations, and cancellations for audit and security purposes.
* The system shall generate and display reports of user activities and reservation statuses to administrators and authorized personnel.
* The system shall provide a secure, encrypted connection for all data exchanges between the client and the server using SSL/TLS protocols.
* The system shall send notifications to administrators about important events such as updates from the DMV, security alerts, or system performance issues.
* The system shall be capable of receiving and updating information based on changes in DMV rules and policies as notified.
* The system shall allow administrators to easily update the content of online classes and practice tests to ensure compliance with current DMV requirements.
* The system shall enable users to view their progress and results of online tests, including test names, time taken, scores, and status.
* The system shall store all customer information securely and comply with data protection regulations to protect personal and payment information.

### 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 should be responsive, easy to use, accessible, secure, and be visually clear. Customers will need to utilize the interface to book driving lessons, view and choose packages, take online tests, view test progress and scores, and update personal information. They will interact with the interface primarily through mobile devices and browsers on personal computers. Administrators will utilize the interface to manage user accounts, adjust roles and permissions, disable or modify driving packages, view reports on user activity and system performance, and update driving test content and rules. Their interactions will mostly come from desktop browsers for more complex tasks requiring a detailed interface. The IT Officer will oversee system functionality, handle security configurations, manage data backups, update system components, and resolve technical issues. Interaction will come from desktop browsers. The secretary will utilize the interface to schedule, modify, and cancel reservations manually, manage customer queries, and process payments. Interaction will come from desktop browsers and tablets for easier access during customer interaction.

### 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?*

* The detailed security protocols were not directly addressed regarding specific details about encryption standards, compliance with data protections laws, and other security measures. The ability to adapt the interface for different languages and regional settings were also not discussed. The discussion also did not explicitly cover how the system will handle scaling, both in terms of increased user numbers and geographic expansion. It is assumed that all users, regardless of their role, have a basic level of proficiency with digital interfaces. The design also assumes that users have access to modern devices capable of accessing a web-based interface and internet connectivity.

### 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?*

* Due to the system design being primarily web-based, its functionality relies heavily on users having stable and reliable internet access. Interruptions in connectivity could impact the user’s ability to make reservations, access courses, or perform administrative tasks in real-time. Also, the system is designed to be modular and adaptable, however, rapid expansion in user numbers or geographic reach could strain the current architecture, which would require significant adjustments to maintain the desired level of performance.

### 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 calendar

Description automatically generated*