# 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 client from DriverPass wants people to get better driving training. He would like them to be able to practice tests and take online courses through a system. His company also offers on-the-road training for the students if they wish to have one. He needs a system that can function the way he wants and fulfill all these demands.

### 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?*

### The client DriverPass plans to develop a comprehensive system of online courses, practice tests, and in-person driving course booking services to help students better prepare for their driving test.

### The system needs to support user management of different roles, customers can book, cancel, or modify courses online, and all actions can be recorded to generate activity reports. To ensure data security, the system requires role-based access control and supports automatic reset of customer passwords.

### The system also needs to integrate DMV update notifications, ensure the timeliness of training materials, and ensure safe and easy access to data through cloud storage. These features will improve student pass rates and optimize the service experience.

### 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 complete, the DriverPass system will support online course booking and management, multi-role permission control, data tracking and report generation, DMV update integration, and cloud data storage and backup.
* To achieve these functions, the system design needs to include online reservation modules, role rights management, activity log and report generation, real-time interface with DMV, and cloud storage security. These tasks will ensure full system functionality, and data security compliance, and optimize the training experience for participants.

## 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 should run in a web-based cloud hosting platform with a mobile-friendly interface that ensures accessibility across devices, as well as real-time processing of critical functions such as scheduling and data updates.
* It must be highly responsive, with major actions like booking and cancellation completed within 2-3 seconds, and should be scalable to handle the increasing user traffic as the business grows.
* Regular maintenance and security updates should be done every 2-4 weeks, with quarterly feature enhancements as needed.
* DMV compliance updates must be integrated in a timely manner to keep training materials up to date, ideally through automated mechanisms that apply changes as soon as they become available. This setup will ensure that DriverPass remains fast, secure, and compliant with regulatory expectations.

#### 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?*

* This system should be compatible with multiple platforms, accessible to Windows, macOS, and Linux desktop users, and optimized for iOS and Android to ensure seamless mobile access.
* As a cloud-hosted web-based platform, it runs primarily in a web browser, making it accessible from any device with the Internet.
* The back end will require a powerful database, such as MySQL or PostgreSQL, to manage user data, reservations, and training resources, and may support NoSQL databases like MongoDB for flexibility in handling semi-structured data. (Kinza Yasar, June 2024)
* A cloud hosting provider like AWS or Azure is essential for scalability and security, along with a back-end framework like Node.js or Django to handle server-side logic and API requests.(“Backend Development” 2023)
* Integration with the DMV API will allow training materials to be updated in real-time, ensuring the system remains compatible and up to date.(Dana Thomas, 2023)

#### Accuracy and Precision

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

* This DriverPass system will serve multiple users with different roles, including owners, Tech officers, secretaries, and customers. Each user needs different access rights and capabilities.
* For example, Tech officers will need full access to manage accounts, secretaries will manage appointments, and customers can schedule or adjust courses online.
* The system must keep track of the changes made by the user to ensure that the information is traceable, especially records of actions such as appointments, cancellations, or modifications.
* When issues such as unauthorized access or discrepancies due to offline data changes are encountered, notifications are sent to Tech officials to help maintain data integrity and the security of user interactions.

#### Adaptability

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

* Absolutely, you can when it’s online. User roles can be added, deleted, or modified without code changes while the system is online, facilitating account management.
* Platform updates, such as DMV rule changes, are automatically received to keep the system up to date.
* IT administrators will have full authority to manage their accounts such as resetting passwords, ensuring system security, and 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?*

* According to the transcript we have in the module, users have to have their login credentials to access the system.
* To secure the data exchange between the client and server, a secure connection (possibly via an encryption method such as HTTPS or SSL) must be implemented to protect sensitive information during transmission. (Peter Loshin,2019)
* If they have a "violent" hacking attempt, this system should immediately lock the account or trigger a security alert after the number of failed login attempts to prevent unauthorized access.
* In the situations that a user forgets their password, they should be able to reset it automatically after verifying their email or ID, etc. allowing them to regain access without human intervention from an administrator.

### 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.”*

* According to the module transcript information, some functional requirements are listed bellow for the DriverPass system:
* The system authenticates user credentials at login.
* The client’s system should allow users to book, modify, and cancel appointments online.
* This system should be allowing IT administrators to reset user passwords and manage account access.
* The system should record and track changes to the reservation, including who makes, modifies or cancels the reservation.
* The system should generate activity reports showing user actions for accountability.
* The system should notify users from the DMV about updates to new rules, policies, or test information.
* The system uses advanced encryption technology to protect the data transmission between the client and the server to ensure the security and integrity of the data.
* If multiple login attempts fail, the system temporarily locks the user account to prevent brute-force attacks.
* If a user forgets a password, the system provides an automated password reset process to ensure that the user can restore account access.
* This system will enable the owner to disable specific training packages as needed.
* These requirements outline the core capabilities needed to meet a variety of user needs while ensuring security and accountability.

### 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.)?*

* DrivePass’s interface must be a secure web-based platform accessible through desktop and mobile devices to meet the needs of customers, secretaries, administrators, and business owners.
* Customers should be able to book, modify, or cancel driving lessons, track progress and manage accounts while secretaries need tools to handle lesson scheduling, enter customer details, and manage pick-up and drop-off information. Administrators need account maintenance. System security and access control capabilities to ensure data privacy and normative user management. In addition, business owners need reporting tools to monitor overall performance, track user activity, and manage service packages to ensure system are running efficiently and complying with DMV updates.

### 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?*

* Specific accessibility features (for example, support for users with disabilities) are not explicitly mentioned. The technical proficiency required for users to navigate the interface is not addressed. Integration with external systems such as DMV databases and payment platforms was not detailed. There is no discussion of the scalability of future systems dealing with larger user bases.

### 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?*

* Ensuring perfect functionality across multiple devices, browsers, and operating systems can be technically challenging. And if DriverPass scales rapidly, the system may also face the challenge of handling a larger user base, which will require a larger database; and processing system. In order to ensure that all data is saved and updated, it is necessary to improve the technology of system maintenance. In this way, the manpower and financial resources will be increased, and if the investment is not enough, some functions of the system will be limited.

### 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.*



References:

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