# 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 this project is to create a strong and easy-to-use system for DriverPass. The client, DriverPass, wants to improve driving test readiness through structured training courses. DriverPass intends to provide a solution to the problem of high failure rates in DMV driving tests by offering online classes, practice tests, and hands-on training sessions.

DriverPass requires a system that enables:

* Efficient management of user data and training schedules.
* Secure and flexible access to data.
* Easy scheduling and management of driving lesson sessions.
* Dynamic handling of various training packages, with capabilities to modify offerings.
* Integration with DMV updates is needed to ensure compliance with and relevance to the training material.
* An intuitive and secure interface for different types of users.

The client wants a system that streamlines their operational processes and enhances their customers' learning experience, leading to better DMV driving test preparedness.

### 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 streamline the process of training students for DMV driving tests by managing online classes, practice tests, and hands-on training sessions. The main problem DriverPass is seeking to fix is the high failure rate at DMV driving tests due to inadequate preparation.

To address this, the system needs the following components:

* User Management: To handle different roles and access rights, such as administrators, instructors, and students.
* Data Management: Secure and reliable data handling allows online and offline access to minimize redundancy and ensure data integrity.
* Reservation System: A robust system for scheduling, modifying, and canceling driving lessons online or via phone, including managing the logistics of cars and instructors.
* Training Package Management: Flexible management of various training packages that can be customized, added, or disabled.
* Compliance and Regular Updates: Integration with DMV systems to receive real-time updates on rules and policies to keep the training content current.
* UI/UX Design: User-friendly web interface for managing profiles, reservations, and progress across multiple devices.

These components aim to reduce DMV test failure rates by improving accessibility and quality of training.

### 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?*

Upon completion, the system for DriverPass should be able to:

* Manage User Roles and Access: Ensure that different users can securely access only the appropriate levels of information.
* Handle Reservations: Enable easy booking, rescheduling, and cancellation of driving lessons through multiple channels.
* Manage Training Packages: Allow admins to manage training packages as needed for flexibility based on demand and business strategy.
* Synchronize with DMV Updates: Update the training content based on the latest DMV rules and policies to ensure compliance.
* Data Management: Enable easy access to data online and offline with download and information management features to prevent redundancy.
* Provide a User-Friendly Interface: Create an interface that efficiently manages personal information, reservations, and training progress.

For these functionalities to be effective, the system design should include the following tasks:

* Security Protocol Implementation: Ensure high-security standards with data encryption and secure authentication for user login and data access.
* Reservation System Development: Log each transaction with timestamps and user IDs, capable of handling simultaneous bookings.
* Training Package Module: Create a module for admins to update training packages without developer assistance for minor changes.
* Real-Time DMV Synchronization: Create real-time updates API for DMV with audit logs.
* Offline Data Handling: Develop a method for syncing offline activities once online connectivity is restored, ensuring data consistency across platforms.
* Interface Usability Testing: Conduct usability tests to ensure efficient system navigation and easy access to necessary functionalities.

By accomplishing these tasks, the system will meet DriverPass's goal of providing a training solution that enhances user experience and improves success rates on DMV driving tests.

## 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?*

* Environment: The system should be able to operate in both web-based and mobile application environments.
* Speed: The response time for user actions, such as loading practice exams, booking lessons, and accessing user profiles, should be less than 2 seconds.
* Updates: The system should be updated quarterly to ensure that it has the latest features, security patches, and DMV rules implemented.

#### 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?*

* Platforms: The system should be compatible with Windows, macOS, Linux, iOS, and Android platforms.
* Back-End Tools: The backend needs a strong database like MySQL or PostgreSQL to handle user data, training schedules, and transaction logs. It should also make use of a scalable server environment, possibly by using cloud services such as AWS or Azure for flexibility and reliability.

#### 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?*

* User Distinction: Each user will have a unique username and a specific role such as student, instructor, or administrator.
* Case Sensitivity: The input should be case-sensitive in order to preserve the integrity of the data.
* Admin Alerts: The system should immediately notify administrators of any critical issues or failures via email or SMS 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?*

* User Management: Admins should have the capability to add, remove, or modify users using an admin interface without altering the code.
* Platform Updates: The system must seamlessly adapt to updates on both web and mobile platforms, and regular compatibility checks and updates should be performed.
* IT Admin Access: IT administrators require full access to system logs, user management tools, and configuration settings for troubleshooting and maintenance purposes.

#### 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?*

* Login Requirements: Users must log in with a unique username and password, along with the option for multi-factor authentication (MFA) to enhance security.
* Data Security: All data exchanges between the client and server must be secured using SSL/TLS encryption.
* Brute Force Protection: Implement account lockout after five failed login attempts. Notify the user via email and allow account unlocking through a secure process.
* Password Recovery: Create a secure password reset process that includes email verification and the use of security questions.

### 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 must validate user credentials during login.
* The system should allow users to book, reschedule, and cancel driving lessons.
* The system needs to provide practice exams that simulate the format of the DMV driving test.
* The system must allow administrators to manage training packages and user roles.
* The system should synchronize training content with the latest DMV updates.
* The system is required to generate progress reports for both students and instructors.
* The system will log all transactions with timestamps and user IDs.
* The system should provide offline access to training materials, with synchronization upon reconnection.

### 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.)?*

* Needs: The interface should address the requirements of students, instructors, and administrators.
  + Students: Register, log in, book lessons, take practice exams, and track progress.
  + Instructors: Manage schedules, view student progress, update training sessions.
  + Administrators: Manage user roles, update training content, view system logs, handle configurations.
* Interaction: The interface should be accessible through web browsers and mobile applications, ensuring a consistent experience across different platforms.

### 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 have basic computer literacy.
* Users have reliable internet access.
* Instructors are certified and experienced.
* Students are motivated to use the system to improve their driving skills.
* The system will integrate with existing DMV APIs for updates.

### 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?*

* Actual driving experience cannot be replaced by the system.
* The system relies on third-party services for map and location data.
* Advanced features are limited by budget constraints.
* Usability testing may be impacted by time constraints.
* Initially, real-time features and scalability may be limited due to resource constraints.

### 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.*

