# 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 develop a comprehensive system for DriverPass, a consulting client focused on improving driver education. DriverPass aims to offer an integrated platform that combines online practice exams and on-the-road training to help students better prepare for their driving tests. The system will enable students to schedule, modify, and cancel driving lessons, access online practice exams, and track their progress. The system will also manage reservations, handle customer information, and ensure secure access to all data.

### 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 identified a societal issue where many individuals fail their driving tests at the DMV due to inadequate preparation. They believe that existing training methods are insufficient and seek to address this gap. Their solution is to provide a dual approach: an online platform offering practice exams and instructional material, combined with practical, on-the-road training sessions. This solution aims to improve students' driving skills and increase their chances of passing the driving test.

### 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?*

* Online Access and Usability: Develop a web-based system that allows students to register, book driving lessons, and take practice exams from any device. The system should also support offline data manipulation for reports.
* Reservation Management: Implement functionality for students to schedule, modify, and cancel driving lessons online. The system should track lesson details including the assigned instructor, vehicle, and time slot.
* Performance Tracking: Create a system to track and report students' progress in both practice exams and driving lessons. The system should display performance metrics, including scores, status, and instructor comments.
* Security and Access Control: Ensure the system has robust security measures, including role-based access controls. IT personnel should have full access to manage user accounts, while administrators and students have appropriate access based on their roles.
* Customer and Data Management: Allow for efficient management of customer information and reservations, including the ability to handle payment details and capture contact information.
* Compliance and Updates: Integrate with the DMV to receive updates on driving test rules and policies and notify the system of any changes.
* User Interface Design: Design an intuitive and user-friendly interface that meets the needs of students, instructors, and administrators. The interface should clearly display information such as test progress, lesson schedules, and feedback.

## 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 be web-based and mobile-responsive, ensuring that users can access it from any browser on various devices. The system should load and perform operations, such as lesson scheduling or practice exam submissions, within 3 seconds under normal user load. Updates to the system should be rolled out quarterly or as needed, with downtime for updates not exceeding 15 minutes.

* The system should support 500 concurrent users without degradation.
* Periodic maintenance and security updates should be performed seamlessly without disrupting user activity.

#### 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 DriverPass system must run on both Windows and Unix-based systems and be accessible through web browsers (e.g., Chrome, Firefox, Safari, Edge) and mobile devices. The system’s back end will require a robust database (such as MySQL or PostgreSQL) to store user data, lesson schedules, and exam progress. Additionally, integration with third-party payment processing tools (e.g., Stripe, Square) is needed for secure transactions.

* The system should support at least two database instances for scalability and redundancy.

#### 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 use unique user IDs and email addresses to distinguish between different users. The input for login credentials will be case-sensitive to ensure security. Admins should be alerted immediately in the event of failed login attempts exceeding five within a 10-minute window, as this could signal a security breach.

* The system should log all user activities and notify administrators of abnormal behaviors or errors.

#### 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 DriverPass system will allow user roles (e.g., admin, instructor, student) to be added, modified, or removed without changing the underlying code. This will be managed through an admin dashboard interface. The system should adapt seamlessly to platform updates (e.g., web browser updates) by ensuring compatibility and running routine tests. IT administrators will have full access to monitor system logs, user roles, and security settings.

* Admins will have the ability to configure new system features or modify existing ones through an admin panel.

#### 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?*

Users will log in with a username and password, with the option to enable two-factor authentication for added security. Secure data exchange between the client and server will be ensured through HTTPS encryption. If multiple failed login attempts are detected, the account will be temporarily locked and the user notified. In the event of a forgotten password, the system will allow users to reset their password through a secure, email-based process.

* User data, especially payment details, will be encrypted both in transit and at rest to ensure privacy and 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.
* The system shall allow students to schedule lessons based on instructor availability.
* The system shall track student progress in both practice exams and scheduled lessons.
* The system shall securely process payments for lessons and other services.
* The system shall provide instructors and admins with the ability to view and modify lesson schedules.
* The system shall send notifications to students when a lesson or exam is scheduled or completed.
* The system shall allow administrators to manage user roles and monitor system logs.

### 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 DriverPass user interface will support three main user types: **students**, **instructors**, and **administrators**. Students will use the interface to schedule lessons, take practice exams, and track their progress. Instructors will manage their availability and lesson schedules, while administrators will monitor system health and manage users. The interface will be accessible via web browsers and mobile devices, allowing users to interact with it through touch and click functionality.

* **Students**: Will be able to book lessons, take exams, and view progress reports.
* **Instructors**: Will manage lesson availability and provide feedback to students.
* **Administrators**: Will monitor system usage, manage roles, and access logs for security purposes.

### 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 users will have access to stable internet connections and modern devices (both desktops and mobile).
* Instructors will be available to update their lesson schedules at least once a week.
* DriverPass will provide technical support for the deployment and maintenance of the system.

### 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?*

* The system may have limited scalability if the number of users significantly exceeds the projected growth within the first year.
* Budget constraints may limit the development of advanced features such as AI-based personalized training suggestions.
* Security features such as two-factor authentication will be implemented in future phases, limiting the current login options to just password-based logins for Phase 1.

### 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 computer

Description automatically generated*