# 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 design and build a cloud-based training and scheduling system for DriverPass, a startup aiming to help students pass their DMV driving tests.
* The client, DriverPass, is owned by Liam, who wants to offer students a better chance of passing by combining online practice tests with in-person driving lessons.
* The system should allow students to register, schedule lessons, take online practice exams, and track their progress.
* It should allow administrators and employees to manage appointments, users, and training packages.
* It must support remote access via computers or mobile devices and allow for secure role-based permissions.
* The client also wants the system to integrate with DMV updates and support downloadable reports for offline use (e.g., in Excel).
* Security is important, including the ability for IT staff to reset passwords and control account access.
* The system needs to track activity history for accountability, including changes to appointments and records.

### 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 to solve the problem of students failing their driving tests by offering a more comprehensive training experience that combines online learning with on-the-road instruction.

 The current approach most students use studying old DMV exams is ineffective, with over 65% failure rates. DriverPass wants to change that by providing more realistic preparation.

 The system should support three training packages that include combinations of in-car training, in-person DMV instruction, and online coursework with practice tests.

 The goal is to provide a flexible, web-based solution that allows users to schedule appointments, manage packages, and track progress, while reducing manual work for staff.

 The system should allow:

* Customers register, pay, and schedule lessons online
* Secretaries to schedule customers manually by phone or walk-in
* Admins to manage packages and monitor system activity
* IT staff to control access, reset passwords, and maintain security

 Other components include:

* Online testing module with score tracking
* Reservation system tied to instructors, vehicles, and time slots
* Driver notes for each session
* DMV content update integration
* Activity logging and reporting features

### 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 students to register online, choose a training package, and securely pay for services.
* Enable students to schedule, modify, or cancel driving lesson appointments online.
* Provide access to an online course that includes DMV-aligned content and practice exams.
* Track student progress through the online course, showing test names, scores, times, and status (not taken, in progress, passed, failed).
* Record driver notes for each driving session, including time, date, and feedback.
* Assign students to specific drivers, vehicles, and lesson times with no scheduling conflicts.
* Provide admin users with downloadable reports and activity logs for tracking system usage and user actions.
* Allow IT staff to manage user accounts, including resets, deactivations, and access permissions.
* Automatically notify admins of DMV content or policy updates to ensure compliance.
* Maintain secure, cloud-based access across desktop and mobile devices.
* Enable package customization, including the ability to disable packages without system modification.
* Implement password recovery features for customers and role-based access for employees.

## 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 must be cloud-based and accessible via modern web browsers on desktops, laptops, tablets, and smartphones.
* Pages should load in under 2 seconds under normal usage and remain stable with moderate concurrent user activity (at least 50 simultaneous users).
* The online test module should provide immediate feedback after test completion, with no noticeable lag in score generation or data storage.
* The system must be available 99.9% of the time, with minimal downtime for updates or maintenance.
* Security patches, performance enhancements, and DMV content updates should be supported without system interruption.
* Automatic data syncing must occur in real-time when users are online to avoid data conflicts or loss.
* Backups should occur nightly and be securely stored in the cloud to prevent data loss.

#### 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 system should be platform-independent and accessible through any device with a modern web browser, including Windows, macOS, iOS, and Android.
* The back end must support cloud hosting, preferably using a scalable platform-as-a-service (PaaS) or infrastructure-as-a-service (IaaS) environment.
* A secure relational database (such as MySQL, PostgreSQL, or SQL Server) will be required to store user data, appointments, test scores, and activity logs.
* The system should be compatible with third-party services, such as email or SMS gateways for password recovery and appointment reminders.
* It must allow for easy integration with DMV data sources for automated updates.
* The interface should be responsive and follow modern web standards (HTML5, CSS3, JavaScript frameworks).

#### 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 will have a unique account tied to a verified email address and password, with role-based access to distinguish between customers, secretaries, IT staff, and administrators.

 User input, such as email addresses and usernames, will be case-insensitive to reduce user error during login or registration.

 Sensitive fields like passwords will be case-sensitive and must meet defined security requirements (e.g., minimum length, special characters).

 The system will track all user actions related to appointments, test progress, and account changes, recording timestamps and user IDs for audit purposes.

 Input validation will be enforced throughout the system to prevent incorrect data entry (e.g., appointment dates, credit card formats, drop-off locations).

 Admins and IT staff will be automatically alerted of critical issues such as:

* System errors or failed login attempts beyond a threshold
* Data sync failures or duplicate records
* Unauthorized access attempts
* Incomplete customer registrations
* DMV update failures or content mismatches

#### 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 allow admin and IT users to add, remove, or modify user accounts through an internal dashboard without needing to modify the codebase.

 IT staff should be able to reset passwords, deactivate users, and assign roles (e.g., student, driver, secretary, admin) through the interface.

 Training packages should be configurable—admins should be able to enable or disable them without developer intervention.

 The system must be designed with modularity in mind, allowing future updates (e.g., new DMV test content or features) to be added with minimal disruption.

 The web application must remain compatible with common browser and OS updates, with responsive design principles ensuring functionality across screen sizes.

 IT administrators must have full back-end access, including:

* User management tools
* Activity log review
* Error reporting
* Role and permission configuration
* System monitoring and basic configuration settings

#### 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 must log in with a registered email address and secure password to access the system.
* All data exchanged between client devices and the server must be encrypted using HTTPS with SSL/TLS protocols.
* Sensitive information, including passwords and payment details, must be stored securely using hashing (for passwords) and encryption (for credit card data).
* The system must enforce strong password policies (e.g., minimum length, complexity requirements).
* Multi-factor authentication (MFA) is recommended for admin and IT users to add an extra layer of security.
* Accounts will be temporarily locked after a defined number of failed login attempts to prevent brute force attacks. The user will receive a notification, and IT staff will be alerted of the suspicious activity.
* Users who forget their password can reset it through an automated password recovery process that sends a secure reset link to their registered email address.
* Admins and IT staff must have access to an audit trail of login attempts, password resets, and account activity for monitoring and forensic purposes.

### 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 users to register for an account and choose a training package.
* The system shall collect and store user information, including name, address, phone number, pickup/drop-off location, and payment details.
* The system shall enable users to schedule, modify, and cancel driving lesson appointments online.
* The system shall assign appointments to available drivers, cars, and time slots without conflict.
* The system shall allow the secretary to schedule or edit appointments manually for walk-ins or phone calls.
* The system shall allow users to access online classes and take DMV-aligned practice tests.
* The system shall track and display student progress, including test name, time taken, score, and completion status.
* The system shall store and display driver notes and lesson times for each student session.
* The system shall notify users of appointment confirmations and updates via email or text.
* The system shall provide password recovery functionality through email.
* The system shall allow IT staff to manage user accounts, including resetting passwords and disabling access.
* The system shall allow admins to enable or disable training packages from the interface.
* The system shall generate downloadable reports (e.g., Excel) for admin use.
* The system shall log user actions and maintain an activity trail for auditing purposes.
* The system shall connect to DMV sources and notify admins of updates to rules, content, or test materials.

### 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 must be clean, responsive, and user-friendly across all modern web browsers and mobile devices.
* It should follow a clear layout with easy navigation between key sections: registration, scheduling, testing, user dashboard, and support.
* The system must run in the browser (desktop and mobile) with no need for installation.
* The system should include forms with input validation, dropdowns, and date/time pickers to simplify scheduling and data entry.

**User Roles and Interface Needs:**

* **Students (Customers):**
  + Register for an account and select a training package.
  + Schedule, modify, or cancel lessons.
  + Take online practice tests and view test results.
  + View lesson history, driver notes, and session feedback.
  + Reset passwords and manage contact info.
* **Secretary:**
  + Schedule, modify, or cancel appointments on behalf of students.
  + Enter student registration details during phone or in-person calls.
  + View driver availability and match appointments to trainers/cars.
  + Contact students and update pickup/drop-off locations.
* **IT Officer (Ian):**
  + Full access to user accounts, including password resets and deactivations.
  + Monitor security logs, system access, and audit trails.
  + Perform administrative maintenance tasks and basic troubleshooting.
* **Admin/Owner (Liam):**
  + Enable or disable training packages.
  + Access system-wide reports and downloadable spreadsheets.
  + Track business metrics, driver schedules, and student performance.
  + Receive DMV update alerts and confirm content compliance.

### 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?*

* It is assumed that all users (students, staff, IT, admin) have access to a stable internet connection and a modern web browser.
* It is assumed that students have access to a valid email address and mobile phone number for registration, appointment reminders, and password recovery.
* It is assumed that customers register for driving lessons voluntarily and that all payment information provided is valid and secure.
* It is assumed that the system will be hosted on a secure, cloud-based platform with automated backups and support for scalability.
* It is assumed that the DMV will provide timely updates through a method that can be integrated into the system (e.g., API, email notifications, or data feed).
* It is assumed that DriverPass employees will be trained in how to use the system, including scheduling, account management, and responding to system alerts.
* It is assumed that each car is assigned to only one driver and cannot be double-booked for overlapping lessons.
* It is assumed that DriverPass will have access to developer or IT resources in the future for large-scale system modifications or feature upgrades.

### 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 initial version of the system will not allow non-technical users (e.g., Liam or the secretary) to create or edit training packages beyond enabling or disabling them. Major changes will still require developer intervention.
* DMV content integration depends on the availability and format of DMV-provided updates. If the DMV does not offer digital feed, updates may need to be entered manually.
* Real-time syncing for offline access is limited, users can download reports for offline use, but data cannot be updated offline without risking data conflicts.
* Budget constraints may limit the ability to include advanced features like multi-language support, AI-based scheduling, or mobile app versions in the first release.
* The system may be limited in the number of concurrent users it can handle until future scaling and optimization are addressed.
* The system will not support in-person DMV scheduling or licensing beyond training and preparation.
* Resource limitations mean that development tasks are being handled sequentially, so any delays in approval or feedback from DriverPass could impact on the overall timeline.
* Testing is limited to internal QA processes unless additional resources are allocated for external usability testing.

### 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

AI-generated content may be incorrect.