# 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?*

* Develop a system for DriverPass, a company that provides driver training services.
* Support online classes, practice tests, and on-the-road training sessions.
* Allow customers to book driving lessons conveniently.
* Enable the company to securely manage reservations, schedules, and customer 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 aims to solve the problem of many people failing their driving tests at the DMV by offering better driver training experience.
* DriverPass will provide on-the-road training, online classes, and practice tests. The company needs a system to manage all these services.
* The system needs to have multiple components, including a user interface accessible via the web, a database to store and track customer and company data, and business logic to handle functions like security and user roles. The system should also be able to generate reports and be able to connect to the DMV to get updates on policies and questions.
* User Management and Security: Provide role-based access controls for employees, including password resets and blocking access.
* Reservation System: Allow customers to schedule, modify, and cancel appointments for driving lessons online, over the phone, or in person.
* Lesson Tracking: Manage and track customer lesson schedules, driver assignments, and vehicle usage.
* Package Customization: Support flexible package offerings that can be disabled or modified as needed.
* DMV Compliance: Stay updated with DMV rule changes and practice test updates.
* System Integration: Build a database, integrate it with the interface, and include a business logic layer for security and role management.

### 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 shall allow the owner, Liam, to access data from anywhere, both online and offline. However, data can only be modified or updated when the user is online to prevent data redundancy.
* The system should support different user roles with specific rights and permissions. The IT officer, Ian, for example, needs full access to all accounts to manage passwords and access rights.
* The system shall track changes made to records, such as who made, canceled, or modified a reservation. It must be able to generate an activity report to identify who is responsible for a change.
* The system shall enable customers to make reservations for two-hour driving lessons online or through a secretary. It must also be able to assign a specific driver and car to each reservation.
* The system shall include a secure, web-based interface that allows users to register by providing their personal and payment information.
* The system allows customers to automatically reset their passwords if they forget them.
* The system shall be able to receive notifications and updates from the DMV regarding new rules, policies, or sample questions.

## 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: Web-based, cloud-hosted system accessible from any modern browser on desktop or mobile; no local installation required.
* Speed: Pages and transactions (login, scheduling, canceling) should load or process within 2–3 seconds under normal conditions.
* Scalability: Must support at least 200 concurrent users initially, with ability to scale during peak times.
* Availability: Target uptime of 99.5% with daily data backups and point-in-time recovery.
* Updates: Content updates (tests, courses) weekly; application maintenance and feature releases from weekly to quarterly depending on priority.

#### 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?*

* **Platform:** Web-based system hosted on a **cloud platform** (e.g., AWS, Azure, or Google Cloud) and accessible through any modern **Windows, macOS, or mobile browser**.
* **Server Environment:** Runs on a **Linux/Unix** server environment for stability, scalability, and security.
* **Database:** Requires a **relational database** (such as MySQL or PostgreSQL) to manage customers, schedules, drivers, vehicles, and test data.
* **Backend Tools:** Uses **RESTful APIs** and a **secure application framework** (e.g., Java, Python, or Node.js) for data processing and role-based access control.
* **Integration:** Must connect to external services like **DMV update feeds** and a **third-party payment processor** for secure transactions.

#### 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 Identification: Each user is distinguished by a unique username or email address linked to a specific role (Customer, Secretary, IT Admin, or Owner).
* Input Handling: Inputs such as usernames and emails are not case-sensitive, but passwords are case-sensitive for security.
* Data Validation: System validates entries like phone numbers, addresses, and payment information before saving to ensure data accuracy.
* Admin Alerts: The system automatically notifies the IT Admin of login failures, account lockouts, scheduling conflicts, or data integrity issues.
* Audit Tracking: Every record change logs the user ID, timestamp, and action to maintain precise accountability.

#### 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: The IT admin can add, remove, or modify user accounts and roles directly through the system’s admin interface without changing code.
* Platform Updates: The web-based system is cloud-hosted, allowing automatic updates and maintenance with minimal downtime or manual intervention.
* Scalability: Designed to adapt easily to future growth such as adding new training packages, drivers, or vehicles without major system redesign.
* Admin Access: The IT admin has full access to user management, security settings, and system configurations, including the ability to reset passwords and block/unblock accounts.
* Configuration Flexibility: Admins can enable or disable packages, update content, and adjust permissions through the configuration dashboard instead of modifying source code.

#### 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: Username/email + password with role-based access control (Customer, Secretary, IT Admin, Owner); MFA recommended for staff accounts.
* Secure Transport & Storage: All traffic over HTTPS/TLS; passwords hashed + salted; sensitive data encrypted at rest; no raw card data stored (tokenized via payment gateway).
* Brute-Force Protection: Lock account after 5 failed attempts, add exponential backoff/CAPTCHA, and alert IT Admin; all events recorded in audit logs.
* Forgot Password: Self-service reset via time-limited token sent to verified email/SMS; force password change on next login; invalidate old sessions.
* Session & App Hardening: Auto-logout on inactivity, least-privilege roles, input validation, and protections against CSRF/XSS/SQLi.

### 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 and apply role-based access for all users.
* The system shall allow customers to schedule, modify, and cancel two-hour driving lessons online.
* The system shall assign a driver and vehicle automatically to each scheduled lesson.
* The system shall track who made or changed each reservation and generate activity reports.
* The system shall allow customers to take online practice tests and view their progress.

### 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.)?*

* Users: Customer, Secretary, Owner, and IT Admin each has role-based access.
* Customer: Register, schedule/cancel lessons, take practice tests, and view results.
* Secretary: Manage customer accounts and schedule lessons for students.
* Owner/IT Admin: View reports, manage users, reset passwords, and monitor activity.
* Access: Web-based, cloud-hosted interface accessible through modern desktop and mobile browsers.

### 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 have access to the internet and a modern web browser to use the cloud-based system.
* It is assumed that employees (IT, secretary, owner) already have basic computer skills and can manage user accounts and schedules.
* It is assumed that the DMV provides timely updates for new rules and sample test questions through a reliable connection.
* It is assumed that user data is accurate when entered the system (e.g., contact info, payment details).
* It is assumed that the hosting environment will provide necessary scalability, uptime, and automatic backups for the DriverPass 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 relies on a **stable internet connection**; offline functionality is limited to viewing downloaded reports.
* **Budget constraints** may limit advanced features such as mobile app development or multi-language support.
* **Time limitations** the team must complete design, development, and testing within a few months, which restricts scope for extra features.
* **Technology limitations** include dependency on third-party services (e.g., DMV data updates and payment gateways).
* The system’s performance may depend on **cloud hosting capacity and user load**.

### 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 table with text and numbers

AI-generated content may be incorrect.*