# 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 a comprehensive system for DriverPass that provides students with access to online practice tests and on-the-road training. The client, DriverPass, wants the system to facilitate better preparation for Department of Motor Vehicle (DMV) driving tests by offering online classes, practice tests, and scheduling capabilities for driving lessons. The system should also allow data access from any computer or mobile device, ensure security for different roles, and track user activities.

### 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 address the issue of inadequate driver training, which leads to many people failing their driving tests at the DMV. The system aims to fill this gap by offering a solution that includes online classes, practice tests, and on-the-road training sessions. Key components needed for this system include a reservation system for scheduling lessons, user role management for security, activity tracking for accountability, and integration with DMV updates ensuring compliance.

### 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 for DriverPass should be designed to provide comprehensive online access to training materials and practice tests, accessible from any device. It must enable customers to make, modify, and cancel reservations for driving lessons both online and through the office, ensuring flexibility and convenience. The system should implement distinct user roles with specific access rights, including roles for the admin, IT officer, secretary, and customer, to maintain security and proper access control. Additionally, it should track and report user activities, such as reservations and modifications, to ensure accountability and transparency. The system should offer flexible training packages, allowing DriverPass to disable packages as needed to adapt to changing business requirements. Integration with DMV systems is essential to receive timely updates on rules and policies, ensuring that the training provided is current and compliant. A user-friendly web-based interface is crucial, displaying test progress and driver notes clearly to enhance the user experience. Lastly, the system should allow data to be downloaded for offline work, with modifications restricted to online access to prevent data redundancy and ensure data integrity.

## 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 should be accessible via a web-based interface, ensuring compatibility with major web browsers such as Chrome, Firefox, Microsoft Edge on both desktop and mobile devices.
* The system must efficiently handle multiple concurrent users, including students, instructors, administrative staff, without significant performance degradation.
* The system should be designed to scale as the user base grows.
* The system should be updated regularly to incorporate changes from the DMV, such as new rules, policies, or sample questions.
* Ensure that data synchronization occurs seamlessly between online and offline modes.
* Optimize resource usage to ensure that the system runs efficiently on devices with varying capabilities, from high-end desktops to lower-powered mobile devices.
* Implement testing and monitoring tools to identify and address performance bottlenecks.

#### 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 compatible with operating systems, including Windows, macOS, and Linux, to ensure broad accessibility.
* The system should utilize a cloud-based database, such as AWS RDS or Google Cloud SQL to support data storage and retrieval.
* Consider using a scalable backend framework like Node.js or Django to handle server-side operations efficiently.

#### 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?*

* Implement role-based access control to distinguish between different users (e.g., students, instructors, admin).
* Ensure user inputs, such as usernames and passwords, are case-sensitive to enhance security.
* The system should inform the admin of any unauthorized access attempts or data discrepancies through automated 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?*

* Allow the IT admin to add, remove, or modify user roles and permissions through an admin interface without changing the code.
* Design the system to adapt to platform updates by using modular and flexible architecture, allowing for easy integration of new features.
* The IT admin should have full access to manage user accounts, system settings, and monitor system performance.

#### 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 secure username and password, with multi-factor authentication as an optional feature.
* Secure data exchange between the client and server using HTTPS and encryption protocols like TLS.
* Implement account lockout mechanisms after multiple failed login attempts to prevent brute force attacks.
* Provide a secure password recovery process, allowing users to reset their passwords via email verification.

### 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 schedule, modify, and cancel driving lessons
* The system shall track and report user activities, including reservations and modifications
* The system shall provide access to online practice tests and training materials
* The system shall integrate with DMV systems to receive updates on rules and policies

### 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 should be user-friendly and intuitive, allowing users to navigate the system easily without extensive training.
* Ensure the interface is responsive, adapting seamlessly to different screen sizes and orientations on both desktop and mobile devices.
* Information such as test progress, lesson schedules, and user activities should be displayed clearly and concisely.

The different users are and their needs:

* Students (customers)
  + Access online practice tests and training materials
  + Schedule, modify, and cancel driving lessons
  + View test progress and manage account information
* Instructors
  + View lesson schedules and assigned students
  + Leave comments on student performance
  + Access relevant student information
* Administrative Staff (Secretary)
  + Manage appointments and customer information
  + Generate reports on schedules and progress
* IT Officer
  + Maintain system settings and updates
  + Manage user accounts and monitor performance
  + Any possible bugs or discrepancies
* Admin (Owner)
  + Full access to system functionalities and data
  + Access business insights and manage training packages

### 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?*

* User Access
  + Assume that all users have reliable internet access and compatible devices to interact with the web-based system
* Technical Proficiency
  + Assume that users have basic technical proficiency to navigate the system and perform necessary tasks without extensive training
* Data Integrity
  + Assume that data provided by external sources, such as the DMV, is accurate and up to date
* Cloud Infrastructure
  + Assume the cloud infrastructure used for hosting the system is reliable and provides necessary uptime and security features

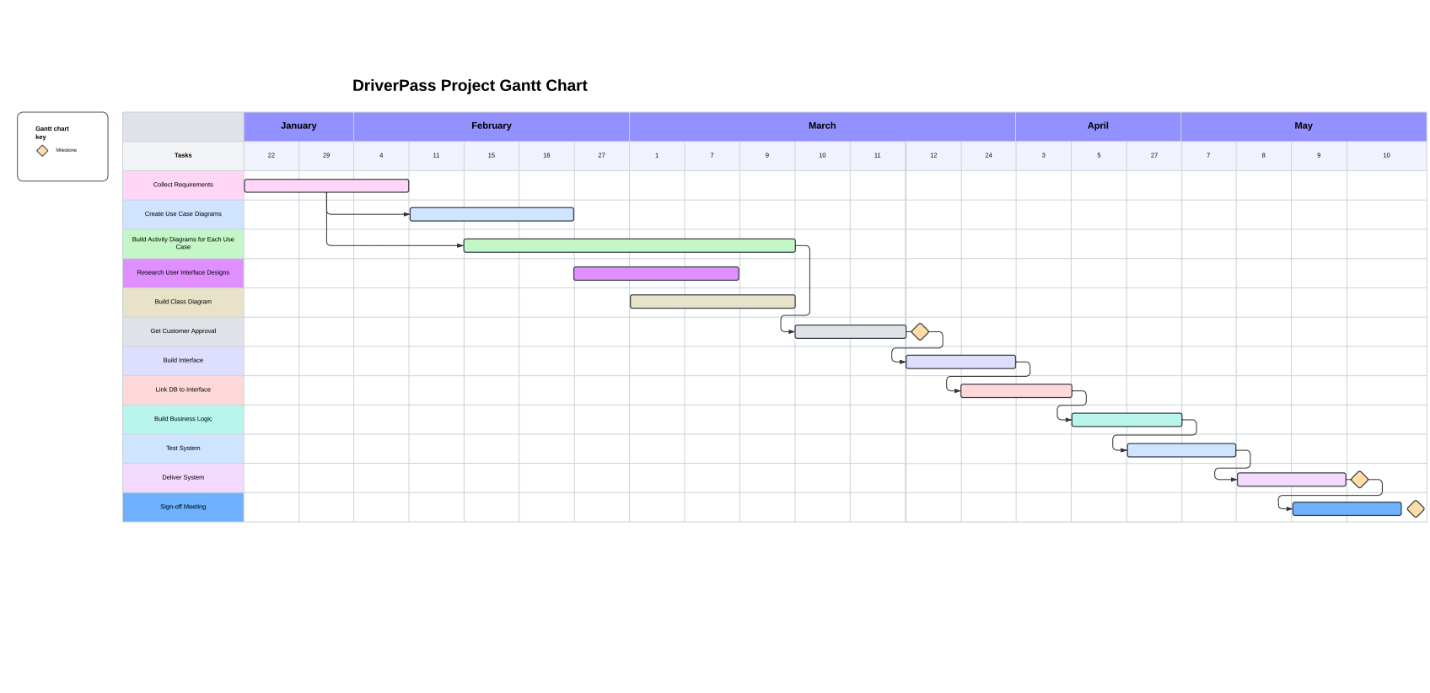
### Limitations

*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?*

* Scalability
  + The system may face scalability challenges if the user base grows significantly beyond initial projections. This would require additional resources or architectural changes.
* Budget Constraints
  + Budget limitations may restrict the scope of initial features and functionalities. This could delay some enhancements to future updates.
* Time Constraints
  + Time constraints may impact the depth of testing and refinement before deployment. This could potentially lead to post-launch adjustments.
* Technology Limitations
  + The system’s performance may be limited by the capabilities of users’ devices, particularly for those with older hardware or slower internet connections.
* Compliance Updates
  + Keeping the system updated with DMV changes may require ongoing development resources to ensure compliance and relevance.

### 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.*

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