# 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?*

* For this project, our client, DriverPass, wants their system to be able to provide training resources to students preparing to take their drivers’ test. Each employee should be able to have different levels of access and all activities should be tracked to provide insight as to what is happening. The user will be able to choose from 3 packages, where they will be able to create appointments, modify existing appointments as well as cancel appointments. User passwords should also be able to be reset when needed.

### 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?*

* They want to provide better educational materials to those trying to pass their driving exams since they believe too many people are failing their driving tests. At the front end, we will need an interface in which the employees can enter user information to set up appointments and reservations when the user calls. Also, a web interface that the users would be able to use to create and manage their own reservations and do other tasks like do online testing and check DMV requirements. A database would also be needed to store all the customer information and appointment times, as well as a list of available appointments.

### 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?*

* Be able to access data online from any computer or mobile device. Also, be able to download reports and certain information to work on offline.
* Set up employees with varying levels of rights and roles. Example: the owner should have full access to all accounts and be able to reset passwords for users or block access when needed.
* Track user changes in the system, things like making and modifying reservations.
* End users should be able to use a web interface to create and modify reservations, or if they choose, to be able to call and set it up with the secretary instead.
* End users should be able to track their reservations and their start and end times, etc.
* Database should track available and not available appointments and drivers.
* Constantly updated list of DMV requirements.

## 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.*

The nonfunctional requirements for the DriverPass system would be:

* The system should be able to run reliably and be able to maintain accurate records for all users.
* The system should be able to meet performance standards and be able to run smoothly for all users.
* The system should be highly intuitive with support for those with learning concerns.
* The system should follow the best security practices and standards to help protect all sensitive data.
* The system should be scalable and can grow as the number of users expands and as the learning material evolves.
* The system should be supported by all devices, a simple and responsive layout would be preferable.
* The system should have learning material that is current, and compliant with the DMV guidelines.

#### 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 environment that the system would need to run in would be a web-based system. This would allow the application to be used on any platform and accessible through the standard web browsers (chrome, edge, Firefox, etc.) The system should aim for fast loading times since it helps aid in student engagement and prevents frustration from lagging during test taking or something similar. It is also important for load times to be fast and efficient so students and teachers can instantly check availability and scheduled courses with ease. The system should be regularly updated, especially the practice exams and testing modules, and they should be changed any time the DMV updates their rules and regulations. The system should be designed with scalability in mind for any future updates and feature enhancements that may be added in the future.

#### 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?*

* Designing the frontend of the system should be designed to be platform-independent and should be accessible through the common web browsers. This will help broaden our audience and should ensure compatibility with OS like Windows, MacOS and Linux. For the backend, you will require a database and you can choose either a relational database management system like MySQL or you can use a NoSQL based solution, this will depend on the specific requirements for the DriverPass system.

#### 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?*

* To distinguish between different users the system should be set up to have password-protected accounts linked to each user.
* These usernames and passwords will be used for authentication and each username should be unique and each password should follow secure password requirements.
* The system should assign roles for each user, these roles should define their authorization levels and their access level to the system resources.
* Input should be case-sensitive which will increase user security and password complexity.
* The system should inform the admin whenever a problem occurs with user login and passwords, if there were too many failed attempts it should inform the admin. It should also inform the admin whenever system performance thresholds that were set are not met which can help diagnose server issues.

#### 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?*

* Changes would be able to be made to the user like adding/removing/modifying without the changing of code by using things like Role-based access control and an admin dashboard. By assigning different roles to each user this allows administrators to control access levels and permissions without changing the code. The system should update the users’ browser continuously to make sure all information is current and accurate, this should only affect the users’ end and won’t change the code in the backend. Agile development should be encouraged, which would allow for smaller changes to be made as needed to mitigate any performance issues that may occur to due changing a large amount of code. All updates should also take place during low activity hours to lower the number of users the update will affect. The admin would need access to every account, be able to update passwords and information and also change access permissions to each user, for example removing access to an employee that is no longer working there.

#### 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?*

* For a user to login, they will be required to enter their unique username and password that is case sensitive for protection. To ensure a secure connection I will enforce the use of HTTPS to encrypt the data transmitted between the client and the server. If there is a “brute force” hacking attempt it should be prevented by limiting the number of failed login attempts. After the account has been locked out, an admin will be notified, and they will be the only user able to unlock the account. If the user forgets their password the password reset request should be able to be sent by the user. The request should verify that the email address listed on the account and a password reset link would be sent to the corresponding email address.

### 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 require the users to login where their username and password will be checked for authentication and once logged in the level of authorization will identify the user’s access level.
* The system shall be web-based, meaning that the data can only be updated and accessed while online. However, certain material should be accessible offline via download.
* The system shall track user activity; it should keep track of when a user makes a reservation or modify or cancel an existing reservation.
* The system shall allow the user to perform a password reset.
* The system shall update the materials so that they are compliant with DMV guidelines.
* The system shall provide instructor feedback that follows a grading rubric that will also be provided.
* The system shall list the DriverPass course packages that are currently available as well as the ability to add new packages as they are developed.
* The system shall allow users to add exams and in person driving help as needed.
* The system shall allow the user to update their personal information used on the application such as:
  + First and last name
  + Address
  + Phone number
  + State and zip code
  + Payment information

### 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 need of the interface will be a login screen that will allow users to enter the credentials. This should then be brought to the next interface which will be the home page, this will contain the basic information contained in the user’s profile, such as the user’s name and any tests or tutoring that may be scheduled. For users that have yet to create an account, an account registration page would be a necessary interface, this will allow users to enter their information that will allow them to create a unique account. The user will have the ability to select the courses they want to take; this will be done with a course material page that lays out what each course entails and other information pertaining to it. Like the course material page, there should also be a driving lesson reservations page, this page should show the availability of the tutors by showing dates and times for each reservation as well as who the reservation will be with.
* The different access levels and users are listed below:
  + DriverPass Owner – the owner of the account wants full access to all accounts, be able to reset passwords, update information and block access to users as needed.
  + DriverPass IT officer – the IT officer will need full access to all accounts, and we be able to help with things like resetting passwords and information and doing things like data tracking.
  + DriverPass Secretary - the secretary has access to appointments and schedules, will be able to create a new appointment for a user or even update or cancel an existing appointment.
  + DriverPass Student- The students will have the most basic access, which will only be to their own account and will be able to do things like create/ modify appointments, access learning materials, update user information and reset their password.
  + DriverPass Tutor- The tutor will have access to the schedules to see when they will need to be teaching as well as the ability to provide feedback to the student as needed.
* The user will be able to interact with the interface via a web browser since the system will be web-based. This means the user can use any Operating System whether they are on mobile, tablet, or desktop, the only thing is they must access through a web browser and there is no android or iOS app compatibility at this time.

### 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?*

* Some of the assumptions made in my design would be that internet is stable and available to use 24/7 server side, this will allow for complete system communication and help aid in complete student records like their progress, personal information, exam history, etc.
* For the users of DriverPass it is important that they have a stable internet connection as well as an up-to-date web browser and a system capable of running it.
* It is also assumed that the DMV guidelines are always kept up to date on their third-party website and that as changes are made there the changes are also made on our website.
* Finally, it is assumed that the average user will be moderately tech savvy and will be able to access all parts of the website without the need for outside help.

### 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?*

* Well for starters, since this will be a web-based application, a stable and constant internet connection is required to access and update the website. A user that will want access to the website to do things like creating an account, checking exam progress and feedback, and looking for tutoring openings, an internet connection is needed to be able to communicate between the user and the server to get this information. The only exception would be certain reading material or test material may be able to be downloaded to be used offline later, but it would need an internet connection for the initial download. Another limitation would be that the users would need a device that can access web applications using a modern web browser. This limitation is thankfully easy to work around since most web applications are not very taxing on a device, but it would still be a limitation to consider. A limitation on the server side of things would be the initial set up costs for hardware for the servers as well as paying developers to determine the functionality and design of the application. All these things cost a fair bit of upfront capital which depending on the business’s needs and ability could hinder what they can accomplish.

### 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 close-up of a chart

Description automatically generated