# 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

* The client is DriverPass, represented by the owner, Liam, and his IT officer, Ian. DriverPass sees that there are too many people who fail their driving tests at their local DMV. The client wants to create a system that will provide training for customers that will help them pass their driving tests by using online classes and practice tests. They will also provide on-the-road training if the customer wants it.

### System Background

* The client would like us to build a system that allows users to choose from a group of packages offering different levels of on-the-road services and online lesson plans that will help them prepare for driving tests at their local DMV.
* The system will need to be cloud based so that it is accessible to users and employees over the internet.
* Users need to be able to make reservations for driving lessons using their online accounts or by calling or visiting the office to schedule an appointment with the secretary, who will also use the system to make reservations.
* Employees should be able to access the system’s data from anywhere, both online and offline.
* For security purposes, user groups should have differing levels of access to the system using the principle of least privilege.
* DriverPass needs to be able track changes to reservations, including who has made changes.
* Users will need to have access to a personal dashboard showing their progress and driver notes.

### Objectives and Goals

* The system should be able to:
  + Provide users with different package options with different levels of service.
  + Allow employees with specified permission to disable certain packages.
  + Allows users to create and modify their reservations.
  + Allow users to access a dashboard on the website that allows users to view their test progress, account information, and driver notes.
  + Allow employees with specified permission to create reservations for users.
  + Allow employees to access system data from anywhere, on any device, both online and offline.

## 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 environment that this system needs to run in is web-based.
* DriverPass should be able to run quickly and handle the load of a multitude of customer accounts simultaneously.
* Administrators should be able to access this system in the same way as customers, but administrators should have higher permission levels that allow them to manage accounts in a way that customers cannot.
* Administrators should be able to access data from the system without an internet connection (i.e., sync on demand while connected to the internet).
* The system should be updated when there are changes to the DMV testing materials.

#### 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 able to run on Windows and Apple without question, but it should also be able to run on Linux if possible.
* The back end will require cloud infrastructure such as AWS or Azure, so it runs without interruption. Cloud systems will also provide scalable storage as the system takes on more user accounts which will require more storage. As the system evolves over time, cloud storage is the best option for scalability. Security and backup can also be ensured by using a sophisticated cloud 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?*

* The system will distinguish between different users based on login information and the permissions given to each individual login. The level of users will consist of customers, managers, and administrators. The principle of least permission will be the first layer of security of the system.
* Customers will be given permission to access the most basic levels of the system. This will include course materials and the user’s personal profile and account settings.
* Managers will have access to course material management and customer accounts.
* Administrators will have access to the most technical aspects of the system in addition to manager and customer permission levels.
* Each user will have a unique username and password. Administrator level users will be required to use two-factor authentication to help ensure that the system is secure.
* Each username should be unique. It would be beneficial to require email addresses to serve as usernames.
* If there are any problems within the system, administrator level users should be notified via email or text from the system itself. Alerts should be implemented when there are changes to any part of the system that are reserved only for administrator level users.

#### 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?*

* Each user of the system should be able to make changes to their account. Most changes should be able to be made by the customer or manager level users. Obviously, administrator level users should be able to make changes as well. A customer should be able to make changes to their own account, while managers should be able to make changes to their own accounts as well as all customer accounts. Administrators should be able to make changes to all accounts, even other administrators. Since this is based on user permission, the code for allowing these changes should already be in place so that the code does not need to be modified.
* The system will receive updates from time to time. These updates should be implemented during the hours of least use, likely early morning on weekends.
* The IT admin will need full access to the system to make updates and fix any issues that may arise after the implementation of updates.

#### 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?*

* The user is required to enter a username and password to log in. Every user has the option of enabling two-factor authentication, but it is required for administrator level users. Two-factor authentication will either send a one-time code by text to the user, or they can use an authentication application on their phones that cycles through one-time code.
* The connection between the client and server can be unsured by using an SSL certificate. An SSL certificate enables an encrypted connection between the client and server. Not only is this an easy way to help with keeping the system secure, but it can also help market the application. Search engines such as Google and Bing will prioritize websites with SSL certificates in their search results, which will help DriverPass’ visibility.
* If there is a brute force hacking attempt, denial of service (DoS) protection will help to keep attackers out of the system. This can be implemented on blocking users from specific IP addresses from attempting to login after a certain number of attempts.
* If a user forgets their password, they should be able to receive a temporary password to the email address associated with their account. Once the user logs in with this temporary password, they will be redirected to a page where they can set a new permanent password.

### 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 be accessible from desktop and mobile platforms.
* The system shall require unique usernames.
* The system shall contain practice DMV tests.
* The system shall validate usernames by requiring passwords and, in some cases, two-factor authentication codes.
* The system shall contain instructor notes so that the customer gets the best feedback possible.
* The system shall allow for users to be added, updated, and deleted.
* The system shall provide progress reports for each user.
* The system shall allow customers to schedule in-person sessions with driving instructors.
* The system shall be user friendly.
* The system shall be able to work offline for certain features.

### 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 system’s interface should be easy to navigate regardless of the account level.
* The customer’s personal information, test progress, driver noters, special needs, driver photo, and student photo should be on display for each customer.
* Managers and administrators should be able to see their own profiles with personal information and have easy access to every customer account.
* Administrators should be able to see every account on their interface.
* Every user should be able to access their account on desktop computer via a browser.

### 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?*

* I am assuming that the customers have access to basic materials covering their local and basic traffic laws.
* I am also assuming that users have access to a computer so that they can access practice tests and schedule in-person instruction.
* I am also assuming that customers can pay with a debit/credit card for the services being provided.

### 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 current system is limited to desktop/laptop computers. Smart phones are not compatible with the current design of the system. As DriverPass grows and adds more customers, they will want to think about adding this functionality to the system.
* The system, while accessible offline for managers and administrators, still needs to be online for customers. DriverPass may want to think about extending offline functionality for practice tests to customer level users.

### Gantt Chart

