# 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 the clients requested program is to fulfill and underserved community who needs to be trained before their driving test at the DMV. The client DriverPass hopes to serve this community by providing training for the written portion as well as scheduling on road training as well. They would like DrivePass to be an online system for clients to schedule classes or driving assistance that is accessible on computers and mobile devices.

### 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 the system to be fully online so that users can schedule their appointments from anywhere. The users need to be able to schedule, update, and cancel all through their own online portal that DriverPass provides them. The components will be a server to host data and update the user profiles as well as a site for the end user experience. There will need to be accounts for users to be able to sign in to update their reservations. The system that is built needs to be flexible for future adaptations to their current offerings that a non-developer can make changes to.
* There also needs to be a phone number available that the customer can call in to process and schedule changes with an agent. This means that there needs to either be a different system in the office or the same one that the agents have elevated permissions.
* Lastly in the portal the user must be able to access data about the tests they have taken, how far along they are with the tests, and if they have passed/failed

### 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?*

* Take orders on the website
* Create customer accounts
* Customer accounts that show test progression and results
* Ability to update reservations
* Customer accounts will have their information (name, address, phone number, etc)
* Customer account should also have special needs, their photo, driver test photo, and driver notes from instructor
* A link to the phone number
* Cloud based system that backs up the data and provides real time changes as updates are made
* Website must be accessible over a mobile and desktop site
* Server handles security of the database
* Flexibility to remove program offerings on the site as changes to business model are made

## 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 for this system needs to be web-based via a website hosted over cloud servers
* The system must be able to handle changes based on the clients needs as they change over time. This means that the hosted site must be scalable for future changes.
* There should be fast speeds for users to access as well as a decent amount of overhead for random increase traffic so that the site does not go down or have slow performance. Possibly the requirements of offloading to another server to handle high traffic periods
* The system should be updated regularly to meet security requirements. Possible that this is done on the server/cloud side by the hosting service whereas the front end won’t need to be updated as much.

#### 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?*

* In terms of the platform, it should be run on Linux as it meets customers cost requirements as well as being widely used for server/cloud environments.
* Since we will be using cloud to manage the backend, this means that all security will run through that side. This will be slightly more costly as it means that fees to Microsoft/Amazon will add up but also means we are more scalable.
* We will likely need Azure admin controls to debug server/cloud issues.

#### 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 way to distinguish between users will be with the username of their account. The username will be case sensitive and will be tied to a password that will be securely encrypted with AES.
* The system should inform an admin of a problem in the following circumstances
  + Large volume of sign on attempts to a single account (brute force)
  + If a duplicate account gets created with the same credentials
  + Invalid email address
  + Site breach
  + Encryption certificate to validate a password does not match the one sent from the other end.

#### 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?*

* There will be the ability to make changes to a users account without the need to change the code. Users should be able to do this from their account profile.
* The changes will be made slowly over time for feature changes. This allows for the users to adapt to the changes of the site without making drastic changes which would inhibit their ability to know how to use our account system.
* Any attempts to sign in more than 5 times will lock the users account. The only way to mediate this is for the user to validate that it was them attempting to sign in via an automated email from our systems. They can simply click on the link which will re-enable their account. If an additional 5 attempts are made then the account will be disabled until they reach out to our support team.
* IT admins will have full admin access to the account system so that they can re-enable accounts, make changes to accounts, validate email addresses, remove employee accounts, change front end code, etc.

#### 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 requirements for sign in will be entering of email, password, reCAPTCHA, and 2FA (choice of text, email, or secure code generator).
* Cloud services will handle all communications between client and server. Site certification will be required between the client and the server to access. If a certificate cannot be validated then the client will not have access to the site.
* There is a limit of 5 account sign on attempts before account is locked until user validates it was them attempting to sign in. After validation the user will only get 5 more sign on attempts. After that the account is closed until support personnel are contacted by the client.
* For a forgotten password the typical entering of email along with a link to reset will be sent. The link will break after a single access and must be certificate validated before access is allowed. There will also be another email sent after the password is reset with an option to let support know that it wasn’t the user that attempted to change password if it was a nefarious attempt.

### 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 signing in along with require reCAPTCHA and 2FA.
* The system shall run fast, efficiently, and be able to handle increased load amounts.
* The system shall provide access to class data, schedules, and registration
* The system shall allow for users to access practice tests
* The system shall provide the driver information for their instructor pairing
* The system shall provide 3 different driving packages as defined by the client
* The system shall show tests, test progression, and completion of courses that have already been taken
* The system shall define customer access and provide access levels to that account

### 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 requirements of the interface should be to provide sign in access, account related information, course progression, practice tests, set up driving appointments, and manage user credentials.
* The user should be able to interact with the site from a mobile browser, laptop and computer. For all other devices it will default to the full site page (gaming systems as an example).
* The different users would be online class users and in person users. The online class users will have access to a simple LMS to manage course progression. The in person users will have access to schedule appointments.

### 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?*

* There was not a designated budget for the system meaning that setting up a full LMS may not be within the allotted amount for this project.
* We also are not aware of users access to technology or their data speeds for fetching site information. We will likely need to have a minimum expectation for online course users.
* We are making the assumption that all users will have access to internet to either take courses or to schedule classes. For users who do not have online access they will need to complete scheduling over the phone.

### 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?*

* One limitation that I see is how built out the online platform for classes will be up front. It will be expensive to build/integrate an entire LMS meaning that this may have to be smaller than imagined up front until we have a larger user presence.
* We have not set up a payment system for online students meaning that our margins will be lower than anticipated.
* We are making the assumption of site performance and reliability. How are we going to set up a second server to handle increased loads? What about when our site is down for maintenance?
* Another massive limitation is the amount of people building this site. We don’t have many people that will be working on this project.
* It is best to implement Agile so that we can get parts of this out and functioning so that we can increase revenue.

### 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.*

Timeline

Description automatically generated