# 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 client would like to build a system that improves driver education results for Driver Pass customers. This system will allow clients access to a portal that will display information regarding their progress, provide a menu of packages, schedule driving and online classes.

### 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 overarching goal is to improve driver education results. The problem they're trying to solve is decreasing the number of driver education tests that are failed. The system will consist of multiple components to include: interfaces, databases, role based privileges, password based security, email integrations, 3rd party data retrieval, offline data manipulation while preventing data redundancy, scheduling, payments, cloud based backup/security

### 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 should be able to allow multiple internal users role based access to modify data.
* The system should allow for manual data entry to include scheduling, customer data collection
* The system should output reports for admin
* The system should include a customer facing user interface with database integrations
* The system should have a third party API or web scraping server for DMV update notifications.

Date of completion Phase 1: 22 Jan - 10 May

## 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 run online and offline
* The system should document phone calls at a minimum and record conversations as a future features
* The system should have “cloud based” security and storage.

#### 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 a cross platform app developed for use anywhere and include features that are available offline. Recent advancements in web technology in the form of Progressive Web Apps(PWAs) suit this need quite perfectly. Because the system can be built on the web, downloaded from the browser to any operating system or mobile device and a vast majority of commonly used browsers support PWAs only a very small minority of specialist users will be unable to use the application, it is unlikely these users will be using the system anyway.
* Databases, Security, Authentication, Message Passing can be accomplished in the cloud(Azure, AWS, GCP). This does not make application easier or cheaper to develop or maintain, but merely eliminates the need to configure bespoke hardware. Local and remote databases can be rapidly synced using technologies such as RedisDB. This will allow speedy updates from the cloud for a user that was offline but is now back online. Synchronization and Caching will need to be studied in order to apply the best(subjective, best is the one that works the best in the first iteration, ‘fail fast’) database structure.

#### 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?*

* Admin – IT Manager – Ian
* Owner – Liam
* Drivers
* Students
* Secretary

In the users table admins, owners, and developers should be distinguished from each other using common role based practices. Each individual user will have a GUID that is randomly generated by popular libraries in multiple programming languages dedicated to this task. GUIDs will help ensure users with the same name are not granted permissions they should not have, avoids conflicts with other users data, and allows for precise targeting of CRUD operations with regard to to a specific user. Case sensitivity is a factor in that mistakes happen. The system should identify proper fields that require case sensitivity and use a combination of input validation techniques as well as automated correction mechanisms. As described in the notes from the business meeting an admin should be notified of certain events that take place. These events include but are not limited to:   
- Forgotten Password Notifications

- DMV Updates

- User Removal/Deletion?

#### 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?*

* The client would like the ability to add swappable “modules” that represent the various offerings that are for sale at Driver Pass.
* The system will respond to updates from the DMV, the addition and removal of clients, drivers and admins. It will also be required to update pricing packages. The Admin requests “full access over all accounts”.

#### 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?*

* A username and password are required for a successful login
* A secure connection can be established using SSL and TLS over TCP/IP.
* Brute force hacking attempts can be thwarted with cloud providers prevention mechanisms available through the likes of Cloudflare. Reverse Proxies also help prevent brute force attacks through a variety of means such as attack pattern matching, geo blocking, traffic anomaly detection, and rate limiting.
* If a user forgets a password it will need to be manually reset by the admin or we can provide a password reset feature.

### 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 allow registration by secretary answering phone calls
* The system shall display a web interface of driver progress
* The system shall allow customers to make reservations online
* The system shall gather pickup and drop off locations
* The system shall display notifications of DMV updates
* The system shall display test scores of tests taken
* The system shall display phases of training and completion
* The system shall present a customer/trainee data input form

### 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.)?*

* Secretary Interface
* Admin Interface
* Customer Interface
* Online Classroom
* Login/Authentication
* Dmv updates page
* cloud security authentication
* online testing
* contact page

### 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?*

* We assume the DMV has an API.
* We assume there may be a PaaS such as Twilio for Telephony operations
* We assume there will be equal online and phone signup requests

### 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 project scope is very large for the amount of time allocated
* The story for user registration is incomplete.
* The story does not include details for hiring and vetting drivers
* The story does not include details related to ‘security’, background checks, insurance etc

### 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.*

