# 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 is DriverPass. They want the system to be able to assist in helping prepare prospective drivers to pass their driving tests.

### 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 a system that provides students with online practice exams, and access to driving lessons. The problem they want to fix is that they see the current failure rate of driver tests as too high, which they see as being caused by inadequate training and practice for those drivers.
* The different components needed include user account creation, a reservation system, integration with the DMV, a module through which the different courses can be applied to the students, user role management, a system for tracking the students’ progress, and some sort of user security system.

### 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?*

* When completed, the system should be able to allow customers to register for courses, participate in those courses, schedule and manage driving lessons appointments, and have access to different driving lessons packages. Staff and administrators should be able to manage other user accounts and those appointments, and both should be able to track their progress. DriverPass should also be notified on any updates from the DMV.

## 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 must be web-based, but work on both desktop and mobile. It should, therefore, work at least on Chrome, Firefox, Edge, and Safari. Two seconds as the maximum for most operations like logging in, checking results and booking lessons seems to be fairly standard, and, more importantly, reasonable. Most updates should have a maximum time to go into effect of 24 hours, but faster is obviously better.

#### 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?*

* Windows and Mac are probably the two most beneficial platforms to support; Linux is fairly popular, however, the people that tend to use Linux are probably not really the type to need drivers’ education, so unless the staff or administration tend to prefer Linux, it isn’t as strong a priority. Android and iOS are also critical to support, for fairly obvious reasons. ChromeOS would likely be a good platform to focus on, as well, given the prevalence of school-issued Chromebooks and similar ideas placing them firmly into the target audience of people who would need drivers’ education.
* A database would most likely be necessary in order to save both user login data, and the grades/progress those users have made.

#### 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 probably most tried-and-true method of distinguishing users is username and password systems. The input should most certainly be case-sensitive. The system should notify admins when an account has more than, say, 5 consecutive unsuccessful login attempts in a row, or if one IP is trying to login to multiple accounts at the same time.

#### 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?*

* Yes, changes to the user are possible without changing the actual code. Optimally, the system will be designed ina modular and flexible enough manner that its response to a platform update isn’t to immediately explode. The IT admin will most likely need to be able to manage users, view things like login attempts and access logs, be able to manage system backups/recovery and view things like performance metrics and diagnostics.

#### 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 user will need a username or email, and a password to login; the optional addition of 2FA should also be included. The connection between the client and the server can be secured with end to end encryption, and secure authentication protocols. If a given account has 10-ish failed login attempts, putting a 5-ish minute lock on that account that increments with each batch of failed logins would slow attempted account theft without putting too much burden on a person simply failing to login to their own account. These lockouts should also notify the account owner. Additionally, CAPTCHAs can be implemented to slow these attempts. Blacklisting an IP with an inappropriate number of login attempts could be helpful, though, changing IPs is such a small effort to accomplish that it’s almost an example of security theater.

### 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 provide a ‘forgot password’ feature  
  The system shall have different user roles with different permissions by role  
  The system shall allow an IT officer to reset user accounts  
  The system shall allow customers to make and manage reservations  
  The system shall allow staff to create and manage reservations on customers’ behalf  
  The system shall track the details of these reservations  
  The system shall allow users to choose from a selection of driving packages  
  The system shall allow staff to disable specific packages  
  The system shall track the progress of customers based on their package  
  The system shall provide online practice tests for the customers  
  The system shall connect to the DMV  
  The system shall support secure communication between the client and server

### 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 needs to be responsive, accessible, and usable from multiple devices. The users are administrators, the IT officer, and customers. Administrators need to be able to access settings like package changes, user role changes, and access the reports the data generates. They are most likely to access the system through a desktop web browser, but may sometimes use mobile to access it.. The IT Officer also needs access to user management tools, as well as more troubleshooting tools, like system performance metrics and diagnostic tools. They are also most likely to use a web browser to access the system, but may still use phones on some occasions. Customers need to be able to view their personal information, like account information and lesson progress, and make and check reservations. Students are still probably most likely to use web browsers to access the system, though a significant portion will probably be on mobile, as well.

### 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?*

* Scalability is a fairly large subject that isn’t really touched on at this stage of development. Payment processing isn’t really mentioned, either, though it would likely be pretty integral to the success of any business online; but they likely a relatively easy feature to implement into the system.
* The biggest assumption made is probably that all users will have access to the internet, and at least semi-modern devices to access the system from. It also assumes that those users will have at least some sort of basic computer literacy in order to use those tools, and not that they will simply stare blankly at the screen trying to comprehend what it is. The security also assumes that a user will not do things like give out their password, or make an overly easy to crack password.

### 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 may, again, be a pertinent limitation, depending on how rapidly the platform grows.   
  There is also a limitation with the internet, in that users with no internet or not good internet are going to, at best, have inferior experiences using the system. Also, depending on the level of integration with the DMV, any downtime on their end may negatively impact this system; and the same can be said of whatever payment processor might end up in use.

### 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.*

