# 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, DriverPass wants an application to build and application fills a niche in the driver training market. This application will provide a way for people learning to drive to get better training via training videos and in-car driving training.

### 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 wants the system to provide access to high-qual training for learners.
* The DriverPass application will have a web interface allowing users to access their information from any web browser.
* The DriverPass web application will make it easy for learners to take practice tests and track their progress.
* The application will use a database to ensure user’s information is persistent and easily accessible from the web.
* The application user interface will allow users to easily book in-car driving appointments as well as track feedback from those appointments.
* The application user interface will allow users to add driving lesson notes.
* The application user interface will all users to see their profile, testing progress, and driving notes.

### 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?*

* Users will be able to access training videos.
* Users will be able to select a training package.
* The UI will inform users of the online testing progress.
* Users will be able to take online practice tests.
* Users will be able to schedule appointments with driving instructors.
* Users will be able to add notes from driving sessions.
* Administrators will be able to manage user accounts and reset passwords.
* Administrators will be able to manage training packages.

## 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 DrivePass will be a web based application.
* The DriverPass application should accessible and useable from common desktop and mobile operating systems.
* The DriverPass application should be respond to requests in less than 1 second.
* The training videos made available by the DriverPass application should stream on slow internet connections.

#### 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?*

* Preferably, the application should be deployed on a public cloud.
* The application should run on a Linux operating system.
* The application should run behind a load balancing proxy to ensure uptime.
* The application should use a database that supports encryption for user data while at rest.
* The application should make use of an object and data cache to ensure responsiveness.

#### 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 will authenticate users on their initial requests. For subsequent request secure, http only cookies will be used to associate a user’s session with their request.
* The application should be instrumented with tools that monitor exceptions and performance degradations. The instrumentation will notify admins via email and / or a chat channel of performance issues or a high number of exceptions.
* The application should use a health check to monitor the web application, database and all other components. If the health checks fail, admins should be notified via email, text messages and chat channels.

#### 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?*

* User data should be stored securely in a database. Using a database CRUD operations on user entities will not require code changes. The same will apply to training video links and other entities / objects that are used by the system.
* IT admins should not be able to modify code or database entities. However, IT admins should be able to perform maintenance and migrations on the infrastructure.
* DevOps should be able to deploy code, write queries and handle software based outages.

#### 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?*

* User authentication and authorization requires a user id and password. An additional option is to require multi factor authorization.
* All communication between the browser and the server side must use SSL/TLS to encrypt messages.
* The number of failed login attempts per user will be monitored to detect a brute force attack. If a user attempts more that three failed logins in thirty seconds the user’s account should be disable and the IP and user-agent attempting the login should be logged. Finally, a notification should be sent to the site admins.

### 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 a user’s credentials when a login is attempted.
* The system shall display the user’s online test progress.
* The system shall determine which package a user has purchased.
* The system shall display driver notes.
* The system shall allow the user to schedule a driving lesson appointment.
* The system shall display the user’s scheduled driving lessons.
* The system shall allow the user to update their profile information.
* The system shall display the user’s information.
* The system shall allow user’s who have purchased a package that allows access to online training access to the online training.
* The system should allow user’s to reset their password.
* The system should allow admins to setup users.
* The system should allow admins to deactivate users.
* The system should allow admins to modify users.
* The system should allow admins to add, remove or update packages.

### 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 user interface needs to allow all users to log in and out.
* The user interface needs to allow customers to register and select a package.
* The user interfaces needs to allow customer to update their profiles.
* The user interface must allow customers to view the training progress, appointment and training videos.
* The user interface should be reactive to browser viewport size to allow customers to access the application on tablets, smart phones and desktop systems.
* The user interface must allow admins the ability to perform CRUD operations on Customers, Packages and other database entities.
* The user interface must allow admins the ability to disable users and packages.

### 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 are assuming that the customers can access the site via a browser.
* We are assuming that the system is developed and deployed in a cloud native manner taking advantage of basic technologies like elastic computing, load balancing, cloud based messaging, cloud based monitoring and, cloud hosted databases.
* We are assuming that the client has the personal to monitor and maintain the application.
* We are assuming that customers have access to an internet connection.

### 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 system will be limited by the number of cars and drivers.
* The system will be limited by the customer’s ability and budget to scale servers and services vertically and horizontally.

### 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 with medium confidence