# 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 this system design is to train students to become better drivers by helping them study for their driving test online with classes and practice tests. The system of DriverPass can also allow for on-the-road training if requested by the students of the program. In addition, there will be a tiered way of accessing information for the owner, admins, different workers, and students themselves such as:

* Owner being able to access information both online, offline, and out-of-site
* Admins being able to help access information for customers
* Depending on the worker, access differently layered/tiered information to help owner with data analytics or helping customers set up reservations for call-ins
* Customers should be allowed to update/change information and have access to adding future reservations, classes, and practicing tests provided by DriverPass

In addition, the information that is provided by DriverPass should also be async with information provided by the DMV to ensure that the students are all getting up-to-date information.

### 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?*

The proposed system's background is provided to address the need for improved driver training. DriverPass seeks to provide an easy-to-use system that allows customers to access and schedule their classes or appointments online, practice tests online, make reservations for on-the-road training, track their progress, and receive up-to-date information on DMV requirements. DriverPass seeks to fix the high failure rate of driving tests due to improper preparation and studying using their online system.

Components needed for the system are:

1. User management:
   1. Different user roles with specific access rights
      1. Admin, IT officer, secretary, student, etc..
   2. User creation functionality, password resetting, and account blocking by admins
2. User Interface Design:
   1. User-friendly web interface for all user roles
   2. Forms for entering customer information, contacting the company, and managing appointments
   3. Displays for test progress, lesson, schedules, driver comments, and extra information that needs to be displayed on a user profile
3. Reservation and Scheduling System:
   1. Online platform for customers to make, modify, and cancel reservations for driving lessons
   2. Scheduling capabilities for matching customers with available drivers
   3. Options for customers to select from various training packages
      1. Each package having different features based on package tier
4. Training Content:
   1. Delivery of online classes and practice tests
   2. Connectivity with the DMV for async information on DMV policies, rules and information
      1. May also notify customers if information may have changed
5. Data Access and Reporting:
   1. Ability to access and download reports offline
   2. Tracking user activity and information for progress display and accountability
   3. Ability to print activity reports to monitor system usage and changes
6. Security:
   1. Having a secure cloud-based deployment to handle data backup and overall security
   2. Ensure that the correct users have the correct permissions and roles to prevent unauthorized access to information.

### 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 objectives in a system analysis offer a clear outline of the required tasks that the system must accomplish to meet the client’s needs, and the goals will provide measurable benchmarks to assess the effectiveness and success of the system in a achieving these objectives. DriverPass’s objectives and goals will ensure that the system is developed to effectively address their needs and deliver a high-quality service with up-to-date information for training purposes. Objectives and goals DriverPass can use are as follows, but not limited to:

* Developing comprehensive driver training solutions
  + Objective: Develop an online platform to offer various driver training programs and practice tests
  + Goal: Achieve a high customer satisfaction rating for online training and booking; ensuring each customer is as prepared as possible for real DMV tests
* Implementing user account management
  + Objective: Facilitate secure creation and management of user accounts with role-based access
  + Goal: Ensure secure logins and account recovery for all users without problems for unauthorized access to various information
* Designing user-friendly interface
  + Objective: Design an ease-of-use interface for easy navigation, data display and interaction
  + Goal: Achieve an easy-to-use application for any existing/new user to use and navigate, displaying all the necessary information based on their role
* Creating efficient scheduling and reservation system
  + Objective: Implement online booking, modification, and cancellation of lessons; provide help with call-in as well
  + Goal: Ensuring students can setup, track, or remove reservations for their online classes or on-site training
* Provide data access and reporting
  + Objective: Provide tools for tracking activities and generating real-time and offline reports
  + Goal: Achieve 100% accuracy in all tracked logs and reservation data, ensuring a small percentage of manual data entry
* Enhance communication and notifications
  + Objective: Implement notifications for lessons, changes and DMV updates on information
  + Goal: Ensure that users receive the correct notifications based on any changes for their lessons and or DMV updates as soon as possible.
* Enable system updates and flexibility
  + Objective: Manage and modify training packages available based on user
  + Goal: Implement changes based on data logged and adjust available packages that is constantly updated
* Ensure security and compliance
  + Objective: Use a secure cloud-based storage and implement role-based access to information
  + Goal: Ensure there are no complications with security to avoid losing user data and keeping up to date on DMV regulations

## 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?*

This system should run in a web-based application over the cloud as they do not want to deal with backup and security as DriverPass wants to focus more on their business with minimal technical problems. The system must be fast to keep up with different modifications made by their end users. Ensuring proper data interaction or front-facing data displays properly on the user’s profile as their data is being tracked and logged. In addition, the system should be updated regularly to remain async with DMV regulations and policies. Whenever the DMV decides to make changes to their policies, so should the app, as it needs to be always up to date.

#### 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 platform can run on any platform if the data can be accessed at the proper end points. The back end will require a way to export data into excel spreadsheets and enough space to hold multiple user data such as their personal information and class progress/tracking as they go through different courses.

#### 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 application will include business logic layers to manage different user roles effectively, and categorize users into distinct roles
* To ensure user security, the system should handle input for user credentials when logging into the application.
  + will also handle the input for important information fields such as personal information.
* The system will have a fast-reporting mechanism to inform admins of any problems that occur
  + The notifications can be sent in emails, or in-app alerts all depending on how severe the problem is.

#### 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?*

* Implementing an admin interface to avoid needing change in code
* The system will use rolling updates (patches) to allow for functioning updates to information or changes to the system itself
* IT will need admin access to manage specific configurations of the system
  + User account management
  + Updating/modifying packages and reservation options
  + Accessing and managing system for troubleshooting
  + Handling data backing over cloud if needed to avoid data loss

#### 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?*

* Usernames and passwords will be needed to login
  + Validation and case-sensitivity will be used to ensure secure login
  + If repeated fail attempts occur, ask for extra information in form of security questions
    - May lock out of system if repeated attempts exceed n amount of times
    - Prevents brute force hacking attempts
* Encrypting data sent between the client and server and secure protocols prevent losing data
  + Ensures confidentiality for security
  + Protects sensitive information
* If user forgets their password, they can opt for password recovery
  + Ensure user supplies username and correct email
  + Alternative is to talk to present IT admin for quicker recovery

### 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 a user to add, change, or remove reservations
* The system shall allow a user of a specified role to make modifications to other user’s information such as forgotten passwords
* The system shall let the owner access data on different environments outside of the workplace
* The system shall be linked to a database to allow CRUD operations with various data endpoints
* The system shall show different user progress
* The system shall track and log user activity for accurate information
* The system shall notify admins in case of problems occurring
* The system shall always be up to date on DMV policies

### 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 needs of the interface are showing the online test progress of a user, user information, driver notes from in-person classes, special needs of the user, driver photo and student photo. In addition, there should be more information for the progress checker to show different statuses of failing, currently taking, passing, or not taken tests with time stamps from the different driving instructors. The users will be able to fill in information in the user information portion along with comments about certain classes that have been taken from the driver instructors. The user can interact with the interface on a web-based browser that will add the information into the cloud-based program and backend.

### 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?*

Specific things not addressed were how the admins were to access information so using proper guidance we can infer a method for admins to access data to look at remotely. We assume that the design above is the more specific way we need to make the application and have a little more freedom when it comes to setting up the other requirements.

### 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 I see in this is the application being cloud-based. There are times where the cloud being used can go down for any reason such as outages or ddos attacks (in the worst of cases) and if a user were to try and access the application, they’d be unable to. Moving it to a more physical server could remedy that issue if it were more within budget. In addition, the system design is only for one main page of the application, we would require more information of the layout of the entire application in addition to the other pages to avoid many modifications/changes if required.

### 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.*

