# 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?*

* **Purpose:** This project aims to facilitate information to enhance the performance of individuals who partake in the DMV’s driver's test. The project has been initiated because the client has identified the root cause as to why individual success rates have declined. The main culprit is inaccessibility to localized, updated, and insightful resources, and the client’s purpose is fueled by these failures in hopes to turn them into successes  (Southern New Hampshire University, 2022, p. 1).
* **Client:** The client, who is DriverPass, will be working closely with the local department of motor vehicles (DMV). The client will also depend on whom the project will want to outsource this software too, as it is dependent on variables (population, industrialized areas, etc.) (Southern New Hampshire University, 2022, p. 1).
* **Functionality:** The client wants the system to be able to access data from anywhere, online as well as offline. The client wants the system to access data online from any computer or mobile device to be able to download reports and information that individuals can use at home. For example, the use of Excel or Microsoft Word would be enhanced and robust implementations. The client also wants the system to be able to handle on-the-road training if the individual prefers this option (Southern New Hampshire University, 2022, p. 1-2).

### 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?*

* **Problem:** DriverPass would like the system to improve the ability of individuals to conduct better driver training. The client notices that many people fail their driving tests at the DMV (Southern New Hampshire University, 2022, p. 1).
* **Solution (“big picture”):** The client would like to provide better driver training by implementing a system where individuals can take online classes and practice tests in the hopes of improving performance. The client will also provide them with on-the-road training if they opt into this feature. The system needs to also perform anywhere, including the accessibility of data online and offline. The system needs to be able to download reports and information that can work with applications including Microsoft Excel and Word (Southern New Hampshire University, 2022, p. 1).
* **Components:** The different components include the overall system, security, reservation capabilities, registration requirements, interface mechanisms, serverless capabilities, or any server requirements, specified operating system, hardware/software requirements, and maintenance throughout the system (Southern New Hampshire University, 2022, p. 1-6).

### Objectives and Goals

*What should this system be able to do when it is completed? To achieve this, what measurable tasks need to be included in the system design?*

* **Completed properties:** The system should be able to enhance the lives of others within the communities by providing increased success rates for driving tests. The system should also be able to provide sustainable training for the individuals using it and build in systems that are conducive to success (Southern New Hampshire University, 2022, p. 1).
* **Measurable tasks:** Measurable tasks include collecting requirements, creating use case diagrams, building activity diagrams for each use case, researching user interface designs, building class diagrams, obtaining customer approval, building the interface, linking the database to the interface, building the business logic, testing the system, delivering the system, and promoting the sign-off meeting (Southern New Hampshire University, 2022, p. 6).
* **Objectives and Goals:** The objective and goals should include accessible information to customers, provide serverless cloud features, security, and user-friendly features, implementation of various packages, implementation of reservation and registration features, interface capabilities, and proper tracking systems (Southern New Hampshire University, 2022, p. 1-4).

## Requirements

### Nonfunctional Requirements

* **Nonfunctional Requirement Example:** Individuals will be able to pick from three packages: Package one – Six hours in a car with a trainer, Package two – Eight hours in a car with a trainer and an in-person lesson where we explain the DMV rules and policies and Package three- Twelve hours in a car with a trainer, an in-person lesson where we explain the DMV rules and policies – plus access to our online class with all the content and material. The online class also includes practice tests (Southern New Hampshire, 2022, p. 1).

*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?*

* **Environment:** AWS (Amazon Web Services) should be utilized to conduct purchases for these packages within the environment. The system should be instantaneous with the updates between the DMV and the system presented. The system should be updated/backed up by a third party every twenty-four to forty-eight hours, which involves integrating customer information, order inquiries, and various other forms of information specifically regarding DMV-related issues (Southern New Hampshire University, 2022, p. 1).
* **Speed/Updates:** Updates to the cloud should be pushed from the DMV website to notify the client when differences in policies or laws are present. The presence of customer service will also be utilized to structure constant iterative procedures for the infrastructure. The speed that the website should run depends on many factors, but the target should strive for under two seconds to load pages within the system (Southern New Hampshire University, 2022, p. 1); (Blue Corona, 2022, p. 1).
* **Mobile Capabilities:** Mobile capabilities will also be present within the system, dependent on the client’s needs. Portability is standard across the system but will primarily be used as a web-based application. But having mobile development will also become more important for a robust environment (Southern New Hampshire University, 2022, p. 1).

**Rationale**: Performance requirements encompass the properties of the system, such as the speed of different provinces, cloud functionality, scalability, and storage capacity within the system. For the cloud (AWS) and mobile applications, it is critical to have instantaneous features to actively cancel reservations, perform efficient transactions for package purchasing, and have timely customer service interactions to enhance the user experience and avoid resentment or vexation of the system. Due to the system utilizing payment and contact information, security features must be standard within accounts (2FA, recovery keys, etc.) to ensure controlled updates to the systems. By this, it means controlling how the data is updated, making sure the update is verifiable, and ensuring that customer service representatives are dependable when applicable (Southern New Hampshire University, 2022, p. 1).

#### 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?*

* **Platform:** The software will run on Windows operating systems and may incorporate mobile capabilities. The system will also operate within AWS (Amazon Web Services) to perform the various computations and logical work required by the client (Southern New Hampshire University, 2022, p. 2).
* **Back-end:** The back end will require a database (Microsoft Azure MySQL) to store customer information, and will also require a connection between the software’s database and the DMV’s central server to communicate updates within policies and procedural requirements (Southern New Hampshire University, 2022, p. 2).

**Rationale:** Platform constraints include limitations and restrictions set first by the client and then by the implicit limitations or restrictions set by the operating system used and back-end tools such as the specified database. The system will run primarily on AWS but will have to be compatible with Windows operating systems to communicate between it and the servers within the DMV. There are also limitations in the type of hardware that can be used and the structure of memory that can be utilized. The applicational use can be applied to multiple users at a time, so scalability is critical when implementing these features (cloud, database, etc.) and will allow for a more robust feel while being utilized (Southern New Hampshire University, 2022, p. 2).

#### 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?*

* **Distinguishable Attributes:** The users will be distinguished based on contact information, which will be case-sensitive, and will also be distinguished by which package was purchased. For example, if user one purchased package one and user two purchased package three, the system should distinguish between which access user one will have versus what user two will have (in this case, user one will only have access to six hours in a car with a trainer while user two will have twelve hours in a car with a trainer and a multitude of other privileges within the system). The input will be case-sensitive because of how sensitive the data will be within the system (Southern New Hampshire University, 2022, p. 2).
* **Identifiable Systems:** The system should identify admin users versus regular users to enhance the overall experience and create a more secure environment. Admin users will have specified privileges to access data inaccessible to regular users. The admin users will be responsible for maintaining the system, modifying the system, and adhering to any complaints or bugs within the system (Southern New Hampshire University, 2022, p. 2).
* **Informative Systems:** The system should inform the admin of a problem as soon as it appears, whether by notification (app notification, email, etc.) or throwing an error message within the account. The system should also inform the admin of a problem when information may have been leaked, transactions may have been duplicated, or there are other forms of unethical situations (Southern New Hampshire University, 2022, p. 2).

**Rationale:** Accuracy and precision expound on the distinctions between the various types of users, what type of input validation is ad hoc, and the multitude of scenarios where an admin would need to be addressed. For this system, users will have differences in accessibility within the system based on the package type. All users will have accessibility to reservations, but the type of reservation and resources available to them will vary. There will be verification for admin users within the system to perform maintenance checks and to respond to questions posed by customer service representatives about client quandaries within the system (Southern New Hampshire University, 2022, p. 2).

#### Adaptability

*Can you make changes to the user (add/remove/modify) without changing the code? How will the system adapt to platform updates? What type of access does the IT admin need?*

* **Flexibility:** The system must be flexible to sustain editing or modifying purchased packages. For example, purchasing Package One and spreading out the hours given over a period needs to be implemented. The system will also allow for flexible, customizable features to change reservations, change contact information, and make other various changes within a user's account via a customer service representative's department. Admin will also be able to assist with this process when applicable (Southern New Hampshire University, 2022, p. 2).
* **Platform Updates:** The system must also implement software updates in a way that correlates to the policies and procedures within the DMV’s framework. The system will also adapt to updates by adopting procedures that will add modules and other features to help facilitate the flowability of information. In turn, this will increase the success rate of individuals performing driving tests. The platform will also perform weekly updates that it receives from Microsoft (Southern New Hampshire University, 2022, p. 3).
* **IT Admin Privileges:** The IT admin will need full access overseen by management to remove or add modules, depending on the circumstances. The IT administrator will also need access to cloud features to update, fetch information, and push information into the infrastructure verified by management. Lastly, the IT admin will need to have access to the notifications of all DMV requirements and procedures to make sure updates are promptly addressed and correctly implemented within the system (Southern New Hampshire University, 2022, p. 2).

**Rationale:** Adaptability represents how the system adapts to the various changes that may be present during its lifetime. The DriverPass system should be robust and secure to perform efficiently and alleviate the stress that people experience when taking driving tests. Within the system, modules will need to be added or removed constantly to keep up with the ever-changing policies and procedures. Packages and purchases need to be implemented in a way that can be transformed by the user or administrator if needed. The system should be secure to deter attacks, secure from phishing attempts for users, and require certain security measures within accounts (2FA, MFA, etc.) (Southern New Hampshire University, 2022, p. 2).

#### 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?*

* **Requirements:** The user will be required to create an account to interact within the system. The required actions will involve registration involving a phone call, the customer giving the required information to access the various packages, and then being given access to an account where they will be able to access the necessary data to perform successfully for the driving test. After registration is complete, the individual will be sent an email highlighting their credentials to log in within the system and be required to create a password under direct circumstantial requirements. When this is completed, the individual will be able to participate in modules and have access to videos, and various other types of resources depending on the package purchased (Southern New Hampshire University, 2022, p. 3).
* **Security:** Securing the data infrastructure between the cloud (server) and the client can be performed in various ways. Constant iterative updates will be used to ensure security measures are up to date, and regular password changes will be required of users at timed intervals. The communication between the server and client will be monitored by the IT department to strengthen security by implementing non-injectable code, performing best coding practices, and performing constant checks within the system for potential hazards. If there were to be a breach in information, an update to the system would be required, and the monitoring of accounts/transactions would be necessary. Informing clients/customers of the breach, and updating any passwords to the appropriate accounts would also need to be implemented.
* **User Experience:** If the user forgets their password, there will be systems in place to verify the customer. Whether the implementation is security questions, 2FA capabilities, or MFA, there will have to be verifiable evidence to suggest the resetting of it. If the customer or individual struggles to obtain the required information, they will be able to contact the customer service representative department to help manage their account after it has been verified.

**Rationale:** The system’s security features should be of the utmost importance, especially when dealing with sensitive information (credit cards, contact information, etc.). We must consider logins, passwords, and any other data exchanges that may occur and have performative measures on how to handle them. The systems will also be in place to handle multiple logs in attempts by producing error messages that suggest further steps for remedying the issue. For this system, a medium level of attempts is sufficient. If the account were to be attempted too many times, there would either be a lockout or cooldown, or the system would prompt you to contact customer service and lock the account, depending on the severity. Within the software, to access certain data (credit card numbers, addresses), even after being logged into the account, users need further verification to provide them with details (Southern New Hampshire University, 2022, p. 2).

### 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 using a password, 2FA, or various other forms of validation (Southern New Hampshire University, 2022, p. 2).
* The system shall run on the Windows Operating System and become compatible with mobile development capabilities (Southern New Hampshire University, 2022, p. 1).
* The system shall allow users to change, modify, or add reservations within their accounts (Southern New Hampshire University, 2022, p. 2).
* The system shall allow the administrator to have access to all accounts to reset passwords or block access to someone within the system (Southern New Hampshire University, 2022, p. 2).
* The system shall allow users to enroll in three different package types, with each having different access within the system (Southern New Hampshire University, 2022, p. 2).
* The system shall allow users to distribute the hours provided with their package choice in any way they see fit (Southern New Hampshire University, 2022, p. 2).
* The system should allow administrators to disable them if packages become unavailable to customers (Southern New Hampshire University, 2022, p. 3).
* The system shall allow users to automatically reset their passwords and schedule appointments via the system (Southern New Hampshire University, 2022, p. 3).
* The system shall run on the cloud, and the back end (security and backup capabilities) will be taken care of by a third-party (Southern New Hampshire University, 2022, p. 3).
* The system shall have an interface that shows the progress of each customer account, shows which modules they have completed, the score of the test, the time taken on the test, and the status as to whether the test is in progress, failed, or passed (Southern New Hampshire University, 2022, p. 4).
* The system shall have a contact page where users can contact the system's customer service department. (Southern New Hampshire University, 2022, p. 4).
* The system shall have an input form where the secretary fills in the student information (address, first name, last name, etc.) (Southern New Hampshire University, 2022, p. 4).

**Rationale:** The functional requirements listed above incorporate what the system should do. These functional requirements encompass the necessary actions to solve the problem imposed by the client.

### User Interface

*What are the needs of the interface? Who are the different users of 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.)?*

* **Interface Needs:** The interface needs to show the online test progress to show what the customer did because of the test. It should highlight the progress of each test, and which test the customer completed. The interface should also include the driver notes that convey the comments left by the driver at the times of the lessons. The driver notes section should include the lesson time, start hour, end hour, and driver comments. The interface should also include the logo of the company at the very top of the page. The interface should implement the contact information of the customer (first name, last name, address, city, state, zip code, phone number, email, etc.) and should include the driver’s photo, student’s photo, and any special needs or accommodations for the case (Southern New Hampshire University, 2022, p. 4).
* **Users Involved:** The users involved within the interface will include admins/IT, customer accounts, customer service representatives, and driver accounts. They will all have different privileges, including differences in updating and deleting and differences in overriding capabilities. The customer will be able to interact with the interface in ways that the driver cannot, and in ways comparable to the other roles within the interface  (Southern New Hampshire University, 2022, p. 4).
* **User Functionality:** Admin — The admin will have the capability to revert changes to accounts, override any comments, and monitor the account in ways that the driver or customer cannot. Customer or individual: The customer or individual will be able to update contact information by calling on the phone and requesting, after proper verification, rescheduling of appointments in the same way. The customer will only be able to view their profile on this interface, but certain features like resetting passwords, rescheduling/modifying/creating appointments, and viewing modules or lessons will be available to them depending on the package purchased. Driver: The driver will have the capability to update the driver notes and the driver’s photo and will have access to the student's information for verification purposes (Southern New Hampshire University, 2022, p. 4).
* **User Environment:** The user will be involved with mobile and web browser capabilities. The browser includes Google Chrome, Internet Explorer, or the various other web browsers used within Windows' scope. The mobile capabilities will include Android and iOS platforms that will be far more robust and user-friendly for the customer experience. Admin and IT will prefer to use the browser for updates and reconciliation of information  (Southern New Hampshire University, 2022, p. 1).

**Rationale:** The interface will promote the showcase of the system and show critical information about the driver, customer, and admin to ensure security, up-to-date systems, and functionality. There will be considerations, which may include different language options within the mobile framework and web browser to accommodate the differences in people. The interface will require users or customers to enter user names and passwords to view notes, lessons, modules, and other critical information. (Southern New Hampshire University, 2022, p. 1 - 4).

### 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?*

* The user has a valid Internet connection to utilize the system.
* The user has experience with the Windows Operating System, engages in the use of a smartphone, and is technologically savvy or familiar.
* The user has valid credentials for verification purposes and can proceed to verify within the DMV’s system.
* The system assumes users will speak English when performing reservations with the driver.

**Rationale:** The rationale behind the design is that many of the customers have the inclination to drive and therefore have access to technology and its uses. The system also assumes that the main language used is English, and if so, the system will need to accommodate this. The stated notion should be incorporated within the system to help manage the success of the customer base.

### 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?*

* Package options are limited in their selection and do not account for very niche customers.
* Reservations will be limited to the number of drivers available at the time of the reservation, and if applicable, let the user have use of their vehicle to pick up the driver.
* If gasoline is not present or is unavailable, then the operation will not be operable.
* The technology will be limited to the Windows Operating System, which could marginalize other users or functions within the system.
* The budget may become hindered depending on the scale of information used and how much storage is utilized within the framework or system.

**Rationale:** These are things the system cannot do, taking into account scenarios that may affect performance, efficiency, and flexibility within it. Addressing these constraints can help alleviate system pressures, but it may be impractical depending on location, resources, and the various technologies available to the system. It may not be required in this project because of the budget and scope of the project. (Southern New Hampshire University, 2022, p. 4).

### 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.*

Graphical user interface, timeline

Description automatically generated

References:

Blue Corona, B. C. (2022, June 1). *How fast should my website load?* Blue Corona. from [https://www.bluecorona.com/blog/how-fast-should-website-be/](https://www.bluecorona.com/blog/how-fast-should-website-be/%20)

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