# 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 project is to develop a website for DriverPass, a client that offers driving lessons to help users pass their driver’s license exams.

### 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 client wants their system to provide users with the ability to make reservations for driving lessons and access tiered modules that include trained instructors, online lessons, and practice tests.
* DriverPass wants to address the market gap of customers failing their driver’s license exam by offering a service with access to online study materials and in-person instruction.
* The different components of the system will include a cloud-hosted website with real-time updates for customer reservations and progress tracking.

### 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 will enable the customer to be able to:
  + Allow users to schedule reservations by specifying the date, time, and pickup/drop-off locations.
  + Offer at least three different tiers of service with varying levels of instruction and study materials.
  + Match customers with appropriate driving instructors.
  + Provide access to online classes, including content and study materials.
  + Display test progress for each customer, including test name, time taken, score, and status.
* To achieve this, the system design will include:
  + A database that stores customer information, reservations, and test progress
  + Cloud-based hosting for the website to enable real-time updates.
  + Integration between the website and the database to fetch and display customer progress information.

## 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 be accessible in a web-based browser such as Windows, as well as mobile-based applications and available for both Android and Apple phones.
* The system should run optimally to reduce latency while also handling large traffic for multiple users.
* The system should update regularly along with updating to reflect changes associated with DMV policies.

#### 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 and interface should be supported by various platforms, such as Windows or Unix based operating systems.
* The system will also support the use of multiple web-browsers, like Google Chrome, Mozilla Firefox, Microsoft Edge, and Appel’s Safari.
* The system should be supported by various operating systems and web-browsers but also be supported by mobile applications like Android and Apple smartphones and tablets for users to access on the go.
* The back end of the system should be implemented using a Relational Database Management System (RDMS) like MySQL or PostgreSQL that supports data storage and retrieval.

#### 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?*

* User authentication will be verified upon login of the system, role-based access control will be implemented to differentiate between users with special privileges granted to users labeled as “Administrator” or “Instructor”.
* Input is not required to be case-sensitive so that users gain the ability to login to the system regardless of capitalization in usernames. Case-sensitivity will be implemented for passwords for security purposes.
* System should inform the admin of a problem when certain scenarios arise, such as when there is unusual login activity like multiple failed logins attempts or a potential security breach or a brute force attack. The system should also alert the admin when there are system errors or crashes with the ability to view a report that provides detailed information regarding user activity.

#### 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 system will provide the capability to modify users through role-based access control. By granting the administrator special privileges that allows them to add, remove, or modify information through settings profile customization, alleviating the need for code changes.
* Regular system updates will be handled through initial compatibility testing to ensure that the system functions correctly before implementation. Monitoring updates regarding new browser versions will also be considered to proactively plan for maintenance.
* The IT admin will be granted administrator privileges regarding system access, allowing them full control and visibility into system settings, account and user monitoring, server and database settings, security patches and software updates.

#### 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?*

* The user is required to enter a valid username and password that is authenticated with credentials in the user database.
* Encryption techniques like Transport Layer Security (TLS) or Secure Sockets Layer (SSL) can be utilized for secure connection between client and server through data exchange.
* To handle brute force hacking attempts, the system will implement an account lockout after three unsuccessful attempts and the user is required to verify their identity using another method such as, email verification code, or SMS code.
* The system will provide a “Forget Password” link that enables the user to recover their password either through email verification or an SMS code provided to the user’s registered phone number.

### 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 provide an online learning platform that provides various course materials for users.
* The system shall offer users the ability to make reservations by scheduling a date and time.
* The system will pair a user with an available driver at that date and time.
* The system will support the purchasing of three various packages that offer the users different tiers of features and support material.
* The system will be compliant with all DMV policies and regulations and be provided with sample questions and notifications regarding all updates.
* The system shall provide users customization features for their profile, such as updating contact information, or profile pictures.
* The system will allow users to schedule a pick-up location as well as a drop-off location.
* The system shall provide test progress for users by displaying current user progress, test name, time taken, current score, and status.
* The system will provide a comment section for the drivers to input notes regarding lesson times, start and end times, and any additional comments related to lessons.

### 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 able to support various users and interactions regarding role and functions.
* Different users for the interface include the administrator, Instructors, students, and secretaries.
* The administrator will need to access the interface for various information, for example, managing various account settings and activity, view current system logs and reports, and managing user permissions.
* The instructors will access the interface to schedule lessons and assignments for students, update lessons progress, leave comments, and manage their availability.
* The interface will also have the student in mind to be provide various access, for example, giving students the ability to schedule, change, or cancel driving lessons, gain access to their course materials and practice tests, view their lesson history, current test progress and scores, as well as be able to customize their profiles.
* The secretary will access the interface to be able to manage appointment scheduling and access user profiles for student and driver assignment.
* The user will be able to interact with the interface through both a web-browser or mobile application that provides equal system functionality across both platforms.

### 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?*

* Aspects of the system that are not specifically addressed in the design include geographic location so users are provided equal opportunity instructor assignment.
* System compatibility is implied, however not fully covered for devices that may be outdated or incompatible with various updates.
* Assumptions that are made regarding system design are that users have access to an internet connection either through a web-browser or mobile application.
* Assumptions are implied regarding users having basic internet device familiarity or experience.

### 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 for increase in user volume is considered a system limitation, as well as an imbalance in demand from students to instructor ratio.
* Limitations may occur for users with certain disabilities or those from certain age groups that are not as experienced with modern technology.
* Resource limitations are considered regarding enough developers or IT administrators to manage the overall system.
* Budget constraints are a factor as the increase in user demand requires more resources to meet those demands requiring continuous budget approval.
* Time constraints might involve as well due to any downtime required for system maintenance or repairs.

### 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.*

*A chart with different colored squares

Description automatically generated*