# CS 255 Business Requirements

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 design a system for DriverPass, a company focused on providing comprehensive driver training services.
* The client, Liam (owner of DriverPass), envisions a system that addresses the need for better driver training to help individuals pass their driving tests at the DMV.
* DriverPass aims to offer online classes, practice tests, and on-the-road training. The system should enable users to access training materials online, schedule driving lessons, and manage their progress.

### 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 problem DriverPass aims to fix is the shortfall in current driver training methods, leading to a high rate of individuals failing their driving tests at the DMV.
* The existing gap in driver training needs to be addressed by providing a complete solution that includes online classes, practice tests, and on-the-road training.
* The inefficiencies in the current system include a lack of accessible and flexible training options, leading to the need for a system that allows users to access materials online, schedule driving lessons, and track their progress effectively.
* DriverPass wants the system to enable better driver training by allowing users to take online classes and practice tests.
* The system should support on-the-road training, enabling users to schedule driving lessons of varying durations and packages.
* Key components of the system include online account management for users, a reservation system for driving lessons, tracking of user-driver assignments, and integration with DMV for up-to-date rules, policies, and sample questions.
* The system needs to handle user registration, reservation management, user roles (boss, IT officer, secretary), security features, and a flexible interface that aligns with Liam's provided sketch.

### 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 completed system should allow users to access training materials online and offline.
* Users should be able to make and manage driving lesson reservations, both online and through the office.
* The system should support different user roles (boss, IT officer, secretary) with varying levels of access rights.
* Security features should include the ability to reset passwords and control access based on roles.
* Comprehensive tracking features are needed to monitor user activity, reservation changes, and lesson details.
* The system should support different driving lesson packages, allowing customization and future flexibility.
* Integration with the DMV is essential for staying updated on rules and policies, with notifications for any updates.
* The interface should reflect Liam's provided sketch, showing progress on tests, detailed driver notes, and an input form for student information.
* The project timeline includes collecting requirements, designing use case and activity diagrams, researching user interface designs, building class diagrams, obtaining customer approval, developing the interface, linking the database, implementing business logic, testing the system, and delivering it to the client with a sign-off meeting.

## 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 will need to run in a web based environment to allow accessibility across different platforms and devices.
* The system should run fast enough to ensure a seamless user usage experience with pages loading at reasonable time frames ideally less than 3 seconds.
* System updates should be a regular occurring thing, to consistently fix bugs and keep security up to date. Updates should be regular scheduled and communicated so that users know in advance to avoid disruptions.

#### 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?*

* For platforms, the system should be platform-independent, slowing it to run on various operating systems such as MacOS, Windows, and also Linux.
* For back end infrastructure, a robust database system will be required to support the application. MySQL would be a good option.

#### 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 ID’s should be unique and also case sensitive to help with distinguishing different users.
* The system should immediately notify the admin of any problems that may occur during operation. For example: Security breaches and/or database failures.

#### 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 changes/management features should be able to allow users who are not developers (IT Admin) perform actions like adding, modifying, or removing user accounts without the use or need for changing code.
* The system will need to be designed to adapt seamlessly to platform updates by using built in tools to support changes.
* IT admin will need to have full access and control over user accounts, permissions and system designs.

#### 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 will require both of username and password, with strong password policies and requirements enforced to enhance security.
* Data exchange between the client and server should use encryption with industry-standard protocols like HTTPS to safeguard sensitive private information.
* If there is a brute force hacking attempt, the system should implement measures such as account lockout after multiple consecutive failed login attempts to prevent unauthorized access.
* In the case a user forgets their password, the system will need to provide a secure password reset mechanism, like sending a reset link to the user's registered email address.

### 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 they are logging in.
* The system shall allow users to schedule driving lessons online, detailing the date, time, and desired instructor.
* The system shall track user activity such as reservations, cancellations, and modifications, offering an audit trail for accountability.
* The system shall support different user roles with fluctuating access privileges, including regular users, IT officer, secretary, and the boss.
* The system shall integrate with the DMV to stay updated on current rules, policies, and sample questions, with notifications for any updates and changes.

### 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 should accommodate to different users such as administrators, instructors, and students with specific functionalities personalized to their roles.
* Administrators should have the access to administrative tools for user management, scheduling, and system configuration.
* Instructors should be able to view all of their assigned driving lessons, student details, and submit lesson feedback.
* Students should have access to features for their scheduling of driving lessons, accessing of training materials, and tracking of their progress.
* The interface should be web-based and optimized for both desktop and mobile devices which will allow for a consistent user experience across all 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?*

* We assume that users will at least have access to standard web browsers and internet connectivity to interact with the system.
* The system also assumes users are familiar with basic computer usage and can navigate through the web-based interfaces.
* That the technology stack for development includes modern frameworks and libraries suitable for building scalable web applications.

### 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?*

* Limited budget and resources for this system may impact the depth and scope of its features and functionalities.
* Time constraints may require that we prioritize essential features over extra enhancements or optimizations.
* Technological limitations may possibly arise from compatibility issues with older outdated systems or perhaps constraints enacted by third-party integrations.

### 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 graph with multiple colored squares

Description automatically generated with medium confidence