# CS 255 Business Requirements Document

By Matthew R. Leclerc

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?*

* DriverPass recognizes the scarcity of resources for aspiring drivers to pass their tests, with the market lacking sufficient options. To bridge this gap, Driver Pass provides innovative solutions, empowering and supporting individuals preparing for their exams. By expanding the landscape of driving test assistance, Driver Pass improves success rates and promotes safer roads.
* DriverPass has approached us for help in creating a user-friendly website that serves as a one-stop platform for students. This website will provide online practice exams to improve skills and confidence, as well as a convenient feature for booking on-road training sessions.

### 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 is committed to creating a system that effectively tackles the challenge of individuals failing their driving tests.
* DriverPass strives to accomplish this goal by providing a diverse range of features within their system. These features encompass online practice exams, instructional classes, and the convenient ability to schedule on-road training sessions.
* The system should facilitate convenient data access from anywhere with an internet connection while prioritizing strong security measures to efficiently handle user access and permissions.
* It should also ensure accurate tracking of reservations, cancellations, and modifications, while providing a choice between three distinct on-road training packages.

### 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 transform into a fully operational website where customers can seamlessly book, modify, and cancel their on-road driver training sessions.
* The system will allow customers to gain the ability to conveniently take practice tests and participate in online classes.
* It will also facilitate development, object models, process models, and UML diagrams to be utilized and effectively visualize the design of the system.
* The system will enforce restricted access privileges for designated employees, guaranteeing that only authorized individuals have the ability to make essential system modifications or enhancements.

## 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 DriverPass system should be functional on both web platforms and mobile apps. It is required to be cross-platform, maintaining compatibility with a variety of operating systems including Windows, macOS, Android, and iOS for universal user accessibility.
* The system should have rapid response times, with web pages loading within 2 seconds, and in-app actions taking less than a second.
* Regular quarterly updates should be implemented to introduce new features, repair bugs, and improve security, with minimal service interruption.

#### 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 widespread accessibility and usability, it's generally recommended that web-based systems are platform-independent, signifying their ability to operate across various operating systems such as Windows, Unix/Linux, and MacOS. As for mobile usage, having accessibility to the two major platforms (Android & Apple)
* Regarding backend requirements, most modern applications require some kind of database to store and manage data. The choice of database often depends on the specific needs of the application. Some common options would be a database like MySQL or SQL Server as they are ideal for applications that require complex queries and transactions.

#### 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 system should disregard case sensitivity for usernames and email addresses during login to promote a user-friendly experience. Meanwhile, for security purposes, passwords should be case-sensitive. Nonetheless, certain features of the system, such as search functions, may require case sensitivity depending on their specific needs.
* The system should employ mechanisms of authentication and authorization to differentiate among its users. Each user will have unique identifiers such as usernames or email addresses, accompanied by secure passwords.
* The system should have a form of automation in alerts and notification to inform the administrators of any issue that occurs.

#### 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 should incorporate an administrative dashboard that enables the addition, removal, and alteration of user accounts, negating the need for direct code modifications. Such features are usually integrated into the system from the beginning through a secured admin portal.
* Regular system updates and maintenance should be carried out to ensure compatibility with underlying platform changes.
* System Administrators should possess the most extensive access rights, often referred to as 'superuser'. They should have the capability to execute tasks across the entire system, including user account management, system security oversight, performance tracking, update handling, and backup execution, among other duties.

#### 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?*

* For the user to log in, it would require a unique identifier, such as a username or email, and a password to log into a system. A 2FA or another form of extra verification may be implemented for the user to have more security.
* To keep the conversation between your computer (the client) and the system's server safe, we use something called Transport Layer Security (TLS). These are like secret languages that only the client and server understand, keeping the information they exchange private and secure.
* If an individual repeatedly attempts to decipher a user's password -- an act known as a 'brute force' attack -- the system springs into action. Following several unsuccessful attempts, it temporarily blocks access to the account. The user is then notified of this unusual activity and provided guidance on how to regain access to their account.
* Everyone has moments of forgetfulness, and passwords are no exception. So, for those times when a user can't recall their password, there's a handy 'Forgot Password' feature available. Once the user inputs their email address, they'll receive an email containing a unique link to create a new password.

### 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.”*

* Some potential function requirements are as follows:
  + **User Authentication**: The system should confirm the authenticity of user details during login.
  + **Security**: The system should utilize encryption for client-server communication, ensuring the safe transfer of data.
  + **Password Reset:** The system should offer users the ability to regenerate forgotten passwords via a 'Forgot Password' function.
  + **User Authorization:** The system ought to assign varying access rights according to user roles (ordinary users, drivers, administrators).
  + **User Management:** The system should empower administrators to create, alter, and remove user accounts through a protected admin portal.
  + **Platform Compatibility:** The system should be operational across different platforms and operating systems, such as Windows, Unix/Linux, MacOS, Android, and iOS.

### 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 facilitate customers in booking driving appointment packages, participating in online classes, and taking tests.
* The interface should also provide the necessary tools for DriverPass employees to implement changes and updates to the system as required.
* The user interface should be designed for accessibility from a range of devices, including mobile phones, laptops, computers, or any other device with internet connectivity.

### 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're operating under the assumption that we will have straightforward access to all the necessary technologies involved in this process.
* We’re also assuming that the financial resources will cover all the necessary elements for system construction.

### 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?*

* We have been assigned a timeline of approximately five months for the system's development, with no specific budget set.
* One of the major constraints seems to be a lack of manpower for website construction. There's a need for more team members to accomplish the task within the five-month duration.
* The use and implementation of agile methodology would be the correct route in this situation.

### 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 screenshot of a gantt chart

Description automatically generated