# 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?*

* DriverPass strives to deliver extensive driver education with the goal of enhancing students' chances of passing their driving tests successfully. The platform will provide access to online practice exams and practical on-the-road training to ensure students are thoroughly prepared for their examinations.

### 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 recognizes the limitations of current resources in adequately preparing students for driving tests, resulting in a notable rate of failure. Studies reveal that more than 65% of students struggle with the driving license exam due to dependence on past tests.
* The platform emphasizes various components such as User Interface, Online Practice Exams, On-the-Road (OTR) Training Models, User Management, Security measures, System Management, Reporting, and Analytics to address these challenges effectively.

### 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?*

* Upon completion, DriverPass aims to offer comprehensive driver training, integrating online practice exams and on-road sessions. Key objectives include facilitating accurate user registration, conducting online exams with a response time of under 3 seconds, enabling users to schedule on-road training sessions with confirmation within 24 hours. The system will securely integrate with the DMV for real-time updates, employing encryption and role-based access control to ensure data security. Both user-friendly interface for customers and an admin dashboard for management will be essential, alongside performance optimization measures such as load balancing. The system will prioritize flexibility through configuration management to accommodate future updates. Logging, tracking, and reporting functionalities will contribute to ensuring a reliable and efficient driver training experience.

## 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 is required to function within a web-based environment, accessible across various devices including computers and mobile devices.
* Preference is given to a cloud-based infrastructure for scalability, accessibility, and smooth operation, minimizing the need for extensive on-premises maintenance.
* This web-based approach ensures easy access for both customers and management stakeholders, offering flexibility in usage.
* Optimal speed is crucial for seamless user experience. Online practice exams should have a response time of less than 3 seconds, and on-the-road training scheduling should efficiently confirm appointments within 24 hours.
* Regular updates are necessary to comply with DMV rules, policies, and sample questions. A secure and efficient data connection with the DMV should enable real-time updates, with a notification mechanism in place to promptly alert stakeholders of any updates.

#### 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?*

* DriverPass requires a robust back-end front system and a sleek, lightweight front-end design in line with the project's theme. Utilizing React.js for the front-end is recommended.
* Database Management System (DBMS): An efficient DBMS is vital for storing and managing data effectively. Options such as MySQL, PostgreSQL, or MongoDB could be considered, with GraphSQL preferred for its seamless integration with redux and react.
* Web Server: The system requires a web server to manage incoming requests and deliver web pages to users. Commonly used options include Apache, Nginx, or Microsoft Internet Information Services (IIS).
* Security Tools: Implementation of encryption tools and protocols is essential to ensure data security. Secure Sockets Layer (SSL) or Transport Layer Security (TLS) can be employed to encrypt data transmitted between users and the system.
* Development Framework: Depending on the chosen programming language, a development framework may be utilized to streamline and expedite the development process. Frameworks such as Django or Flask for Python, Spring for Java, or Express/React for Node can be considered.

#### 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 identification in the DriverPass system will be achieved via secure authentication utilizing unique login credentials and role-based access control (RBAC).
* To improve usability, input case-sensitivity will be eliminated during authentication, ensuring that usernames are not case-sensitive while passwords are.
* The system will promptly alert the administrator of critical issues such as security breaches, system errors, DMV update failures, or unusual user activity.
* This proactive notification mechanism facilitates swift resolution, preserving system integrity, and ensuring a secure and efficient user experience.

#### 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 DriverPass system will facilitate user modifications via a user-friendly administrative interface, allowing admins with appropriate access rights to seamlessly add, remove, or modify user accounts without necessitating code changes.
* This flexibility ensures efficient user management, enhancing the system's adaptability to evolving user requirements without direct code interventions.
* The IT admin will necessitate elevated access rights to undertake crucial tasks related to system maintenance, security, and user management.
* These access rights encompass the ability to modify the database, manage server configurations, apply security updates, and troubleshoot technical issues.

#### 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?*

* Users will be required to log in using a unique username and password, which will be verified against stored data during the authentication process. Additional security measures like multi-factor authentication (MFA) may be incorporated for heightened user verification.
* Following a certain number of unsuccessful login attempts, the user account will be temporarily locked. This preventive measure helps minimize the risk of unauthorized access and safeguards the account against malicious activities.
* In the event that a user forgets their password, the system will offer a secure password recovery mechanism, often entailing the delivery of a password reset link or a temporary password 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.”*

* Registration of Users
* Authentication of Users
* Conducting Online Practice Exams
* Integration with DMV
* Management of Users
* Recovery of Passwords
* Issuing Notifications

### 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.)?*

* Intuitive Customer Interface for seamless navigation of online practice exams and scheduling on-road training.
* Dashboard tailored for Liam (Owner), Ian (IT Officer), and secretary to oversee reservations, access reports, and adjust system settings.

### 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?*

* Customers possess basic internet connectivity to access online practice exams.
* Users are expected to furnish precise information during the registration procedure.

### 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?*

* Basic internet connectivity is required for customers to access online practice exams.
* During the registration process, users are expected to provide precise information.

### 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 computer

Description automatically generated