# 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?*

* **Client**  
  DriverPass
* **Problem to Address**   
  Over 65% of individuals fail their driving tests at the DMV, indicating a need for improved driving training.
* **Project Purpose**  
  This project aims to enhance driver training through the provision of online courses and live instruction.

### 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?*

**System backgrounds**

* The DriverPass system aims to reduce the skills gap among new drivers by providing comprehensive training solutions that address deficiencies in existing driver education materials.

**Components**

* **Vehicles and Drivers**  
  The system includes 10 vehicles and qualified drivers for practical training.
* **Instructors**   
  Certified instructors will facilitate both in-person lessons and online courses.
* **Web-Based Application**   
  A distributed application that manages user information, course materials compliant with DMV regulations, and an online reservation system. It features backend and database layers for efficient data handling.
* **Reporting Features**   
  The system includes functionalities for tracking reservations (creation, modification, cancellation) and allows users to download reports for offline access.

### 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?*

* **Account Creation**   
  Users should be able to create accounts.
* **Password Reset**   
  Users should be able to reset passwords.
* **Instruction Package Selection**   
  Users should be able to select one of three instruction packages.
* **Driving Reservations Management**   
  Users should be able to make, cancel, and edit driving reservations.
* **Access to Course Material**   
  Users should be able to view online course material from any network-connected device.
* **Practice Exams Availability**   
  Users should be able to take practice exams.
* **Progress Tracking**   
  The system should track user practice exam progress.
* **Contact Information Management**   
  The system should store and allow modification of user contact 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.*

* **Reliability and Failure Tolerance**  
  The system must operate reliably, ensuring it is failure-tolerant and capable of accurately always tracking student progress.
* **Performance**  
  The system should deliver high performance, meeting expectations regarding page load speed and responsiveness.
* **Security**  
  The system must implement robust security measures to protect personally identifiable information (PII).
* **Scalability**  
  The system should be scalable to support an increasing number of students and accommodate new or updated learning materials.
* **Mobile Compatibility**  
  The system must be designed with responsive layouts to ensure compatibility with mobile devices.
* **User Interface Intuition**  
  The interface of the system should be intuitive, facilitating ease of use for all users.
* **Learning Material Compliance**  
  The educational content provided by the system must be current, reliable, and compliant with DMV guidelines.
* **Instructor Qualifications**  
  All driver instructors within the system must be thoroughly vetted, licensed, and certified as necessary.

#### 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?*

**Web-Based Distributed System Overview**

* The system will utilize Linux-based servers to support various browser clients.
* It is designed for high performance, particularly for network-intensive tasks such as accessing DMV-compliant testing materials and processing form data for reservations or user account updates.

**Database Update Mechanism**

* The database layer will be updated whenever there are advancements in practice exams, feedback from driving lessons is submitted, or when reservations are made, completed, updated, or canceled.
* Additionally, updates will occur when the DMV releases new guidelines.

#### 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?*

**Web-Based System Overview**  
The system is designed to be web-based, ensuring it is platform-agnostic and compatible with Mac, Linux, and Windows operating systems. The development will focus on the following mainstream browser versions:

* **Chrome**
* **Edge**
* **Firefox**
* **Safari**

#### 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 and Authorization Requirements**

* **Account Protection**: Users must have password-protected accounts.
* **Authentication Method**: Usernames and passwords will be utilized for authentication purposes.
* **Role Assignment**: Each user will be assigned specific roles that determine their authorization levels and access to system resources.
* **Input Sensitivity**: All input shall be case-sensitive to enhance security.
* **Password Attempt Limit**: There will be a limit on the number of incorrect password attempts, which will trigger an alert to the administrator.

#### 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?*

**Account Creation and Management**

* Users, including customers and DriverPass staff, shall have the ability to create and add accounts.
* Users shall be able to modify their account information (e.g., contact details) through form submission/POST requests. The underlying system code must support this functionality.
* Users shall have the capability to delete or remove their accounts.

**System Updates and Maintenance**

* User browsers will frequently update; however, this will generally not impact backend code. Necessary patches and updates will be implemented when client updates affect system behavior.
* System application updates (frontend, backend, database layers) will occur after features or bug fixes are completed as per agile scrum development practices, specifically during off-peak hours to minimize negative impacts on application performance.
* Agile development methodology enables smaller changes to be deployed more frequently, reducing regression risks compared to larger application overhauls.

#### 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?*

* **Username and Password Requirement**  
  Users must create usernames and passwords to access the system.
* **Secure Communication**  
  All network requests will utilize HTTPS to ensure secure communication between client devices and back-end applications.
* **Form Submission Security**  
  Sign-in form submissions will be conducted via HTTPS POST requests, which prevents sensitive data from being exposed in the URL.
* **Data Encryption**  
  Cryptography will be employed to encrypt sensitive data transmitted across networks.
* **Account Lockout Mechanism**  
  If a user exceeds five incorrect sign-in attempts, their account will be locked to prevent brute force attacks. The IT administrator will be notified of the locked account, allowing them to inform the user about the steps needed to reset their password and unlock their account.
* **Password Reset Process**  
  Users can initiate password reset requests by providing identifying information, such as their email address. A reset link will then be sent to that email address for further action.

### 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.”*

* **User Authentication and Authorization Requirements**The system requires user authentication to validate credentials upon login. Authorization levels will be determined by account type.
* **Web-Based System Functionality**The system shall be web-based, allowing offline access to instructional materials via download, while data updates (e.g., reservations, password resets) must occur online.
* **User Activity Tracking**The system shall track user activity, recording actions such as reservations made, cancellations, and modifications.
* **Reporting Capabilities**The system should provide reporting features, including detailed activity reports.
* **Course Package Management**The system shall initially list three DriverPass course package types with the ability to disable individual packages. New packages may be added to future developments.
* **Password Reset Functionality**The system shall allow users to reset their passwords.
* **Compliance with DMV Guidelines**The system should provide instructional material that complies with current DMV guidelines.
* **User Exam Progress and Feedback**The system shall display user exam progress and grades, along with instructor feedback for students.
* **Exam/Material Management**The system shall allow for the addition, modification, or deletion of exams and materials.

### 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.)?*

**User Access Levels for DriverPass**

* **DriverPass Owner**   
  Full access to accounts and the ability to update passwords.
* **DriverPass Information Technology Officer**   
  Full access to accounts and the ability to update passwords.
* **DriverPass Secretary**   
  Access to schedule, cancel, and modify appointments.
* **Customers/Students**   
  Ability to create an account, access learning materials, and schedule, cancel, or modify appointments.

**System Interface**

* The system is web-based, allowing interaction through browsers on mobile devices, tablets, or desktops.
* There are currently no plans for native applications for Android or iOS.

### 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 system assumes that DMV guidelines are consistently kept current and widely available. Additionally, users are required to have a working client device that can connect to the internet, with an operating system and browser that meet DriverPass system requirements.
* The target audience for the DriverPass system is likely to be younger and more tech-savvy individuals. As a result, the website is expected to receive the most traffic, as opposed to in-office visits or phone calls. The system’s accessibility through the internet and potential development of native DriverPass apps (iOS and Android) will cater to this demographic.

### 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?*

* **Web-Based Application Limitations**The DriverPass system is a web-based application that requires network connectivity for user data management. Consequently, users cannot create, update, or delete data without internet access. Additionally, content such as study materials and practice exams can only be accessed online unless downloaded for offline use.

* **Power Requirements**Electricity is essential to operate both the DriverPass system and client devices. Without power, the system cannot function.
* **Staff Skill Set Impact**The current skill set of staff may affect budget and time constraints since developers are needed for the web interface and cloud-based back-end/database layers. Staff may require additional training if they are unfamiliar with the necessary technologies.
* **Dependence on DMV Guidelines**DriverPass instructional materials depend on up-to-date DMV guidelines. This reliance creates limitations regarding the consistency, speed, and accessibility of these guidelines when changes occur.

### 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.*

