# 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 build a system for DriverPass that aims to provide better training to individuals preparing for their driving tests.
* The client is DriverPass; a driving instructor course.
* They want their system to be able to:
  + Offer driver training services
    - Online classes
    - Practice tests
    - Over-the-road training
  + Manage reservations
    - Each lesson is two hours long.
    - Customers should be able to specify day, time, and the driver they want.
  + User roles
    - They system should support different user roles
      * Liam – full access
      * Ian – administrative access
      * Customers – limited access
  + Security
    - Features should allow for password resets and account blocking
  + Manage packages
    - Offer various driver learning packages
    - Customizable
  + Manage customer information
    - Record customer information during registration
      * First name
      * Last name
      * Address
      * Phone number
      * State
      * Credit card details
  + DMV compliance and updates
    - System should stay up to date with changes made by the DMV
      * Driver test rules
      * Policies
      * Sample questions

### 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?*

* All prior mentioned
* The problem they want to address is the need for better driver training due to the amount of failures.
* The different components needed for this system are
  + Driver training services
  + Reservation management
  + User roles and security
  + Package management
  + Customer management
  + DMV compliance

### 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?*

* Once completed, the system should be able to
  + Provide access to online classes with materials.
  + Offer practice tests.
  + Schedule over-the-road skills improvement appointments
  + Allow customers to request appointments online or by phone.
  + Assign user roles to profiles.
  + Support various driving lesson packages that can be customized.
  + Record essential customer data during registration.
  + Allow customers to specify preferred pickup and drop-off locations for tests
  + Connect to the DMV for updates.
  + Display customer’s progress (incomplete, complete, in progress, passed, or failed)
  + Show driver’s comments.
* To achieve this, the system would require the following measurable tasks.
  + Create use case diagrams representing the interactions between users and the system for each major functionality.
  + Design a user-friendly interface that is easy to navigate and interact with.
  + Create features that track customers’ progress from beginning to DMV pass.
  + Create reports that show test status

## 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 environment the system needs to run in is a web-based one. Since the system requires multiple users accessing the same environment, the web-based application is accessible for seamless usage.
* The speed of the system should be balanced to achieve desired results and result in a smooth experience for the user. Minimal latency and a responsive system should keep user engaged.
* The system should periodically check for DMV updates based on the historical published changes put out by the DMV. Other factors as needed include, system maintenance and 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 should be worked to run on multiple leading platforms to reach the biggest audience possible.
  + Windows
  + Linux
  + Mobile
  + macOS
* Back end requirements include
  + Web server to handle web pages and other requests for the user.
  + Database management system to store and manage various data.
  + Cloud hosting for reliability and scalability

#### 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?*

* A personalized access experience demands that you distinguish between different users.
  + User authentication with unique credentials for each profile
  + Role-Based Access Control (RBAC) for role assigning
  + To ensure consistency, usernames and passwords should be case-sensitive
  + The system should inform the administrator of problems/critical events in real-time
    - Multiple failed login attempts
    - System errors
    - DMV updates

#### 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?*

* You can make changes to the user without modifying code
  + Dynamic user management module
    - Add users
    - Remove users
    - Modify user roles
* To adapt to platform updates, the system should
  + Follow a modular design with clear separation between different components
  + Utilize a version control system for effective code management
  + Compatibility testing to ensure platform updates are compatible with all mediums
* The IT admin will require elevated access rights
  + Maintenance, configuration, and troubleshooting
    - Admin
    - Config
    - Server
    - Database
    - Security

#### 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?*

* Unique credentials will be required to login
  + Username
  + Password
* To secure the data exchange
  + The system should use HTTPS, which will encrypt data transmitted between the client and the server.
  + Data stored on the server should also be encrypted.
* Responding to a “brute force” hacking attempt the system should
  + Be equipped with an account lockout policy that locks the account after ‘x’ amount of failed login attempts.
  + Utilize CAPTCHA verification to deter attempts from automated sources.
  + The system should monitor login attempts and detect patterns of suspicious behavior.
* In the event a user forgets their password, the system should
  + Initiate a password reset request
  + Have a multi-factor identification step
  + Redirect to a password reset page

### 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 logging in.
* The system shall provide different user roles with distinct access rights.
* The system shall support case-sensitive input for usernames and passwords during login.
* The system shall offer RBAC to manage user privileges.
* The system shall ensure secure data exchange and communication.
* The system shall store passwords securely by hashing them using strong encryption.
* The system shall implement CAPTCHA to prevent automated brute force hacking.
* The system shall monitor login attempts and temporarily lock accounts.
* The system shall provide an account lockout policy with a specified duration for locked accounts.
* The system shall enable users to reset their passwords through a secure password recovery process.
* The system shall support various user management functions, including adding, removing, and modifying user roles.
* The system shall store and manage user information securely in the database.
* The system shall allow customers to register for accounts.
* The system shall enable customers to schedule driving lessons online and specify their preferred date, time, and driver.
* The system shall allow customers to modify or cancel their appointments.
* The system shall allow the secretary to manage appointments.
* The system shall facilitate over-the-road training by matching customers with appropriate drivers, cars, and timeslots.
* The system shall support the creation of various driving lesson packages with customizable content and durations.
* The system shall display customers’ test progress and provide detailed reports of completed, in-progress, failed, or passed tests.
* The system shall enable customers to access online classes with comprehensive driver training materials and practice tests.
* The system shall provide a secure connection and data exchange between customers and the server.
* The system shall integrate with the DMV to receive real-time updates, ensuring that training content remains current and compliant with regulations.
* The system shall notify the admin in real-time of critical events.

### 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 needs of the interface include
  + User-friendly design for all users with easy-to-understand labels and functions.
  + The interface should be responsive and adaptive.
  + Well-structured navigation system
  + Role-based views showing only relevant features based on those rights
  + Training material access so customers can obtain required materials
* The different users for this interface are
  + The owner for total control of the system
    - Modifying packages and anything the system needs
  + The IT person to handle things related to the system
    - Updates
    - Modifications
  + Customers to interact with the system
    - Access accounts
    - Schedule lessons
    - View progress
    - Access training materials
* Users will interact with the system through various means
  + DriverPass company will interact through desktops/tablets mainly
  + Customers are likely to user primarily mobile means but also desktop

### 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?*

* Payment processing is not addressed above
* One assumption I have is that users will interact with the system primarily through mobile

### 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?*

* The systems relies on the DMV regulations being available
* The system does not suggest multiple languages capability

### 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 a red and yellow line

Description automatically generated