# 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 client, DriverPass, hopes to develop a system which allows their customers to access online course materials and practice tests for driving test preparation.
* The client would like to include an option for the customer to schedule in-person driving lessons.
* They have requested that the system be provided using cloud-computing to remove backup and security liability from themselves.
* This system should include a security hierarchy allowing full control to the owner, reduced control to admins, etc.
* This system will track any changes made to appointments as well as the identity of the individual who made the change.
* Creates downloadable reports for offline use by the management team.

### 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?*

* Liam (the owner) hopes to develop a system which allows individuals to take online classes and practice tests to assist with their driving tests.
* This system should allow customers to register for in-person on-the-road training sessions with a specific date and time. Additionally, the system should track the driver, car, and time allotted to any specific user per reservation.
* Data within this system should be accessible from any PC or mobile device and should allow reports to be downloaded for offline use.
* Include permissions hierarchy composed of four internal roles:
  + Owner (Liam) will have access to all accounts and permissions.
  + Admin (Ian) will have access to R/W permissions of the system itself to allow for modification and maintenance.
  + Manager (Secretary) will have access to R/W permissions for user appointments for creating, removing, or editing appointments.
  + User will have access to their own account appointments and information and will hold R/W permissions for their appointments only.
* The system should track events pertaining to the creation, removal, and/or modification of reservations with regards to who completed the action. This should be formatted in a printable activity report.
* When the customer creates an appointment, they will be offered three packages to choose from which may be disabled by the owner:
  + The first package allows the customer to create three two-hour training session appointments.
  + The second package allows the customer to create four two-hour training session appointments as well as an in-person lesson.
  + The third package allows the customer to create six two-hour training session appointments, create an in-person lecture appointment, and gain access to the online course materials.
* The system must account for a customer’s first and last name, address, state, phone number, and information pertaining to their payment method (card number, expiration date, and security code). Additionally, a pick-up and drop-off location must be tracked for each user.
* The customer should have the ability to reset their password using an automated system.
* This system should provide notifications when the DMV provides new rules, policies, and/or sample questions.
* System should be run from a cloud-based computing scheme which ensures that backups and security are dealt with off-site.
* The user homepage must display online test progress, completed tests, noted from the drivers which have been assigned to the customer, their information, and any special needs for the customer.

The user (and secretary) must have access to an input form for user information as well as a page holding contact information for DriverPass.

### 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?*

* System requirements have been collected and well documented.
* Develop Use Case diagrams for the system actions.
  + Develop activity diagrams for the individual Use Case diagrams.
* Conceptualize user interface designs.
* Develop class diagrams for the system.
* Develop the system interface
  + Link this interface with the system database.
* Develop business logic.
* Test and validate the system.
* End-users of this system will have the ability to create their own account and enter their information.
* End-users will be able to schedule appointments for in-person training sessions with specific drivers after selecting from three purchase packages. These three packages may be disabled if DriverPass does not want anyone to register using it.
* The owner and their employees will have access to end-user accounts, permissions, and downloadable reports.
* The system will track any changes made to all appointments as well as the identity of the individual who made the change.
* This system will operate in a cloud computing environment to allow DriverPass to focus on their business.
* End-users will have access to online learning materials and practice tests assuming they have purchased the correct package.
* Deliver the system to the client.

## 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?*

* This web-based system will operate using externally contracted cloud services.
* The system will run in real-time.
* The system will be updated by the DriverPass team to account for new features when required. One recommendation would be monthly updates to account for smaller changes in the system.

#### 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?*

* This system will operate on server architectures running Windows, Linux, and macOS.
* A back-end database containing user data, historical/future schedule data, and payment history will be required for this system to operate as requested.

#### 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?*

* Individual users will be registered under different email addresses. This will act as a personal ID and will allow the external differentiation of users.
* The system will assign each user with an internal user identification number.
* Input fields for password entry will be case-sensitive. Email entry field will not be case-sensitive.
* The system will inform the administrator in the event of an update to the DMV rules.
* The system will inform the administrator in the event of a security event on the hosting server or with an end-user.
* The system will record data regarding any issues passively for administrator reference.

#### 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 will allow the addition, removal, or modification of user accounts without changing the code.
* The system will require updates in correspondence to updates of the platform upon which it is running.
* The owner will retain full control over all aspects of the system, including the addition, removal, or modification of user accounts.
* The administrator will retain control over the system required for maintenance and modification.

#### 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?*

* The user will be required to supply their account username/email and password before access to the website is enabled.
* All data sent/received by the client/server will be transferred using HTTPS for encryption.
* User accounts will be subject to a maximum number of login attempts within a given time period before their account is locked for a time.
* Users will be provided with the ability to reset their password through email validation.
* Email verification for password resets will provide a specific time frame before verification fails and the verification email is void.
* All payment information will be transferred between the client, server, and financial institution using a defined SSL certificate on the server.
* The back-end server will backup information on the system databases.

### 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 the provided user credentials with the known database before access to the system is provided.
* The system shall allow the creation of new user accounts by the user and managerial staff.
* The system shall allow the user to schedule in-person driving lessons.
* The system shall track the user’s first and last name, address, phone number, state, payment information, and the pick-up/drop-off location for each scheduled in-person lesson.
* The system shall notify the management team following an update to the DMV’s rules, policies, and sample questions.
* The system shall allow the user to select from three pre-defined appointment packages.
* The system shall allow the management team to disable any of the appointment packages.
* The system shall track the driving instructor scheduled for each appointment.
* The system shall track the creation, removal, or modification of appointments and will format this data in a printable report.
* The system shall allow remote online access or offline downloading of the data within the databases.

### 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.)?*

* This system will use a web-based interface for interacting with the hosted system.
* The system will support owner, administrator, management, and user roles.
* The user role will have the ability to view their homepage, review the data related to their account, and schedule driving appointments.
* The management role will have the ability to create, remove, or modify user appointments and register user accounts.
* The administrator role will allow maintenance/modification permissions in addition to the permissions found within the management role.
* The owner role will allow full control over the system and user accounts as well as the permissions of the administrator role.
* The user interface will display user information, notes from their driving instructor, special needs for the user, the user photo, a photo of the driving instructor, and the user’s online test progress.
* The user will interact with the system through the use of the web-based client screen for PC and mobile devices.

### 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 end-user will log in using their username/email and password combination.
* The system will require real-time operation.
* Updates to the system will be handled by DriverPass or a consultant of their choosing.
* User accounts will be registered using their email address.
* The administrator will be informed of any security issues.
* The hosting service will handle backups for the data.
* The hosting service will handle server-side protection from common web-based attacks.

### 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?*

* This system will require additional testing following the update of the host system architecture.
* The system will not innately allow the addition, removal, or modification of appointment packages.
* System operation will be limited to the rates provided by the hosting service.
* Development time for mobile access will require more time than defined.
* The system will require manual updates to remain up-to-date with current browsers.
* This system requires additional time allocation in the event that unforeseen circumstances arise.

### 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.*

Chart, waterfall chart

Description automatically generated