# CS 255 Business Requirements Document Template

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## 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 Liam’s company
* Develop a system that facilitates driver training.
* Online classes
* Practice tests
* On-the-road training
* Allow for data access from anywhere
* Ensure data integrity by preventing offline modifications
* Support different user roles and permissions
* Make or manage reservations

### 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 wants the system to be able to access data from any device while modifications can only be made while online, have different access right according to roles, track who made, canceled, or modified reservations, and track which driver, car, and time slots are assigned to customers. Liam also wants customers to have the ability to make or modify any reservations online or through their office. The system should show their packages available and be able to disable packages as needed. The system also should collect customer information, including payment details and pickup/drop-off locations, stay up to date with DMV rules and policies and the client needs the system to be web-based, preferably cloud-hosted, with minimal technical issues.
* The problem to fix is the high failure rate of driving tests at the DMV, the system aims to provide better training and preparation for customers, ensuring they’re fully prepared for their driving tests.
* Components needed are: User management, reservation system, driver and car management, package management, tracking and reporting, customer registration, compliance module, and a web-face.

### 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 the system is completed it should be able to:
* Allow customers to book, cancel, and modify driving lessons online.
* Assign drivers and cars to reservations.
* Track changes to reservations and generate reports.
* Manage different training packages and disable them as needed.
* Collect and manage customer information and payment details.
* Stay updated with DMV rules and policies.
* Provide a user-friendly, cloud-hosted web interface.
* Measurable tasks that need to be included in the system design are user authentication and authorization, reservation management, driver and car assignment, package management, tracking and reporting, customer registration, compliance updates, and web interface development.

## Requirements

### Nonfunctional Requirements

#### 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 primary environment should be web-based to allow access from any device with an internet connection.
* The system should be optimized to handle multiple concurrent users without any significant delays, aiming for response times under 2 seconds for most operations.
* Updates should be scheduled ideally every month to ensure the system remains functional and secure.

#### 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?*

* The system should be compatible with major OS like Windows, macOS, Linux, iOS, and Android. The system should also be cross-browser compatible to ensure web applications work well on all major browsers.
* Backend should include a database such as MySQL for storing user data, reservations, and other information.

#### 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 will be able to differentiate users by roles with specific permissions for each role.
* The usernames and passwords are case-sensitive to enhance security.
* The system should inform the admin of any critical errors, failed login attempts, or suspicious activity immediately and generate regular reports for the admin to review.

#### 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 have the ability to make changes to the user without changing the code by using a user management system to allow the admins to make any changes as needed.
* To ensure the system can adapt to platform updates a modular and scalable architecture should be used.
* They type of access the admin and IT need are full access to all system settings, user management, and logs. Other users should have restricted access based on roles.

#### 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?*

* User login requirements are a username and a password, preferably with 2FA set up for added security.
* Security measures are the use of HTTPS to secure data exchange between the client and server.
* In the case of a brute force attempt the account should lock after a certain number of failed login attempts and use a captcha to prevent automated login attempts.
* If a user forgets their password they will have to answer security questions they selected during the account registration process and follow a secure link to reset their 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.”*

* The system shall validate user credentials when logging in, allow users to reset their passwords, allow the admin to add, remove, and modify accounts, and assign roles and permissions based on roles.
* The system shall allow customers to book, cancel, and modify driving lessons online.
* The system shall allow the secretary to book, cancel, and modify driving lessons via phone or in-person.
* The system shall assign drivers and cars to each reservation based on availability and the system shall track and display the status of each reservation.
* The system shall offer different training packages, allow the admin to enable or disable specific packages, and track the number of sessions completed for each package.
* The system shall log all changes made to registrations, including who made the changes and generate activity reports for the admin to review, and notify the admin of any critical errors or suspicious activities.
* The system shall stay up to date with DMV rules and policies and notify the users of any updates from the DMV.
* The system shall use HTTPS to secure data exchange, encrypt sensitive data, implement an account lockout after a certain number of failed login attempts, and use a aptcha to prevent automated login attempts.
* The system should provide a user-friendly web interface accessible from any device with an internet connection, be compatible with major browsers, and be mobile-friendly for users with smartphones and tablets.

### 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 needs to be user-friendly, intuitive, and accessible from various devices. It should provide clear navigation, responsive design, and secure access to different functionalities based on user roles.
* Different users and their needs include the admin (Liam) who should have full access to all system functionalities, including user management, package management, reservation tracking, and reporting. IT officer (Ian) who needs access to system maintenance tools, user management, and the ability to modify system settings. The secretary who needs the ability to book, cancel, and modify reservations, manage customer information, and view driver and car assignments. Customers need access to register, login, book, cancel, and modify driving lessons, view packages, and update personal information.
* All users should be able to access through a web browser or mobile app.

### 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?*

* Unaddressed aspects are scalability on how the system will handle an increasing number of users and data over time, backup and recovery in case of system failures, integration with external systems including details on how the system will integrate with the DMV for updates and notifications, data analytics to collect and analyze data for improvements, and legal and compliance to ensure the system complies with relevant laws and regulations, especially regarding data and privacy.
* Assumptions I'm making about the users and technology they have is that they will know they need to be using compatible devices or browsers.
* They have access to the internet when they need to login to their accounts,
* Users will follow best practices for security such as creating strong passwords and remembering questions to their selected security questions.

### 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?*

* Some limitations I can see in the design could be integrating with external systems like the DMV for updates. User training so they know how to navigate throughout the web interface and create their accounts or make change to their reservations.
* Resource limitations would be time, as it may take a little bit longer than planned to get the website up and running without any issues considering some of the unaddressed aspects that may need to be added to the design.

### Gantt ChartA screenshot of a project Description automatically generated