**5-2 Assignment: Project One Business Requirements Document**

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CS-255 System Analysis and Design 24EW3

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# CS 255 Business Requirements Document

## 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 create a training system for DriverPass (the Client) that addresses the lack of effective training tools for driving test applicants. The system aims to offer solutions, including online classes, practice tests, and on-the-road training. The goal is for the system to streamline reservation processes, provide flexible lesson packages, and provide connectivity with the DMV for up-to-date information.

### 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?*

* Due to inadequate training tools, DriverPass sees a big issue with driving test applicants failing. An all-encompassing training company that combines online resources with on-the-road training is the answer. This gap in the market is what DriverPass aims to fill, so more people can pass their driving tests.
* The different components needed for this system include:
  + An online system accessible from any computer or mobile device.
  + A reservation system to make, cancel or modify appointments online.
  + Lesson package management.
  + DMV data connectivity.
  + User roles for Admin, IT, secretary, and students
  + Security suite for role-based access and user information protection
  + User Interface based off Liam’s sketch.
  + Cloud Based System to eliminate need of client management and security concerns.
  + Downloadable report system

### 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?*

* User should be able to create and manage account.
* User should be able to make, cancel, and modify reservations for driving training.
* User should be able to select package type of 6,8, or 12 hours.
* User should be able to reset password if forgotten.
* System should have accounts for Admin, IT, secretary, and customer.
* System should allow Admin to edit roles.
* System should be available on multiple devices, including mobile.
* System should be cloud based to include backups and security.
* System should connect to DMV.
* System should allow secretary staff to make reservations for customer.
* System should provide reports.
* System should provide practice tests for customer.

## 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?*

* System needs to run from any modern computer or mobile device serving various browsers.
* The system should respond in a reasonable timeframe and anticipate and adjust for increased traffic volume.
* System would need to be updated any time a new function or option is added, as the business expands, and when DMV updates requirements.

#### 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 is web based and will work on any platform. System should be accessible from major web browsers (Chrome, Edge, Firefox, Safari) and mobile devices (iOS, Android).
* Backend database will be required to store user information, login access, appointments, and history.

#### 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?*

* In order to differentiate between users, user accounts will require a unique password for access. The input will be case-sensitive, and the password will generate a distinct ID number, allowing for user identification. While the password itself may change, the assigned ID number will remain constant for each user.
* Admin will be informed if password has failed too many times or when additional roles are requested.

#### 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?*

* Users within the system will have the capability to create and add accounts, as well as modify account information, with this function available to both customers and DriverPass staff.
* A delete/remove account functionality will be available to system users for managing their accounts.
* Continuous updates in users' browsers should be expected, with minimal impact on the backend code.
* System updates, with both frontend and backend components, will be implemented upon the completion of features or bug fixes. These updates will be scheduled during off-peak usage hours to minimize any effects on application performance.
* The IT admin will be given full access privileges, enabling them to manage accounts by updating passwords or revoking access as required.

#### 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 Authentication that requires a unique username and password. Could add multi-factor authentication for added security.
* For secure connection and data exchange, obtain and maintain valid SSL certificates, encrypt sensitive data before transmission and storage, and implement secure communication protocols (e.g., HTTPS).
* To combat “brute force” hacking attempts, the system can implement account lockout after a specified number of failed login attempts, have a time-based lockout mechanism, notify users of account lockout, and alert administrators of multiple unsuccessful login attempts.
* If a user forgets their password, provide a “forgot password” option on the login page, verify through email or text with a code to reset password, and make the code time limited.

### 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 authenticate users with a username and password.
* The system shall use secure user account management, allowing password reset function.
* The system shall support different user roles, including administrator, IT, secretary, and customers.
* The system shall enforce role-based access control, allowing specific permissions based on user roles.
* The system shall enable users to download reports and access data.
* The system shall have different user roles with varying levels of access to ensure data security.
* The system shall prevent unauthorized access.
* The system shall log and track user activities, including reservations, modifications, and cancellations.
* The system shall allow customers to make, modify, and cancel driving lesson reservations online.
* The system shall support different driving lesson packages, including a 6-hour, 8-hour, and 12-hour package.
* The system shall allow future customization of packages, enabling the addition or removal of package options.
* The system shall allow customer registration through phone call or online.
* The system shall collect information including first name, last name, address, phone number, state, credit card details, and pickup/drop-off locations.
* The system shall be connected to the DMV for updates on rules and policies.
* The system shall notify admin of any updates from the DMV.
* The system shall run on the web, preferably over the cloud, to ensure accessibility and minimize technical issues.
* The system shall have backup and security measures for the system managed by the cloud service provider.

### 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 and intuitive for users of all technical abilities to include a reservation management interface, user account management, progress tracking, contact page, dashboard view, package customization, and activity tracking.
* User needs are best explained by breaking them down:
  + Owner:
    - Customize driving packages.
    - Monitor business overview through the dashboard.
    - Review and manages reservations.
    - Receive notifications and updates from the DMV.
  + IT:
    - Manage user accounts and permissions.
    - Oversee system security and integrity.
    - Handle technical side of the system.
  + Secretary:
    - Manage reservations made through phone calls.
    - Provide customer support.
    - Access and update customer information.
  + Customer:
    - Make, modify, or cancel driving lesson reservations.
    - Track progress and view test results.
    - Access contact forms for inquiries.
* The user should be able to interact with the interface with any major web browser.

### 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?*

* Scalability was not addressed. Plans should be made for a growing customer base so the system can handle an increase in users, reservations, and data storage.
* Assumptions made are that all users have a reliable internet connection and have devices capable of connecting via web browsers.

### 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 design includes the use of cloud-based tech without specifying a particular cloud service provider. The choice of provider and technology may impact the scalability, performance, and cost of the system.
* The design includes future feature ideas but doesn't provide a plan or roadmap for their implementation. Including new features in the future may require additional resources and planning, increasing cost.

### 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 calendar

Description automatically generated*