# CS 255 Business Requirements Document Template

## System Components and Design

### Purpose

* Client: Liam –DriverPass owner
* DriverPass is planning to develop an online Learning Management System (LMS) specifically designed for driver's test preparation. This system will enable users to construct personalized learning agendas using a selection of predefined packages, allowing them to monitor their progression effectively. Additionally, the LMS will provide capabilities for the application administrators to engage directly with users via feedback or to make adjustments to the lesson plans whenever updates to the source material are necessary.

### System Background

* The system is designed to address a significant gap in the market for driver training offered through the DMV and to tackle the high failure rates at these tests. It will enable users to engage in extensive physical and/or virtual training sessions until they are confident enough to pass their tests.
* The system will enhance DriverPass's ability to comprehend user behavior and needs by generating valuable marketing intelligence, which will be accessible both online and offline. It will also maintain the most current information by integrating directly with the DMV.
* This system will be web-based, ensuring accessibility and convenience for users, while also featuring capabilities for generating offline reports.

### 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?*

* The primary objective of the application is to enable users to learn effectively and pass their DMV exams. Additionally, it will allow DriverPass to gather and analyze marketing intelligence from user data and interactions to enhance their business understanding. To meet these goals, the following components have been identified for development:
* **Components for DriverPass:**
  + **Entitlement's Service:** Manages user roles and permissions.
  + **Report Manager:** Facilitates data reporting for both offline and online analysis.
  + **Asset Management**: Assigns users to instructors and schedules vehicles.
  + **Subscription Management**: Syncs with the DMV to stay updated on policy changes.
  + **Lesson Management**: Oversees the scheduling and cancellation of instructional packages.
  + **Driver Feedback**: Enables communication from trainers to drivers.
  + **Proxy Service**: Allows designated roles, such as secretaries, to enroll users on their behalf.
  + **Admin Port**al: Handles administrative tasks like password resets and account deletions.
  + **Dashboard:** Displays Key Performance Indicators (KPIs) such as driver booking rates.
* **Components for users:**
  + **Account Management**: Allows users to create and manage their accounts, including password changes.
  + **Training Reservation**: Enables users to book driving sessions.
  + **Testing Service**: Provides a platform for users to take practice tests.
  + **Lesson Delivery**: Gives users access to online training materials.
  + **Dashboard**: Shows relevant information such as upcoming reservations and lessons left.

## Requirements

### Nonfunctional Requirements

#### Performance Requirements

* To ensure optimal performance and usability, the system has specific environmental and operational requirements:
* **Platform Compatibility:** The system should be primarily web-based, optimized for Google Chrome. Additionally, a Progressive Web App (PWA) should be implemented to enhance accessibility and user experience across various devices.
* **Scalability:** The underlying architecture must be capable of scaling effectively in line with an increasing user base. This ensures the system remains efficient and responsive as more users access and utilize it.
* **Data Reporting:** Key Performance Indicators (KPIs) must be generated and available with a maximum delay of 24 hours to ensure timely decision-making and performance monitoring.
* **Scheduling Efficiency:** The scheduling subsystem must operate in near real-time to avoid any instances of double booking or scheduling conflicts, which are critical for maintaining user satisfaction and operational integrity.

#### Platform Constraints

* To ensure comprehensive compatibility and robust backend support for the system, here are the specific requirements:
* **Desktop Compatibility**: The system should be compatible with Windows operating systems, with Google Chrome as the primary browser platform to ensure optimal performance and user experience.
* **Mobile Compatibility**: The application should be mobile-friendly, primarily targeting Chrome for Android devices. iPhone browsers should be supported as a secondary option. A Progressive Web App (PWA) should be enabled to enhance usability and accessibility on mobile devices.
* **Backend Configuration**: The system's backend should be based on a Linux operating system to leverage its stability and security features.
* **Microservices Architecture**: The system will utilize RESTful services for any microservices, facilitating efficient communication and data exchange across different services of the application.
* These specifications ensure that the system is versatile across different platforms and robust in its backend architecture to support scalable and secure application deployment.

#### Accuracy and Precision

* **Username and Password Requirements:** The system will require usernames to be the user's valid email address, which inherently ensures uniqueness. Usernames will not be case sensitive. However, the system shall enforce case sensitivity for passwords to enhance security measures.
* **System Monitoring**: The system should include a "heartbeat monitor" feature. This monitor will continuously check the operational status of the system and alert administrators if it detects that the system has gone offline or is experiencing issues, ensuring prompt response and minimal downtime.

#### Adaptability

* The system shall be based on an extensible platform, allowing for enhancements such as adding more disk storage and memory as needed.
* The system shall enable the curation of users and their roles within the platform, ensuring appropriate access and functionality based on user permissions.
* The system shall accommodate periodic updates, including server security updates, with minimal downtime to maintain continuity and security of service.

#### Security

* The system shall employ Role-Based Access Control (RBAC) for account management, ensuring users have access appropriate to their roles.
* Users will be required to register using a valid email address as their username.
* Users should have the capability to recover their accounts if they forget their username or password.
* The system must be served through HTTPS to ensure secure data transmission, not HTTP.
* The system will implement a mandatory "time out" period to prevent repeated account creation attempts from the same IP address within a short timeframe.
* There will be a mandatory "time out" period for sign-on attempts from the same IP address to enhance security against brute force attacks.
* The system will automatically lock an account after too many failed sign-on attempts, with the lock only removable by an administrator.

### Functional Requirements

* The system will authenticate users during the sign-on process and apply security policies based on the outcome of these attempts.
* Users will be able to manage their driving course subscriptions and make any necessary adjustments to their reserved driving slots, including editing and canceling them.
* Driver trainers and instructors will have tools to manage their schedules and engage with their students by posting updates, grades, and messages.
* The scheduling functionality will support viewing of available driving slots and will accommodate users across multiple time zones.
* The system will facilitate secure data transmission through enforced HTTPS protocols and include a robust Role-Based Access Control (RBAC) system for managing user roles and permissions.
* An advanced reporting feature will allow the extraction of data into offline formats like CSV for in-depth analysis.
* The platform will regularly update training content to reflect the latest DMV guidelines and allow for the automatic generation and online viewing of Key Performance Indicators (KPIs) by authorized roles.
* Certain roles within the system will be able to act on behalf of other users, enhancing flexibility in user management and system administration.

### User Interface

* Upon login, users will be presented with a dashboard that aligns with the client's design specifications, offering an overview of their activities and options.
* Users will have the capability to manage their accounts, review their current subscriptions, and examine the coursework they are enrolled in.
* Access to the driver reservation system will be available for users to book driving slots as per their learning schedule.
* They will also have the ability to take tests through the system and evaluate their performance on these tests, including viewing results from past assessments.
* Admin roles will be equipped to oversee the schedules of all students and drivers, ensuring that no Personal Identifiable Information (PII) is accessible to safeguard privacy.
* Users assigned proxy roles will have visibility into the schedules and subscriptions of the accounts they manage, enabling effective support and coordination.

### Assumptions

* The system will be designed for English-speaking users.
* All users must provide a valid email address to register and use the system.
* The engineering team will have direct access to business owners, facilitating prompt responses to any design-related inquiries.

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### Limitations

* The system will require an online connection to receive updates.
* The reservation system will be operational exclusively within the USA.
* The first version of the system will not be compliant with the Americans with Disabilities Act (ADA).

### 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.*

[Insert chart]