# CS 255 Business Requirements Document

## System Components and Design

### Purpose

The purpose of this project is to design and implement a comprehensive system for DriverPass, a company focused on improving driving test pass rates through online practice exams and on-the-road training. Our goal is to create a system that enables DriverPass to offer these services efficiently, ensuring students are better prepared for their driving tests. The system will support online access to educational content, practice tests, and facilitate scheduling and management of on-the-road training sessions.

### System Background

DriverPass identified a significant problem in the current driver education market: a high failure rate at driving tests due to insufficient preparation. They aim to fill this void by providing comprehensive, accessible, and flexible driver training options. The proposed solution includes online practice exams that students can take from anywhere, along with the option for practical on-the-road training sessions. This dual approach is designed to enhance the learner’s knowledge and practical driving skills, increasing their chances of passing the driving test. The envisioned system will support the scheduling of driving sessions, access to educational content, tracking of progress, and administration of practice exams.

### Objectives and Goals

* **Provide an Interactive Online Learning Platform:** Enable students to access and complete online practice exams and educational content to prepare for their driving tests.
* **Scheduling System for On-the-Road Training:** Develop a flexible scheduling system that allows students to book, cancel, or modify appointments for on-the-road driving lessons with certified instructors.
* **Data Access and Reporting:** Ensure DriverPass staff can access data online for report generation, tracking student progress, and administrative purposes, with the capability to work offline on downloaded reports.
* **Security and Role-Based Access Control:** Implement robust security measures and define clear access rights for different roles within the organization, including full administrative control for IT staff to manage accounts and permissions.
* **Compliance and Update Notification System:** Establish a direct communication channel with DMV to receive updates on rules, policies, and test materials to ensure the training content remains current.
* **Future Flexibility and Scalability:** Design the system with flexibility to easily update or add new training packages and features in response to market needs or regulatory changes.

## Requirements

### Nonfunctional Requirements

* **The system shall be reliably available.** By selecting dependable hosting services and setting up backup systems, we’ll minimize downtime, even during maintenance or unexpected issues.
* **The system shall provide quick page load times**, aiming for no more than 2 seconds. To achieve this, we'll optimize digital assets like images and use advanced technologies to distribute content efficiently.
* **The system shall secure user data** and comply with major privacy laws (GDPR for Europe, CCPA for California). Encrypting user information, conducting security reviews, and establishing clear data protection guidelines will be our strategy for safeguarding privacy.
* **The system shall be scalable**, capable of supporting an increasing number of users and data. Its architecture will allow for easy expansion, accommodating more users and services without degradation in performance.
* **The system shall be fully responsive**, providing an optimal experience on both mobile devices and desktops. Designing with a mobile-first approach ensures the platform adjusts seamlessly across different devices, offering a consistent user experience.
* **The system shall offer clear and constructive feedback for errors and user actions.** Whenever users encounter errors or need guidance, the system will provide helpful suggestions in straightforward language, facilitating a smooth resolution.
* **The system shall meet accessibility standards**, making it usable for individuals with disabilities. Implementing features like keyboard navigation, screen reader support, and clear labeling of interactive elements will make the platform inclusive and accessible to all users.

#### Performance Requirements

* The system must deliver real-time responses for user interactions, especially for lesson scheduling and test results. Designed to support hundreds of concurrent sessions, it should maintain optimal performance even during peak usage times.
* Regular system updates are planned for minimal disruption, with the capability for live updates without system downtime.

#### Platform Constraints

* Must offer full functionality across multiple platforms, including iOS, Android, and Windows, ensuring a seamless experience on both mobile and desktop platforms. The backend should be capable of interfacing with various database technologies and support scalable cloud hosting solutions.

#### Accuracy and Precision

* Advanced validation mechanisms will be implemented to ensure data integrity, especially for user inputs related to personal information and payment details. The system will employ error detection algorithms to alert administrators of any data inconsistencies or potential fraud.

#### Adaptability

* The architecture will be modular, allowing for easy updates and the addition of new features, such as integrating new payment gateways or educational content sources. It will support the addition of APIs for future third-party service integrations.
* The system design will allow administrators to adjust operational parameters (e.g. lesson pricing, availability schedules) directly through an admin panel without needing code changes.

#### Security

* Comprehensive security protocols, including SSL encryption for data transmission and AES encryption for stored data, will be implemented. The system will feature a robust authentication process, utilizing multi-factor authentication for sensitive user actions.
* Regular security audits and compliance checks will ensure the system adheres to the latest data protection regulations and standards.

### Functional Requirements

* The system shall authenticate user credentials securely during login and provide mechanisms for password recovery.
* The system shall allow students to register, view, and manage their driving lesson bookings, including options to cancel or reschedule.
* The system shall enable instructors to log in and manage their availability and lesson schedules, providing updates on any changes to their students.
* The system shall offer a comprehensive suite of educational content, including practice tests that simulate the format of actual DMV tests.
* The system shall provide instant feedback on practice tests and offer personalized study recommendations based on user performance.
* The system shall generate and send automated notifications to users about upcoming lessons, test schedules, and DMV updates.
* The system shall allow administrators to manage user accounts, update educational content, and generate detailed reports on system usage and performance.

### User Interface

* The interface will prioritize simplicity and intuitiveness, with a clear navigation menu, straightforward language, and visible call-to-action buttons.
* Students shall be able to easily navigate the platform to book lessons, take practice tests, and review their progress on both desktop and mobile devices.
* Instructors shall access their schedules, student progress reports, and system updates through a simplified dashboard tailored to their needs.
* Administrators shall have a comprehensive backend interface for system management, content updates, and data analytics.
* The interface shall adapt responsively to different screen sizes and devices, ensuring a seamless experience for users switching between devices.

### Assumptions

* It's assumed that users will have access to reliable internet connectivity for the seamless operation of online functions.
* It’s presumed that students will have varying levels of familiarity with digital platforms, necessitating built-in tutorials and help features within the system.
* It’s assumed the development team will have regular access to DMV updates and regulations to ensure the content remains current and accurate.
* We're assuming that third-party services, like cloud hosting and payment processing, will remain stable and reliable, supporting the system's operational needs.

### Limitations

* The project timeline may not allow for the integration of certain advanced analytics features, planning these for future updates instead.
* Budget constraints might limit the initial deployment of features like real-time DMV integration, requiring phased implementation based on priority.
* The scalability of the system will be initially designed to support a certain number of users, with further expansion requiring additional investment in server and database capabilities.

### Gantt Chart

