# CS 255 Business Requirements Document

## System Components and Design

### Purpose

* The purpose of this project is to develop a system for our client, DriverPass, designed to improve driving test preparation for students. The system will offer online practice exams and road training, aiming to increase pass rates and provide a more accessible and user friendly experience for students preparing for their driving tests.

### System Background

* The client, DriverPass, wants to address the difficulty many students face in preparing for driving tests.
* The proposed solution is to build a web application that provides students with online practice exams and on-the-road training scheduling.
* The system will allow students to access practice tests tailored to their state’s driving requirements.
* The system will include a feature for scheduling on-the-road training sessions with certified instructors.
* The system will integrate with a user-friendly interface accessible via desktop and mobile devices.

### Objectives and Goals

* The system will provide the user with the following functions:
  + Take practice exams
  + Schedule driving sessions
  + Track test progress
  + View available instructors
  + Access test history
  + Pay for lessons
  + Receive training reminders
  + Access test preparation tips

## Requirements

### Nonfunctional Requirements*:*

#### Performance Requirements

* The system must operate as a web-based system accessible via modern web browsers.
* The system must support multiple concurrent users without performance degradation.
* Pages and transactions must load and process under 5 seconds.
* The system must maintain an uptime of 99.9% to ensure reliability and availability for users.
* System updates should occur whenever new functionality is required and include regular security updates to address any vulnerabilities.

#### Platform Constraints

* The system will be hosted on a cloud-based Unix environment for cost efficiency and reliability.
* A database will be required to support user accounts, login information, lesson scheduling, as well as other critical system data.
* The system must be accessible via modern web browsers on both desktop and mobile devices, ensuring compatibility across platforms.
* It must be fully compatible with Windows, macOS, and popular mobile operating systems such as iOS and Android to provide access for users across different devices.

#### Accuracy and Precision

* The system must accurately track and update reservations in real-time to prevent double bookings or scheduling conflicts.
* It will distinguish between different user roles to ensure the correct access levels and permissions for each type of user.
* Password input will be case-sensitive to enhance security.
* The system will generate activity logs that record precise timestamps and actions taken by users for accountability and auditing purposes.
* The system will notify the admin in cases of critical issues, including:
  + Memory nearing capacity for both the frontend and database.
  + An unexpected number of login attempts indicating potential security threats.
  + Any server issues or unexpected system failures that impact performance or availability.

#### Adaptability

* The system must allow administrators to add, remove, or modify user accounts and training packages without requiring code changes.
* It should integrate updates from the DMV for practice test questions and changes to driving requirements.
* The system must be adaptable to platform updates, ensuring compatibility with new operating system versions and browser updates without requiring significant redevelopment.
* It should support future expansion such as additional driving lesson packages or enhanced online content, to be added easily.
* The IT admin will require full access to system settings, user roles, and security features to manage user permissions, monitor system performance, and troubleshoot issues.

#### Security

* The system must implement role-based access control for students, instructors, IT staff, and administrators.
* All data be encrypted using industry-standard protocols to ensure secure communication between clients and the server.
* In the event of a brute force attack (such as five failed login attempts), the system will lock the user’s account and require a password reset via secure email verification.
* If a user forgets their password, the system must allow for a secure and automated password recovery process through identity verification.

### Functional Requirements

* The system shall allow students to take online practice exams, providing feedback on their progress and results.
* The system shall allow users to schedule, modify, and cancel driving lessons through an online interface.
* The system shall allow administrators to manage user accounts, including adding, removing, and modifying user information.
* The system shall track lesson reservations and prevent double bookings.
* The system shall allow IT staff to reset passwords and manage user access in case of issues.
* The system shall allow administrators to disable or modify training packages as needed without requiring code changes.
* The system shall generate activity logs to track user actions, such as logins, reservations, and changes, for audit purposes.
* The system shall allow students to view their lesson schedule, progress, and payment history through a user dashboard.
* The system shall provide a secure payment interface, allowing students to pay for lessons or packages using credit card details.

### User Interface

* The system’s interface must be accessible via web browsers on both desktop and mobile devices, ensuring usability across platforms.
* Students will use the interface to schedule driving lessons, take practice exams, and view their progress, payments, and lesson history.
* Instructors will access the interface to view their assigned lessons and add notes or feedback after each session.
* Administrators will use the interface to manage user accounts, disable or modify training packages, and generate reports based on user activity.
* The interface must be simple and intuitive, with clear navigation and prompts for actions such as booking lessons, resetting passwords, and making payments.
* IT staff will have access to a dedicated section of the interface for troubleshooting issues, resetting passwords, and managing system performance.

### Assumptions

* It is assumed that users have access to the internet through a computer or smartphone and can access the web-based system.
* Users are expected to have a basic understanding of how to navigate a website, such as filling out forms, logging in, and making payments online.
* The system assumes that the internet connection is stable enough for users to complete tasks.

### Limitations

* The system will not function properly without a stable internet connection, which limits its accessibility for users in areas with poor connectivity.
* Development time and budget constraints may limit the ability to implement advanced features such as AI-based training or additional customization options for training packages.
* The system will depend on third-party cloud hosting services, which could affect performance and uptime depending on the reliability of the hosting provider.

### Gantt Chart

A graph with a diagram

Description automatically generated with medium confidence