# CS 255 Business Requirements Document

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## System Components and Design

### Purpose

* The purpose of this project is to create a system for training new drivers to take the driver’s license test.
* The client, DriverPass, needs this system to be capable of providing driving training and practice tests, as well as sign-ups for on-the-road training sessions. The client needs to be able to access and download system data online. Also, the system needs roles for users with differing access levels. They also want the system to allow for reservations for each training package offered by DriverPass.

### System Background

* DriverPass has identified a market for driver test training as there are many who fail the test. DriverPass wishes to solve this problem by providing online and on-the-road training.
* The system will need an online portal (website/webapp) hosted on the cloud.
* They will need user sign-up and tracking of reservations.
* It will also need to provide notifications of up-to-date DMV testing information.
* Also, the system will need a component to allow the client to grab marketing data from the web.

### Objectives and Goals

* The DriverPass system should be able to provide training for users to pass the driver’s test. It should also provide information on the testing and marketing to help the client provide adequate testing processes.
* Tasks:
  + Roles Administration: used to administrate user roles
  + Reporting: used to report user data for analysis
  + Asset Allocation: used to assign cars and instructors to individual customers
  + Update notification: used to check for updates to DMV testing and notify
  + Package Handler: used to disable packages and possibly further features
  + Communication: used to allow communication between instructors and users
  + Account Management: used to allow administration of accounts and access
  + Information Dashboard: used to access system data by administrators
  + User Dashboard: used to allow users to access their training and reservations
  + Reservations: used to allow user to reserve training times
  + Testing: used to allow user practice tests
  + Lesson: used to provide lessons to users

## Requirements

### Nonfunctional Requirements

* Security - The LMS should be focused on securing the data of its users. It will need to protect confidential information and prevent unauthorized access to system functions.
* Accessibility - The LMS will need to comply with accessibility requirements. This will allow users to operate the system as easily as possible. The system will be accessible and inclusive for as many users as possible.
* Upgradability - As the needs of the users grow, the system will need to be improved or updated. Security patches, additional features, and meeting updated requirements are only a few of the upgrades that may be required.
* Mobile Support - As many users will have limited access to certain platforms, the support of mobile platforms will allow more users access to the system.
* Reliability - The LMS system should have a high uptime. Issues occur, but if the system is down, no one can use it. A metric of >99% uptime should be met.
* Scalability - The LMS needs to scale to the requirements of the users. Userbases grow, and so does the data they are concerned with. The LMS should grow with them.

#### Performance Requirements

* The system will be web-based, there will be servers hosting to various browsers.
* The system will be performant to allow quick access to many database functions and uninterrupted access to the platform.
* The system should be updated often, keeping user progress current. It should also update the database with new DMV information when available. It will also update reservations and user feedback. These updates should occur as soon as possible after any information has changed. If this proves unfeasible as the system grows, batch updating can be explored.

#### Platform Constraints

* Since this is a web-based system served to a browser, it is mostly platform agnostic. It should support as many browsers as possible with a focus on the most common (Edge, Firefox, Chrome, Safari, etc.).
* The backend will need a hosting server and database for storing information. There are many options that will suffice for this application depending on need.

#### Accuracy and Precision

* Users will be distinguished by account. Each account will have an ID and password for secure access.
* There will be two-factor authentication in the form of security pins sent to the email associated with the account.
* Each account will have appropriate roles and security levels assigned and access to the necessary system functions.
* Input should be case sensitive to increase security.
* An admin will be notified if an account has been locked out due to excessive incorrect password attempts or if unauthorized access is detected.

#### Adaptability

* Changes to the user accounts will be implemented without code changes. These functions will be built into the system.
* Users can update their account information as needed. They can also delete their account if no longer needed.
* Admins will also be able to remove and update accounts as needed to keep the system clean and functional as well as to address any unforeseen issues.
* Supported browsers may implement updates or patches that break the functionality of the system. In this case system updates will need to be made to meet the new requirements.
* No system is perfect so bugfixes and feature additions should be expected. The system will be developed with this in mind.
* The IT admin will need full access to the system to implement any unsupported changes or modify user accounts as required.

#### Security

* A user will need a username and password as well as an associated email account.
* Network requests will be done over HTTPS for secure communication between the client and back-end.
* Sensitive information such as passwords will be hashed in the client and sent to the database over a secure HTTPS connection. No plaintext passwords will be stored.
* Excessive failed sign in attempts will lock the account and notify the IT admin. The admin can then verify the user and unlock the account.
* Password resets can be automated. The user will request a reset and confirm identifying information such as security questions and a reset code will be sent to the email associated with the account.

### Functional Requirements

* The system shall have localization.
* The system shall have data reporting and management.
* The system shall have user roles for student, instructor, administrator, etc.
* The system shall have dashboards tailored to the user.
* The system shall have integration capabilities.
* The system shall facilitate user interaction through forums, chats, blogs, articles, etc.
* The system shall track user activity such as reservations and course progress.
* The system shall remain current with DMV guidelines.
* The system shall provide functions for creating, removing, and updating accounts.
* The system shall support the package types available and allow them to be disabled.
* The system shall allow changes to be made to the courses and included materials.

### User Interface

* The user interface should have a home page, account management (registration, user information), a dashboard with course access (tests, lessons, etc.), a sign-up page for reservations, and an about page with information on DriverPass contact information.
* The user roles will be administrator (full access to the system and its functions), IT admin (full access to the system and its functions), employee (scheduling, appointment management, reporting), instructor (create, modify, and view courses, student information and progress, reservations), and student (courses and reservations, course materials and tests).
* The interface will be accessed via web browser. This can be done on desktop or mobile devices.

### Assumptions

* Access to a web capable device - We will assume that each user will have access to a web capable device to access the system. Will we not be supporting offline use.
* Access to an email address - We will assume users to have a valid email address. The address will be necessary for validation and security as well as access to the LMS.

### Limitations

* Users will require some basic IT knowledge such as how to navigate the site and use a web capable device.
* Staff members will require greater IT knowledge to utilize and support the system at the appropriate level.
* No automatic plagiarism checks as this is out of scope for this system.
* The initial cost may be prohibitive as server infrastructure can be expensive be it on premises or cloud based.
* The system will rely on availability and consistency of DMV guideline updates, making this a necessary part of the system that is out of our control.

### Gantt Chart

*A screenshot of a calendar

Description automatically generated*