# CS 255 Business Requirements Document Template

## System Components and Design

### Purpose

* DriverPass is a company that offers driver training for people who are about to take a DMV driving test.
* They wish to develop a system for their customers which offers online classes, practice tests, and a way for on-the-road driving training packages to be purchased and scheduled.

### System Background

* The problem identified by DriverPass is that too many people fail their driving tests.
* They want to provide their customers with tools and training that may help them pass their test.
* For this, the system’s components will need to include a living database that houses reservations and user information for both new and existing customers.
* It will also include security measures which give each user varying levels of access to the system.
* The user interface will need to include an online presence as a destination for customers and employees to purchase and schedule on-the-road training as well as provide access to online training classes and tests.

### Objectives and Goals

* The system will need to offer varying levels of permission based on the user’s role.
* The system will need to allow, only to a user with proper clearance, the ability to access system data offline. This data must be restricted to all users, even those with clearance to access data offline, to only be editable online. This will prevent data redundancy.
* Customers should have the ability to schedule training online. Should the customer opt to call and make a reservation, there needs to be the ability for select employees to schedule the training online, which will include multiple package options.
* The system will need to be notified by the DMV of rule changes to keep training accurate and current.
* Online classes and tests will need to be available via the web-based interface.

## Requirements

### Nonfunctional Requirements

#### Performance Requirements

* This a multi-platform web-based system, so it will need to be compatible with all major web browsers including those for computers and mobile devices.
* Because it is a Learning Management System, speed will be a factor during loading a new screen, submitting a new answer, or updating the system with new information.
* Ultimately, system updates occur when there is a change in policy from the Department of Motor Vehicles. Therefore, their frequency may vary. Other recurring updates will include:
  + Changes in DMV policies or regulations
  + Weekly security updates
  + Updates resulting from global technical issues
  + Updates to the user interface

#### Platform Constraints

* This a multi-platform web-based system, so it will need to be compatible with devices connecting to the Internet via major web browsers including those for contemporary “smart” mobile devices, such as:
  + Windows
  + Linux
  + Mac
  + Android
  + iOS
* The back end will include a database for storing all application data. It will also contain tools for content development, grading and providing feedback on assignments, and other instructor requirements.

#### 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?*

* A case-sensitive username and password is required to distinguish between different users.
* Each user will be assigned one of three user types based on its individual need--learner, administrator, and instructor.
* Inform the admin after multiple unsuccessful attempts at entering a valid username and password.

#### Adaptability

* Adding, removing, or modifying the user would occur on the database.
* Code would not need to change for the code which accesses the database.
* Adapting to platform updates can be implemented by making the system itself adaptable and easy to conform to updates.
* Admin access will include:
  + Adding, modifying, or removing code.
  + Updating the database.
  + Updating the website and content to adhere to DMV changes.
  + Sending alerts to learners and instructors regarding system downtime and changes to DMV regulations.

#### 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 will require having their input for username and password verified.
* This and any client-server interaction will occur over an encrypted data transfer.
* Brute force hacking attempts will be mitigated by:
  + Doing the following after three unsuccessful login attempts:
    - Informing the admin
    - Locking the account until password is reset.
    - Limiting the user to:
      * Receiving an email to reset password.
      * Answering security questions for access to resetting password online.
  + Shutting down servers if a breach occurs.

### Functional Requirements

* The system shall validate user credentials.
* The system shall give the administrator access to modify the source code.
* The system shall track all user activities.
* The system shall display the most current grades on feedback for each assignment and test.
* The system shall update all course content in real-time adherence to DMV regulations as they are changed.
* The system shall allow any user to update their account information, including their password.

### 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 user interface will require the ability to process various inputs from the user, including:
  + Keyboard
  + Mouse
  + Touch Screen
* The user interface is web-based, so an internet connection is required. Certain course content may have the option to be downloaded for offline access.
* The user interface offers different abilities based on the user:
  + All users can:
    - Upload their photo.
    - Update their account information:
      * Name
      * Contact Info
      * Password
  + Learners can:
    - View assignment and test progress
    - View grades
    - View instructor feedback
    - Access a library of content for online classes.
    - Access a discussion forum.
    - Complete assignments and assessments
    - Review content.
  + Instructors can:
    - Develop content
    - Grade assignments and assessments.
    - Provide feedback on assignments and assessments.
    - View activity and progress of each learner.
    - Update content in adherence to DMV regulations.
  + Administrators can:
    - View or modify system source code.
    - View and update system in response to changes in DMV regulations.

### Assumptions

* Users will have a device that can access the web-based system.
* There are capabilities for tracking changes to the DMV rules, regulations, and requirements.

### Limitations

* Technology
  + There are many differences in the displays of the various devices that will be used to access this multi-platform, web-based system.
  + Each device will have differences in power consumption and will need access to versions of the system that are sensitive to this limitation.
  + Modifications to data must only be modified by the administrator while he is online and logged in to the system to avoid data redundancy.
* Time
  + Programming errors may alter the timeline significantly.
  + Security flaws or breaches may also alter the timeline.
* Budget
  + Time-based setbacks will also result in budget increases.
* Resources
  + Cloud-based servers rely on an outside source for server-based issues.
  + In-house servers complicate scalability.

### Gantt Chart

Table

Description automatically generated with medium confidence