# CS 255 Business Requirements Document

## System Components and Design

### Purpose

*What is the purpose of this project? Who is the client and what do they want their system to be able to do?*

* DriverPass is a driver training program that offers online classes, practice tests and on-the-road training for people who want to learn the rules of the road and how to drive.
* They want to create a system that allow for customers to sign up for these classes online and to keep track of their progress through this system.

### System Background

*What does DriverPass want the system to do? What is the problem they want to fix? What are the different components needed for this system?*

* System will allow users to sign up for driving education courses based on their preferences.
* System will be tracking the activity of employees and provide activity reports for each employee.
* System will be connected to DMV for updates on new rules, policies or sample questions by getting notifications on any updates.
* System needs to run off the web, through cloud to avoid having to backup information.
* System will provide online user registration.

### 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?*

* Provide users with following functions:
  + Create, cancel and modify their own appointments online.
  + Choose from 3 packages the company offers.
  + Track their progress through online website on their own profile and see driver comments.
  + Can reset password.
  + Be able to contact a customer service rep.
* Ability to access data online and to also download data from system to use offline.
* Show what drivers are working each time slot.
* Registration should include getting first and last name, address, phone number, state, credit card information, and pick up and drop off location of client.
* Allow admins to assign different rights and roles depending on the employee for different levels of access and ability to block a user altogether.
* Allow for admin to reset user and employee passwords.
* Ability to modify packages by admins.

## Requirements

### Nonfunctional Requirements

*In this section, you will detail the different nonfunctional requirements for the DriverPass system. You will need to think about the different things that the system needs to function properly.*

#### Performance Requirements

*What environments (web-based, application, etc.) does this system need to run in? How fast should the system run? How often should the system be updated?*

* This will be a web-based application that can run on any OS.
* System should be highly responsive, no longer than 5 seconds for a page to load.
* Practice test grading should take no longer than 10 seconds.
* Since system will be connected to DMV, daily checks for any new rules, policies or sample questions will be needed and updates done same day.
* Maintenance and small updates should be done weekly.
* Any large website updates can be made once a month, or earlier if it is an emergent situation, and the site will be taken down for maintenance no longer than 24 hours.

#### Platform Constraints

*What platforms (Windows, Unix, etc.) should the system run on? Does the back end require any tools, such as a database, to support this application?*

* The operating platform that the system should run on is Linux. Server-side advantages of using Linux:
  + Unix OS
  + Open source servers
  + Secure
  + User and file access controls
  + Supports LDAP and ADP
  + Large online/cloud support
  + Internet runs on Linux
* Will use Oracle Database.
* Need to decide on vendor support such as Redhat or Ubuntu
* Very low cost for development.
* Need to be a programming expert to customize and update Linux software.

#### 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?*

* Different users will have different rights, such as customer or admin.
* Each user will be differentiated by their email, which will be their username.
  + They can change to a nickname to use while on their profile.
* Admins will use a special username and password to log in, different from an email username a customer uses.
* Password input is case-sensitive.
* When to notify admin of problem:
  + If system catches any non-admin access to admin tools
  + Corrupt files or links
  + Reported problems by users
  + Server problems
  + Any unplanned downtime of the website

#### Adaptability

*Can you make changes to the user (add/remove/modify) without changing code? How will the system adapt to platform updates? What type of access does the IT admin need?*

* Admins may make changes to a user through the website without having to change code.
* Weekly updates will be rolled out to maintain up to date functions and prevent any issues.
* IT admins will be able to access all website features and will be able to troubleshoot through website, no access to source code.
  + Can still use vendor support applications.
* Only system programmers will have access to source code for any changes.

#### 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?*

* Username and password required for log in.
  + After 5 failed attempts, system will require password reset.
* Secure connections and data exchange through:
  + Firewall
  + SSH keys
  + Choice of 2-factor authorization for users
  + Kernel hardening
* System will be created to prevent brute force hacking through:
  + Having strong password policy: Use of at least 8 letters, at least 1 number, at least 1 uppercase letter, and a special character.
  + Use of Captcha
  + User has choice of 2-factor authorization
  + Server logs will keep track of failed attempts
  + Root user inaccessible via SSH
* If password is forgotten, choice to reset password is given to user to be done through email.

### Functional Requirements

*Using the information from the scenario, think about the different functions the system needs to provide. Each of your bullets should start with “The system shall . . .” For example, one functional requirement might be, “The system shall validate user credentials when logging in.”*

* The system shall allow customers to register themselves.
* The system shall allow admins to register customers.
* The system shall allow users to reset their passwords if forgotten.
* The system shall allow admin to reset user passwords.
* The system shall let users and admins log in using designated username and password.
* The system shall track the activity of each user and admin.
* The system shall allow users to take online courses based on package they choose.
* The system shall allow users to take practice tests.
* They system will be online based and run off a cloud network.
* The system shall allow users and admin to download reports or other documents on the website.
* The system shall allow admin to print out activity reports of users.
* The system shall make reservations for customers driving lessons based on customer choice.
* The system shall allow users and admin to make, cancel and modify appointments as needed.
* The system shall allow users to choose a pickup and drop off location for driving lessons.
* The system shall allow for updating the customer packages that DriverPass provides.
* The system shall notify admins of DMV updates.
* The system shall show users their progress in class.
* The system shall keep track of test name, time taken, score and status of the test.
* The system shall keep track of driving lesson start and end time and show any driver comments.

### 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 interface will be an online website that will have an introduction to DriverPass and their aim on the main page with their Logo above.
* The main page will have tabs for the customer such as: Meet Our Team, Services, Locations, Contact Us, Register, Login, and Report a Problem.
* Each tab will take the user to the designated location with that information on that page.
* When a customer Registers, the next screen will have all required information for user to enter for registration: First Name, Last Name, Address, Phone Number, State, Email, and choose a password for their account.
* For payment the system will need to be able to take Credit Card Number, Expiration Date, and Security Code.
* When a customer chooses Login, they will enter email for their username and enter the password they chose to login.
* The user screen will contain the DriverPass Logo at the top with Online test progress in a box on top left of page, Driver notes below that, Customer information in a box at top right of the page, Special needs, Driver Photo and Student Photo below that.
* The Driver notes should contain Lesson Time, Start and End hour and any Driver Comments.
* The User will have a tab named Register for Lesson on main screen as well.
* Hitting that button, the user will be able to choose available times for Lesson and will enter pickup and drop off location and once confirmed the website will show them confirmation.
* On the admin side of things there will be a different interface after login that will show all possible actions that the admin can do, such as Register User, Modify appointments, Update Packages, Password reset, Reports, Reported Problems, Notifications, Update Website Messages, and Update User Comments.
* The users can interact with the interface through an internet browser on their phone or on a computer.

### Assumptions

*What things were not specifically addressed in your design above? What assumptions are you making in your design about the users or the technology they have?*

* User will enter valid information.
* User will have an internet connection.
* DMV will update any new rules or regulations in a timely manner.
* Users will show up for their scheduled appointments.
* Interface will be easy to use.
* Users will have a credit card or debit card available to pay for classes.

### Limitations

*Any system you build will naturally have limitations. What limitations do you see in your system design? What limitations do you have as far as resources, time, budget, or technology?*

* The system will only allow connection through online access only.
* The user will need to figure out the interface themselves and have knowledge of how to create and cancel their own appointments.
* If servers fail, website will crash.
* Limited mobile experience.
* If users lose access to email, they can’t reset password themselves.
* Admins can be overloaded with issues and not get back to customers in a timely manner.

### 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.*

A picture containing timeline

Description automatically generated