# 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?*

* The client, *DriverPass*, educates customers about driving, both in theory and in practice
* This project will help the client manage the training, schedule, and course content access of its customers
* This project will help the customers pass their driving test at the DMV by having access to quality driver’s training material and hands-on practice

### 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?*

* The client requested a system that lets customers reserve driving lessons, depending on a chosen package
* The system provides customers access to online driver’s training material and classes, if the customer purchases an appropriate package
* A package is something the customer can choose to purchase, which will allow the customer a certain amount of driving lessons and/or access to the client’s online class and course material
* The system records information (for example, reservations, user account information, available cars, etc.) and can generate reports based on that information for authorized system accounts
* The system will run on a server that can be accessed via a web browser for a user
* The server will be located in the cloud, meaning the physical hardware of the system is managed by another company’s service, such as Amazon Web Services or Google Cloud
* The system will notify the client of any changes to the DMV requirements

### 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?*

* The system will let a customer do the following:
  + Purchase one of three provided packages
  + Reserve driving appointments; amount based on purchased package
  + Cancel appointments
  + Modify appointments
  + Access online class and materials; if provided by purchased package
  + Update account
  + Review account information
  + Reset account password
* The system will let the secretary do the following:
  + Create customer account
  + Reserve driving appointments for customers
  + Cancel appointments for customers
  + Modify appointments for customers
* The system will let the business’ drivers do the following:
  + Comment on their student’s driving lesson
* The system will let the owner do the following:
  + Reset employee passwords
  + Block employee account access
  + Add new employee account
  + Have full access to all employee accounts
  + Disable packages
  + Download activity reports
* The system will store accounts for the following users:
  + Customers
  + Drivers
  + Owner
  + Secretary
* The system will store the following data:
  + Customer accounts
    - ID
    - Password
    - First name
    - Last name
    - Address
    - Phone number
    - State
    - Credit Card number
    - Expiration number
    - Security Code
    - Pickup location
    - Dropoff location
    - Photo
    - Package
  + Driver accounts
    - ID
    - Password
    - Assigned car
    - Photo
  + Owner account
    - ID
    - Password
  + Secretary account
    - ID
    - Password
  + Driving Lessons
    - Customer ID
    - Driver ID
    - Lesson Date
    - Lesson Time
  + Driver Notes
    - Driving Lesson ID
    - Customer ID
    - Driver ID
    - Start hour
    - End hour
    - Comment
  + Practice Tests
    - ID
    - Name
  + Tests Taken
    - Customer ID
    - Test ID
    - Time taken
    - Score
    - Status
      * Not Taken
      * In Progress
      * Failed
      * Passed

## 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?*

* The system needs to run as a web-based application
* The system needs to allow its information to be updated as soon as new DMV guidelines are provided
* The system needs to handle hundreds of requests concurrently

#### 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 system backend should run on the latest Ubuntu Server version
* The system must use an SQL database to store its data
* The system must use a Learning Management System (LMS) to manage online course material to customers
* The system front-end must run on mobile and PC versions of Firefox, Microsoft Edge, Chrome, and Safari

#### 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?*

* Each user’s password is case-sensitive
* All input fields, for the exception of a user’s password, is case-insensitive
* Each user account will have a tag (from the following list) labeling their role within the database
  + Customer
  + Driver
  + Owner
  + Secretary
* The system should notify the owner immediately after 3 incorrect password attempts for employee accounts
* The system should notify the owner immediately after 3 failed connection attempts to the database from the server
* The system should notify the owner of any new or modifications of reservations via an activity report

#### 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?*

* User accounts can be added, updated, and removed from the system during normal execution
* Changes to the server source code will be scheduled for deployment on Sundays between 2200 and 0200, local time, with two weeks advance notice
* Consistent platform updates should be scheduled given the same requirements as server source code updates
* The system should not be affected by consistent platform updates
* IT admin require access to the system backend source code, database, and server terminal

#### 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?*

* Each user will log in with their username and password
* The server must only support HTTPS on all endpoints
* Login credentials, account updates, and any other client requests to the server consisting of sensitive information must be encrypted using up-to-date techniques
* A user account will be locked for 24 hours after every failed log-in attempt once 5 consecutive failed log-in attempts occur
  + Additionally, the user is notified via email and is suggested to change their password

### 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 validate user credentials when logging in
* The system shall allow user accounts to be added by the admin
* The system shall allow user accounts to be removed by the admin
* The system shall allow user accounts to be updated by admin and the respective account owner
* The system shall provide access to course material to authorized customers
* The system shall allow every user to have one and only one assigned role
* The system shall generate reports for the owner to download
* The system shall record driving reservations requested by a customer with the customer, driver, time, and car information for that reservation

### 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 design must be responsive to display on different screen sizes and mobile phones via a web browser
* The interface should show a customer what online tests they have taken, along with the time it was taken, status of the test, and score obtained
* The interface should show a customer their recorded information for verification purposes
* The interface should show a customer notes provided by their driver during their driving lesson
* The interface should allow for each user to log in
* The interface should provide a page for a student or the secretary to schedule a driving lesson
* The interface should allow for authorized customers to access online course materials
* The interface should allow admin to contact a student
* The interface should allow a driver to record notes about their student during a lesson
* The interface should allow the owner to access and download reports generated by the system

### 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?*

* Each user uses at least one of the following web browsers to interact with the system:
  + Firefox
  + Safari
  + Chrome
  + Microsoft Edge
* Each user has a stable internet connection
* The company is not obligated to store user information on-site
* Every paying customer has an account in the system, whether they use it or not
* The backend is deployed on the cloud

### 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?*

* Packages purchasable by customers cannot be changed without a developer
* Running the system will require a monthly fee since it will be deployed on the cloud

### 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.*

