# Project One: Business Requirements Document

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CS 255: System Analysis and Design

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# 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 wants a new system to be built.
* The system would fill a void in the market to train students for the driving test.

### 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?*

* DriverPass would like to fill a void in the marked by helping people pass their driving test
* DriverPass would like to have a cloud-based system that connects the students with the drivers
* DriverPass would like to offer many different packages to customers
* The system will need a database
* The system will need proper security measures including login system with roles and encryption
* They system needs to be accessible by mobile or computer

### 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 online classes and practice tests for users
* Provide optional on-the-road training
* Allow employees to be registered for the system and users to register themselves
* Maintain a database for login details, reservations, changes
* System needs to be accessible by computer or mobile device
* Create roles for users – customer, driver, manager, etc.
* Allow customers to make/modify/cancel reservations online through the system or allow staff to do it for the customer
* Allow users to sign up for different plans that are eventually able to be customized and initially they need to be able to be disabled.
* Allow the customer a way to access their account after forgetting password
* Allow for alerts to certain roles from DMV when updates are available.

## 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 be able to run on all major web browsers.
* The system UI should be reactive for all different screen sizes.
* The system should allow for schedule updates

#### 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 should run on all platforms that can run the major web browsers including mobile devices.
* The backend will be hosted on the cloud and maintained by an outside contractor. It is assumed they will handle all security, backups, and data connections.
* A database is required to store user information, DMV information, scheduling and other system related data.
* The company that hosts the web application should utilize tools that monitor and evaluate the content of the system such as Google Pagespeed Insights.

#### 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?*

* The system will store usernames and hashed password for users to utilize a role-based login system.
* The username should be the users email address and is not case-sensitive.
* The password is case-sensitive and must conform to sufficient strength parameters such as:
  + Minimum length (8-12)
  + At least one uppercase letter
  + At least one lowercase letter
  + At least one special character
* The user should be signed out after 20 minutes of inactivity.
* The user should be locked out of their account after 3 failed password attempts.
* The admin will receive a report on locked out accounts.
* The user can reset the password using authenticated methods such as:
  + Email address
  + Mobile device
  + In person with DriverPass Admin/Secretary

#### 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?*

* Changes to the user should be changes to the database that do not require changing the systems code. Types of changes include:
  + Password
  + Username (email address)
  + Payment method
  + Account package
  + Address
* Platform updates should not affect the system as it is web based.
* IT admin needs access to update the database.
* Admins must be able to disable packages.

#### 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?*

* A username and password will be required for the user to login.
  + The username will be the users email address
    - Email addresses will be verified
  + The password will be hashed, and the hash value will be stored in the database.
  + Passwords must contain the following:
    - At least one uppercase letter
    - At least one lowercase letter
    - At least one special character
* The user will be locked out of the account after 3 failed password attempts.
  + Locked out users must use one of the following previously authenticated methods to change their password:
    - Email address – A code will be sent to their email address and must be entered into a forgot password screen.
    - Text message – A code will be texted to their phone number and must be entered into a forgot password screen.
    - Mobile device – A code will be sent to their mobile device and must be entered into a forgot password screen.
    - In person with the DriverPass secretary
* Users have option to change password without being locked out first.
* User roles and permissions will be used for access to specific portions of the system.
* The system will use Hypertext Transfer Protocol Secure (HTTPS) to transfer secure data between the server and the client.

### 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 login credentials when logging in.
* The system shall allow users to modify their account details such as:
  + Email address
  + Password
  + Address
  + Phone number
  + Payment method
* The system shall allow users of certain roles to select and pay for several predetermined packages.
* The system shall allow users of certain roles to access training materials.
* The system shall allow users of certain roles to take practice tests.
* The system shall provide users of certain roles with feedback from their training.
* The system shall allow users of certain roles to schedule and cancel drivers training appointments.
* The system shall allow users of certain roles to enter available schedule times.
* The system shall allow users of certain roles to enter feedback/notes on previous appointments.
* The system shall allow users of certain roles to view scheduled appointments.
* The system shall allow users of certain roles to create accounts.
* The system shall allow users of certain roles to disable packages.
* The system shall allow users of certain roles to modify other users account details or roles
* The system shall maintain a log of users that made changes to data in the system
* The system shall allow DMV to send updates.
* The system shall allow users of certain roles to update training material based on DMV updates.

### 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 must be adaptive for different screen sizes. The format should automatically adjust for smaller screens (such as stacked view rather than side by side).
* There must be a login interface that will be available for all users.
* The client users will have an interface that gives options to schedule appointments, view material, purchase packages, and view stats. Each of those sections will have an interface.
* The admin will have an interface to view and modify student data, user roles.
* The trainers will have an interface to view schedules and enter notes on clients.
* The secretary user will have an interface to create client accounts.

### 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?*

* The users will have access to the internet with a sufficiently fast enough connection.
* The users will have a computer or mobile device to access the system.
* The DMV has an API to access material.

### 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?*

* Data from the DMV might not be easily converted to usable data
* There might not be a system in place for the DMV to share their data
* It would be difficult to develop for every internet browser so DriverPass will only be available for the most common browsers.
* 15 weeks might not be sufficient time to complete the system
* The secretary must enroll users. If there are too many requests for enrollment this may be a bottleneck for the system.

### 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.*

