# CS 255 Business Requirements Document Template

## 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?*

* They want to help train new drivers
* Offer better driving training than local DMV
* Allow customers to take practice tests online
* Offers on the road training
* The owner would like to have full access of the data to maintain members and accounts
* The owner would like to be able to disable packages so customers can not purchase at that time.
* The IT officer should have full access to all accounts for password security and password reset incase a user forgets their password, or blocking a user from using their interface for a reason.
* They would like the system to run over the cloud, so they can focus more on running the business and not so much on the technicalities behind it.

### 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, the client, would like to create a business that offers a different approach to training for road exams to get individuals prepping for a road exam to be more prepared.
* DrivesPass’ main goal is to increase the percentage of people that pass their driving tests.
* Components needed for this system:
  + Package selection so the user has an option on training services.
  + Must be able to keep track of all cars and drivers
  + Registration system so people can sign up
  + Allow the user the choice of where to be picked up. The drop off location should be the same as the pick-up location.
  + Keep track of driver status and time remaining in their training service.

### 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 should be able to run with both the employees and customers because training sessions will be held during different times. It needs to keep track of where these people are in terms of when they leave, where they got picked up/dropped off, and when they return.
* Measurable Tasks:
  + Track # of cars in the business.
  + Track # of drivers.
  + Reserve a selected time slot to drive.
  + Reserve the time it takes per test for that selected user time.
  + Allow the user full control of their scheduling in case they need to cancel or reschedule.
  + Allow the customer to see their grades from tests and practice tests.
  + Offer different training practices that can be selected from for user comfort and further experience.

## Requirements

### Nonfunctional Requirements

#### 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 DriverPass system will need to operate on all platforms. So that means that PC’s/Mac’s and mobile devices should be compatible. In order for this to be accomplished, we should develop the shopping project as a web application. This web app will allow PC’s to run the application with their desired web browser and a smartphone app will need to be developed for mobile applications.
* One of the components for DriverPass was the ability to support video streaming. This may be difficult because user’s internet and bandwidth will ultimately affect the quality of the video streaming service. However, given the system to be designed, it should be able to handle several user’s that want to stream driverpass’ educational videos.
* The system will need to be maintained. This updated process will need to be vigilant to keep it up to date with other web browsers and mobile apps. What this means is that as web browsers and mobile apps update, driverpass will also need to update their system. This will allow the system to find any potential bugs and make the necessary fixes to continue to be compatible with web browsers and mobile applications.

#### 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?*

* If the system for DriverPass is developed from HTML, then it’s source code that is developed should be supported by any web browser. When it comes to mobile applications, our main concern should be Apple and iOS or Android. While there are other mobile devices out there, until a mobile application is developed for these smaller companies, their focus should be on the web application.
* For the system to have the ability to store it’s user’s information for the customer and administrator, we will need to create a database that will link to the DriverPass interface. Because of this the developers will need to utilize a backend tool. There are several backend tools to use from, those being ASP.NET, Core, Node.Js, this can be decided based on the developers preference.

#### 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 will have their own unique ID that encompasses their username and password. They must use these credentials in order to access the system. These unique usernames are what will be stored in the database. As new users join the database, the system will scan the database to see if that username already exists. If that username does exist, the user will get an error message display. Usernames and passwords should be case sensitive, both for uniqueness and security purposes.

#### 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?*

* Since the system is being designed in such a way to store users as objects within the system, it adds the ability to be able to modify, remove or add users without having to change the system coding. This is a time saver and if designed correctly would mean that the system will not have to be refactored just to update one class.
* The person in charge of IT will need administrative access to the system. This will keep the system up to date and clean by utilizing those users that continue to use the system and gives the ability to remove users that are not longer using the system. This gives IT the ability to update user information but not see what information they are changing as a means for security and privacy for the independent user.

#### 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’s are required to have a unique username id as well as a password with standard character length, symbols, numbers, lowercase and uppercase letters to formulate a “strong” password.
* User’s will have a certain amount of attempts to access their account in the event the user had forgotten their password. After the # of attempts have expired, the account will be locked. User’s will then have to contact IT to get a password reset for their account. The login page will also provide a “forgot password?” link, to give the user the option of resetting their password with the appropriate credentials. Otherwise, after the # of attempts are exhausted, the account will get locked.
* Using the above login security policy, this should provide ample protection in the event of a brute force hacking attempt to gain access to user’s accounts.
* The transferring of data will take place over a HTTPS (HyperText Transfer Protocol Secure) utilizing a TLS protocol (Transport Layer Security), which has ultimately become the successor of SSL.

## Requirements

### 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 support two-factor authentication when logging in.
* The system shall store users information into private accounts.
* The system shall track user progress
* The system shall track a user’s progress in testing.
* The system shall allow user’s to schedule their own driving tests or utilize the driving practices that are available from one of the three DriverPass packages.
* The system shall allow users to make online payments via credit cards.
* The system shall keep track of employees and their status during tests and practices.
* The system shall keep track of all car inventory, from the time a car leaves and until the car returns for the next service.

### 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 system will be built in such a way that it will be able to be accessed from any device that is connected to the internet.
* User’s of this application will strictly be customers, employees, and administrators.
* Customers will have the ability to access their account from their created credentials. Giving them access to check their account status and progress, schedule driving tests or driving practice, as well as paying or checking their current account balance.
* Customers should also be able to update their billing/shipping information, as well as their account information if needed.
* Employee’s should have the access to check their schedules for the day/week. This service should also notify them the number of cars they will be utilizing for that day. Similar to a customer profile, employee profiles should be able to update their information and provide their current availability.
* Administrative users will have access to both customer and employee profiles. They need this access to be able to reset passwords and unlock accounts. This also gives the Admin the privileges to add/remove employee’s and customers from the system.
* Administrative privileges should be able to see and make changes to the schedule and the employee’s who are on that schedule.
* The interface should be simple and mobile friendly. That being, it will have a touch interface as well as click-based for mouse applicants. The interface will also provide keyboard support for when user’s are required to type information and names.

### 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 coding language for this system is not known yet.
* The final color and schematics of the system and webpage are not known yet. This includes any settings that may be available to enhance the user experience. These options could include darkness mode, color blindness mode, resolution display.
* It’s assumed this system will mostly be used on newer, modern devices that are available to the public right now.

### 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?*

* Some limitation may happen from time constraints and the number of staff on certain teams. For example, if the development team happens to be small in numbers, then the expectation of a full system being completed in a short amount of time quickly becomes difficult. This may cause certain features to be overlooked, cut or minimized from the final product.
* Each user when accessing the system will have a different bandwidth according to their internet capabilities. Because of this, the user interface would need to be adjusted in order to account and maintain those users with lower bandwidth connections. This can be accomplished by fewer pictures, and if there are pictures to make them smaller, as well as limiting any animations on the website. This will help solve the allotted bandwidth issues.
* There currently has not been a provided budget for this project yet.

### 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.*

*Chart, timeline

Description automatically generated*