# 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?*

* The name of the company is DriverPass, and the primary contacts are the owner, Liam, and the IT officer, Ian.
* The purpose of this project is to provide training to learning drivers to help assist them with their driving skills and knowledge before their license exam.
* Liam wishes to provide hands-on driving practice and online practice exams to help drivers feel more confident when taking their driving tests.
* Ideally, this will decrease the number of failed driving exams allowing more people to not have to retake the test several times to pass.
* DriverPass will offer a variety of course times and lengths as well as exams to help meet the needs of each individual learner and will provide customized feedback to increase the company’s success rate.

### 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 an online system for their clients to have the ability to create/modify appointments with the company and check their progress. There will be a variety of packages available to the customer to choose from when deciding how in-depth training they want/need.
* Ideally, this system will offer a resource that addresses the percentage of people who fail their license tests.
* This system will need to allow users the ability to create and manage their accounts as well as follow their progress and provide the necessary study materials to the appropriate customers.
* Additionally, the company owner will need to be able to access activity data from his account as well as block inappropriate users, and help others with any account questions. The secretary will need access to basic customer records, the scheduling form, and the current driver schedules. Ian will be primarily responsible for non-developer maintenance and modifications and will need appropriate access.

### 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?*

* This system should prepare customers for their driving exams and allow them to explore the provided information and schedules for their signup tier.
* Measurable tasks include, but may not be limited to:
  + Getting the user interface designed and implemented
  + Creating tasks and prioritizing them for implementation
  + Building the user system
  + Creating the admin and other appropriate employee accounts – roles are useful here
  + Having flexibility on package creation, modification, and disabling available to the appropriate users
  + Hosting the system on the cloud with appropriate security measures
  + Allow for a set (or editable) driver/class schedule that does not allow for over-scheduling
  + Creating a contact page
  + Make sure the system has a way to display the most recent DMV policies as they change
* Check-in regularly with the client and make any desired adjustments

## 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?*

* DriverPass needs to be web-based so a website or a web application would be an ideal environment.
* Needs an API connection to the DMV so that the company retains relevant driving information for its clients.
* The system should notify Liam whenever there is an update to the DMV information, if deemed relevant the system should be updated at that time to reflect the changes.
* The system should also be updated regularly as security and other features change, or if a bug is reported.

#### 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?*

* DriverPass is primarily web-based so it should be able to run on any major operating system, with access to a browser.
* A user database will be necessary.
* An information/content repository would also be convenient.
* DriverPass will likely be built with the three most common browsers in mind (Chrome, Firefox, and Safari), the website should warn a user with any other browser that it may not be optimized for it and suggest one of the primary options.
* A calendar database could prove useful as a modern approach to scheduling appointments.

#### 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?*

* Users should have their own designated username or email and password for accessing the site and these credentials should have a role assigned to them (admin, customer, staff, etc.)
* The username or email should not require case sensitivity, but the password should.
* Admin should be notified if a user enters the wrong credentials three times in a row.
* Admin should also be notified if a user enters the correct credentials, but the system fails to grant access for any reason.
* Additionally, the admin should receive a confirmation notice when the admin account logs in for 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?*

* The user should be able to modify their basic information (username, password, email address, physical address, payment methods) through their account, however, to change the first and/or last name the admin should need to be contacted.
* The admin should have the ability to mark driving packages as unavailable, and the ability to re-enable them simply.
* Major edits to driving packages, such as creating new ones or completely removing them from the system will require code changes, so flexibility is a little limited here.
* The IT officer, who is not a developer, should have access to modify the availability of packages, user information as necessary to assist with account problems, the ability to check for available system updates, and access to the logs necessary for monitoring system maintenance.
* Most updates to the system will be changes in user information as they progress through the courses or register for the site, or prompted by changes in DMV information. The system should process these changes by updating the changed information, encrypting appropriate user data, and storing content changes and users in the appropriate databases.

#### 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 user should have registered credentials before being able to log in.
* Passwords must consist of at least eight characters and have to include at least one alpha character and one numeric or special character.
* Additionally, a user should not be able to book classes, or add any sort of payment information until their email address is verified, which can be done by receiving an emailed link or code to the provided address.
* Security is cloud-based for this site, so an internet connection is required to log in.
* Sensitive user data should be encrypted with a secure encryption key before being stored in the cloud, as well as at the point of input so that there is no lapse of security during login.
* The admin should receive an alert if a user enters invalid credentials three times, and accounts should be locked after five attempts. Account recovery can happen via a “forgot password” option or by contacting the company.
* The account recovery feature should always be available to customers to assist in the event of a forgotten password as well as unauthorized access attempts.

### 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 users to create an account.
* The system shall allow users to modify basic aspects of their account.
* The system shall verify user information when signing in.
* The system shall log all access and activity performed by members.
* The system shall update schedule slots as appointments are created/modified.
* The system shall encrypt sensitive user data as necessary.
* The system shall allow drivers to see their scheduled drives and the appropriate customer information associated with their appointments.
* The system shall allow users to take online practice exams.
* The system shall update user dashboards with grades and notes as necessary.
* The system shall access the DMV via API and notify the admin when changes occur.
* The system shall allow customers to contact the company for support.
* The system shall remind customers of scheduled appointments at a preset time in advance

### 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 UI needs to be easy to navigate for various types of users and secure.
* The UI will be used by various users with different permissions:
  + Admin (Liam)
    - Access all logs and reports at any time, even offline
    - Able to modify and delete users and scheduled lessons
    - Able to set availability of current offered packages
  + IT Officer (Ian)
    - Able to modify and access user accounts to provide necessary assistance
    - Access to relevant logs for maintaining the system
    - Able to install updates to various parts of the system
  + Secretary
    - Access to the scheduling system
    - Able to create/modify/delete customer appointments
  + Drivers
    - Access their driving appointments
    - Able to review related customer concerns and create customized notes for their trainees
  + Customers
    - Create/modify their accounts and appointments
    - Take practice exams and review their grades and instructor notes
    - Be able to contact the company with questions
    - Easily navigate the site

### 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?*

* Users have access to reliable internet with high enough speeds to handle the system
* The DMV even has an API that other sites can use to get information from
* Users have an email address
* Users can perform basic computer operations, such as navigating the web and using peripherals like a keyboard and mouse

### 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 budget is not provided for this project so there is a possible scalability constraint:
  + How much scalability does this site have? It is cloud-based, so what amount of usage is being paid for? How many users will the purchased package support?
* Performance could be an issue for users with slower internet speeds or while using mobile data

### 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 screenshot of a computer

Description automatically generated*