# CS 255 Business Requirements Document Template

Complete this template by replacing the bracketed text with the relevant information.

This template lays out all the different sections that you need to complete for Project One. Each section has guiding questions to prompt your thinking. These questions are meant to guide your initial responses to each area. You are encouraged to go beyond these questions using what you have learned in your readings. You will need to continually reference the interview transcript as you work to make sure that you are addressing your client’s needs. There is no required length for the final document. Instead, the goal is to complete each section based on your client’s needs.

**Tip:** You should respond in a bulleted list for each section. This will make your thoughts easier to reference when you move into the design phase for Project Two. One starter bullet has been provided for you in each section, but you will need to add more.

## 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?*

* Liam and Ian want their project for Driverpass to provide better driving training and resources. This is to help reduce the amount of teens and adults failing their 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?*

* Provide practice tests
* Provide online classes
* On-the-road experience

### 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?*

* Liam wants online and offline access to his data
* Tracking data manipulation
* Multiple roles with different security access (Liam’s has full access)
* Allow printing of activity log (shows who stored data, removed or edited)
* Take reservations from user, take input of time and day
* Store driver data and track which customer is with which driver
* Offer three different packages to purchase
* Allow customer to specify pickup location, needs to take in customers first/last names, address, phone number, state and credit card info.
* Allow connection with DMV
* Allow for automatic password reset if customer forgets their password
* Cloud based
* Interface follow as closely to the sketch provided as possible

## 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 system that utilizes a Linux server base allowing for the use of multiple different web browsers.
* The system should allow for updates within the database layer when variables such as practice exam progress, feedback regarding lessons, and manipulation/creation/deletion of reservation are made within the system.
* The system needs to be able to perform well as it will be including heavy network intensive processes, these would be seen as the process of acquiring up to date DMV-compliant testing material and requirements as well as transferring information related to user account information and reservation specifics.

#### 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?*

* Being a web-based system, this allows for an agnostic work environment meaning it will work on any systems the most popular being Linux, Windows and Mac. Web browsers that will be developed for currently would be those of the mainstream browsers (Chrome, Edge, Firefox).
* There will be a database required for the back end. This database can be an SQL- or NoSQL-based which will be determined based upon the requirements and needs of the back end.

#### 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 are to be identified via password-protected accounts.
* Authentication will be achieved through the use of Usernames and Passwords.
* Each users account will be specified a role which separates the users based on authorization granting access to certain system resources based upon the level.
* Case-sensitivity will be used to improve security.
* A limit of incorrect password attempts will be in place, when triggered administrators will be notified and the account will be locked until certain criteria are met (Time limit or email/personal verification).

#### 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?*

* Account info (contact info, billing address etc.) modifiable by system users and editable through the use of form/post requests. Code to be written for this reason.
* System users should be able to delete or remove accounts.
* System users should be able create and add accounts. True for both staff and customers.
* Application updates across all layers should be done when new features and bug fixes are completed. Minimizing the updates to only roll out during off-peak hours of application use to mitigate negative consumer impact.
* Agile development will help to support the previous bullet point as it will provide increased frequency in implementation speed of smaller fixes/changes.
* IT admin will require full access over accounts, this includes updating passwords and even removing access rights from former employees.
* Updates to user browsers will occasionally require patches/updates to correct system behavior

#### 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?*

* Users will require case sensitive usernames and passwords to access system.
* Use of cryptography will provide increased security for sensitive data being transferred across networks.
* Limit to incorrect password attempts (3) will lock the account and notify an administrator. The administrator will then notify the customer of the steps they need to take to unlock and access their account.
* Password reset will be client sided and handled through a verification process of having a code sent to either the users email or phone number.
* Utilization of HTTPS will provide secure communication between the back-end and client devices.

### 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.”*

* User authentication and authorization will be utilized via logging in with user credentials. The level of authorization will be determined by which type is assigned to the account.
* The system will be web-based. Instruction documents and guides will be downloaded for offline use however any form of modification of data such as reservations, password resets and account data will require an online connection.
* User activity will be tracked, this will provide which user made a reservation, canceled a reservation and who last modified the data.
* Initially there will be three DriverPass course packages displayed allowing for the disabling of individual packages. Accommodation of new packages or limited time packages will be provided for future development.
* System will allow users to reset passwords
* Instructional material will be available and shall be up to date and compliant with current DMV regulations.
* User progress and grades will be visible.
* Instructor feedback for students will be accommodated.
* Exams and learning material will be allowed to be added, modified and deleted.
* Users will be able to be contacted by instructors, admins and secretaries.
* Customer details will be recorded for account registration:
  + First Name
  + Last Name
  + Address
  + Phone
  + State
  + CC number, expiration date, cvc code

### 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.)?*

* Different pages within the interface include but are not limited to:
  + Home page
  + Account registration page
  + Course material page
  + DriverPass contact page
  + Student/Account information page
    - sub-section for test progress, instructor feedback, driver notes, etc.
    - Test progress sub-section also includes test name, time taken, score and status.
      * Status would be incomplete, in progress, failed or passed
    - Driver notes section includes lesson start and end times and driver comments for feedback.
  + Driving lesson reservations page
* Interface users and system authorization are as follows:
  + DrivePass owner - full access to accounts, update passwords
  + DrivePass information technology officer - Full access over accounts, update passwords
  + DrivePass secretary - access to schedule, cancel and modify appointments.
  + Customer/student - account creation, access learning material, access to schedule, cancel and modify their own appointments
* As a web-based system the interface will be displayed and interacted with via a browser, this could include mobile, tablet or desktop. No plans for native device (Android, iOS) app compatibility currently exist.

### 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?*

* DriverPass users have a working device and has access to the internet, that also contains an OS and browser that meets the specifications.
* DMV guidelines are kept up to date with current knowledge and are widely and freely available
* Safe to assume that most of the customers will be younger and more tech savvy, or otherwise their child is tech savvy. We can assume the website will receive the most traffic.
* Due to the popularity and use of phone apps, iOS/Android apps may be deemed a priority soon.
* Internet will be available 24/7 to provide communication from the system to student progress, updcate exams, schedule driving lesson, etc.

### 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 is reliant on having a network connection. This is due to the user not being able to create, update or delete user data when there is no network connection.
* Electricity will be required to run DriverPass system and client devices.
* Budget and time limits will be used to determine the size of the staff as well as determining whether additional staff or outside contractors will be required.
* Instructional material (guides, readings, presentations, etc.) are reliant on DMV guidelines being current and up to date.
* Initial investment limitation. Physical hardware will be quite costly upfront. A cloud-based back-end and database is recommended to reduce upfront cost.

### 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.*

