# 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?*

* The purpose of this system design is to be a resource for students that are learning how to drive, and give them tools to assist in that task.
* This is for the client, DriverPass, a company that focuses on assisting with driver’s education for young students first learning how to drive.
* Driverpass wants their system to be capable of providing online lessons to students, and to schedule lessons with an instructor for an in-person lesson. These in person lessons are only purchasable in packages, with the online lessons being locked to the largest package.

### System Background

*What is the problem they want to fix? What are the different components needed for this system?*

* The background of the proposed system is provided to lower the failure rate at the DMV. Its owner has been disappointed at how low the failure rate at the local DMV is, and wants to provide a service to the community to fix that issue.
* The system needs to be able to access the data from the internet on any device, be able to make reservations, and be able store the information about where the reservation will take place, when, how long the reservation is, and with which instructor.
* These reservations are purchased in packages, with the cheapest package giving driving 3 lessons, the middle package giving 4 driving lessons and 1 written test lesson, and the most expensive package giving driving 5 lessons, 1 written test lesson, and online practice accessibility.
* The site will allow users to create an account and make purchases, and only accounts associated with users who purchased the package with online practice will be able to access the online practice portion of the site. The user interface for this will be based on the sketch provided through the interview.
* Updates will be maintained by Ian, DriverPass’ IT officer. Currently there are no planned future features, with the focus being on ensuring the product is complete first.

### 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 goals in a system analysis are to create a user-friendly site that allows for a student to easily book reservations for lessons, and access online practice content. The objectives related to this goal are:

1. The site needs to be built and hosted on a cloud provider, and needs to automatically back up data, to ensure as little technical upkeep is necessary as possible.
2. Allow for the user to create an account, which contains the necessary contact information. The user should also be able to change their password in the event they forgot it.
3. Allow the user to easily select which package they want to purchase, based on the 3 available options. Each package’s benefits should be easily understandable.
4. Administrators and instructors need to be able to download the data for offline viewing, while also allowing for online viewing on any device
5. Due to this, there needs to be a different layout for administrator and instructor accounts, so that they can get the relevant data to allow them to be on time for their lessons.
6. The site needs to be notified of any changes to the testing process the DMV makes, and ensure that the site is always up to date and compliant with DMV standards.

## 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 should be a web based site hosted over the cloud. This means it can be accessed over any device through an internet browser, and is maintained through a cloud service provider, meaning the physical upkeep is not something DriverPass has to worry about.
* The system should be able to run fast, with data updates going live to the instructor as soon as possible.

#### 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 back end should run in the cloud via a cloud service provider such as Amazon Web Services.
* The front end should be accessible on any device that has browser access.
* A database of all scheduled reservations should be connected to the site, with the administrators able to access the entire database, and instructors able to access any entries assigned to them. This should be easily downloadable so it can be accessed offline.
* There also needs to be a database for accounts which is only accessible to the administrators.

#### 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?*

* All usernames should have a unique username that is not case sensitive. If a username already exists then it should force the user to choose another one on account creation.
* Passwords should have a minimum 8 characters, and require at least 1 number, 1 capital letter, and 1 symbol. Passwords are case sensitive.
* All users should have a method of contact, either email (required) or phone number (optional) associated with the account, in order to be able to discuss reservations.
* If an account is somehow added to the database that does break one of these rules, the administrator should be automatically notified and the error should manually be looked at in order to determine what went wrong.

#### 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?*

* Administrators can change the roles of any user via an administrator portal on the site. On site launch, all of the admins currently working at DriverPass will have admin accounts granted to them, as otherwise no user would be able to access the administrator portal.
* There will be 4 roles, User, User with online lesson access, Instructor, and Administrator. The IT admin will have administrator access.
* All accounts will be given the “User” role upon first creation.
* The “User with online lesson access” role can be applied automatically to any account upon purchasing the package that grants access to this content.
* The system will be able to be updated automatically as is necessary, by the IT officer via the cloud back end. As soon as the IT officer pushes an update, it will be put on the live site.

#### 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?*

* All users are required to enter their username and password in order to log in.
* All of the passwords will be encrypted via AES-256 encryption to ensure a rogue actor can’t access the passwords.
* An https secure connection to the site would be enforced to ensure that no rogue actors are listening to the API connection when a user signs in.
* If an associated username fails to log in 5 times in a short period of time, then the account will be locked and the user will be required to confirm their identity via an email in their email address.
* If the user forgets their password, a “forgot password” button can be pressed, where they will be asked to type in their username and email, and if they match the username and email in the database, an email will be sent to the user’s email to reset the 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 confirm user selection from the three packages the user wishes to purchase.
* The system shall confirm user details are valid for account creation.
* The system shall be available online anywhere, with offline material available for download.
* The system shall change the interface depending on the role of the user.
* The system shall allow the user to disable packages if one package is unavailable/unnecessary.
* The System shall allow users to reset passwords if needed.
* The system shall display exam progress and scores for the student.
* The System shall be notified of any DMV changes.
* The System shall allow admins full access to the site.
* The System shall give instructors all data they need to give the users lessons.

### 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.)?*

* There are 4 different users for the interface (and logged out users.)
* All users will first see a main page with some information about DriversPass, and a header with various links the user can click that allows them to access the rest of the site. This header may change depending on the user
* Logged out users
  + Header shows the purchase packages page, the online lessons page, the about page, and the log in button
  + When a user attempts to purchase a package, or go to the online lessons page, direct them to the log in screen
  + The about page has information about all the administrators, and instructors, and gives contact information and allows for customer support queries.
* Users without online lesson access
  + Header shows the purchase packages page, the online lessons page, the schedule page, the user info page, and the about page
  + The purchase packages page shows all of the available packages, and what benefits they give.
    - When purchasing a package, the user will be asked to schedule the lessons up front, and where they want to be picked up, or if they would rather call to schedule over the phone.
    - If the user purchases the third package, it upgrades their role to “Users with online lesson access:
  + The online lessons page shows information about the online lessons, and asks the user to purchase the third package to access these
  + The schedule page shows all upcoming purchased lessons. This also gives the contact information of the associated instructor. It also allows the user to download this schedule for offline viewing.
  + The user info page allows the user to review all their account information, fill in missing contact information, or update any existing records if the user deems them to be out of date.
* Users with online lesson access
  + Header shows the purchase packages page, the online lessons page, the schedule page, the user info page, and the about page
  + The online lessons page allows the user to access all of the lessons, with the user interface showing all lessons that are in progress, what are completed, and allow them to take notes on the page.
* Instructors
  + Header shows the schedule page, user info page, and about page
  + The schedule page also allows the instructor to see contact information for each of the students who have been assigned to them, and download the schedule for offline viewing.
* Administrator
  + Header shows the admin portal, the schedule page, user info page, and about page.
  + The admin portal allows the administrator to perform all the necessary administrative tasks, such as accessing the databases, making changes to those databases, and individual user information.
  + The schedule page shows all of the scheduled lessons for all of the instructors, and allows the admin to manage them if necessary. Both student and instructor contact info is given on every lesson.

### 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?*

* We assume that the website will have reliable 24/7 uptime from the cloud service provider.
* We assume that the students are able to access the internet.
* We assume all DMV guidelines will be posted in a way that allows the admins to be notified.
* We assume that all users are local and are in the range our instructors are able to pick them up from.

### 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 user needs to be able to have a stable internet connection in order to access the website. While provisions for offline access have been created, online access is needed at some point to be able to access the offline content.
* The project must be completed in the time frame outlined by the below Gantt Chart
* The project must not go over the budget given to us from DriverPass
* DriverPass only has 10 instructors and 10 cars, so no more than 10 lessons can be scheduled at any one time.

### 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.*

