# 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 application is to better help driver students prepare for their test at the DMV.
* Liam plans to do this by creating both an online course and on-the-road training for driving students.
* Liam wants to take advantage of the void in the market and increase the success rate of students at the DMV.
* Should allow any driving student to easily sign up, make reservations and any updates at any time.
* Should keep up to date with the DMV laws

### 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?*

* The problem here is the void of preparation other than previous driving tests for students
* The solution here is to create an online system that is a second resource for these students at the DMV so that they will be better
* This will be an online application that should be able to be accessed anywhere by either website or app
* There will need to be an interface which we got an outline of in the meeting
* We will need to have a database that we give access to both the users and the administration
* Students should be able to sign up, schedule driving sessions, review driving test material and make any changes to their profile necessary
* There should be different access levels including student and administrator
* Administrators should be able to see who made a reservation and any changes thereafter

### 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 give students an online system to better prepare them for their tests at the DMV
* We could have a survey given to the students after they take their exam to see their success rate
* Another measurable thing is sign up rate and we could keep track of monthly sign-up rates
* Students being able to easily comprehend information is a sign of success, we can get rating feedback from students as they take the course to see how well they are comprehending the material
* The system should be able to show students dates they have scheduled for on the road lessons
* Students should also be able to see their progress in their online sections from the driving course
* The online course has to stay updated with current DMV laws which menas it has to be in constant contact with the DMV
* Program should be secure and user information should be protected and never leaked

## 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 should run completely over the web in the cloud environment so that information is never lost and is secure
* This should be both a website and a mobile app to allow users to easily access their information and make any updates possible
* The system needs to be updated almost every day because of the fact that we should provide drivers with weather reports and keep up to date on the DMV laws
* The website version can run on the Java Spring network and the data can be managed through the SQL
* The app version can run on both the IOS and Android environments so that anyone is able to access it
* In terms of speed, this isn’t a particularly expensive application for the CPU so the program should be very fast
* Users should rarely if at all experience lag time and should never really have to wait to view their information
* We could also use a front-end framework to develop an easy-to-use interface like Angular or React

#### 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 web version of this system can be hosted on Unix because of how good their servers are
* In terms of access anyone with a computer whether it be Apple, Linux or Windows should be able to access the system
* To manage the data the system does need to be connected to a database like SQL that should be connected to both the website and app versions
* We should also incorporate analytic tools so that we can improve the user experience
* The system also needs to be run on both IOS devices and Android devices. This means that we will have to develop in both XCode and Android studios
* In terms of IDEs, to develop the web-based version of the application we could use Eclipse and Visual Studios

#### 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?*

* When looking at how to distinguish between different users, we will have two options which include student and administrator
* We will have different objects in the code that represent these two classifications, both of which will most likely inherit from a user class
* Whenever a student signs up, a student object will be created within the system
* Whenever a new employee is hired, we will create an administrator object
* Each user has both a log-in and password, all of which is case-sensitive
* Whenever a user runs into a problem, we should have a landing screen in place that can send us a report of the stack trace that the user is having and allow for a user to input any additional information about the issue
* For this, we need to make sure that we implement the best practices when it comes to exception handling

#### 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?*

* We will certainly have the option to change the user without modifying the code by implementing all of the CRUD operations for the all objects
* Users will be able to change appointment dates,
* Depending on the change that needs to be made we will decide whether or not the code needs to be changes
* If is a small change like a weather update or a DMV update, we will have a section for this already in the program
* On the other hand, if it is a major change that has to do with the function of the software, we may have to update the code. An example of this would be including a virtual program that allows students to practice what it would be like to drive on the road.
* The IT admin needs access to all of the files and databases so that changes can be made when necessary. We will provide this role with whatever login passwords needed.

#### 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?*

* For the user to log in a username and password is required
* To securely exchange data between the server and the client we will need to use best security practices which include encryption, secure use of APIs, and encapsulation.
* There should be an internal system that handles users that need to reset a forgotten password, which should include verifying the users phone number and security questions
* A user only has four times to login before the account is locked and they have to reset their password from their email. During this process, they have to answer security questions and verify their phone number.
* Given that the user only has a limited number of times to login, this should protect against brute force attacks
* We should also to make sure to run a security vulnerability report that lets us know of any known vulnerabilities we have in our code
* Another thing that would help keep this application secure is keeping all of our dependencies up to date

### 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 allow for student to sign up for both the online course and the on-the-road driving courses
* The system shall allow for any changes that a user needs to make to appointments
* The system shall notify the administrators whenever a user makes an update to a driving reservation
* The system shall provide the students with an online course with information pertaining to the DMV test
* The system shall allow for administration to make changes to any part of the program or news necessary
* The system shall track whoever made a reservation and report it to the administrator
* The system shall allow for student to set and change their pick-up locations
* The system shall allow users to change or reset their passwords
* The system shall allow users to log out
* The system shall stay up to date with the DMV laws
* The system should provide the users an easy-to-use interface
* The system shall run on every operating system including windows, Unix, apple and android devices

### 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 should be able to sign up if they have not yet on the interface
* The user should be able to make changes to any part of their profile
* The user interface can be used by two parties which include students and administrators(employees of the company)
* The user will be able to interact with the interface using both mobile and the website version
* Administrators will be able to alter anything pertaining to students whenever necessary, including changing appointments
* The interface should also display on the home page any deals that we have currently
* The interface should show any weather updates for the drivers in their area, especially if it means that they have to reschedule
* The interface should show all user information including online course completion percentage and any in-person training the student has

### 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 have to assume that our users have access to an internet connection
* We have to assume that users have access to either a mobile phone or a computer
* We are assuming that everyone that users our program is trying to pass the DMV test or is an employee
* We have to assume that our users are familiar with basic web page layouts and can operate a web connected device
* We have to assume that we will never have so much traffic that it overload our servers

### 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?*

* Our servers can only hold a set number of users at once, we assume that we will never reach this limit
* In terms of a time limit we have from Jan. 22 to May. 10
* We are limited by the size of the team that we already have in place, with this team we need to make sure that we make a working and secure website and app
* We are limited by the web framework that we chose to use
* We are limited by the budget that Liam is willing to invest into this project

### 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.*

