# 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 project for the students of the site DriverPass is to increase their chances of passing the driving exam, both written and manual driver portions. For the client they are trying to take advantage of an empty market when it comes to third party training for student drivers looking to take their driving tests at their local DMV. For me as a student doing this project is to demonstrate the competencies such as principles, methods, and techniques of systems development.

### 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 sees too many students failing to pass their written exam and driving tests because of too few tools to help students. DriverPass research has found that less than 35% of students actually pass the exam when the first take it because they only study previous tests.
* DriverPass’ goal is to create more prepared students for the tests and better drivers overall by offering one of a kind training.
* The system will be a website that will provide students the ability to track their progress, upcoming classes, and training sessions.
* The system will consist of a database of clients, practice tests, and schedules for classes and training.
* The system will need to allow the client access to the data wherever they may be online or offline.
* The client needs to be able to access the data online from any computer or mobile device. This will allow the client to download reports and other information that he can work on at home.

### 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?*

**When Complete**

* Allow users to create an account (first name, last name, address, phone number, state, and their credit card number, expiration date, and security code)
* Allow users to login to their individual accounts
* Allow users and administration to reset user passwords
* Allow users to take Online Classes
* Allow users Take Practice Exams
* Allow users Track Exam Progress
* Allow users Download Practice Exams
* Allow users and secretary to schedule the On-the-Road trainings
* Allow users and secretary to purchase one of the On-the-Road training packages (3 packages in total)
* Allow administrator to disable packages
* See upcoming trainings and classes
* Allow users’ and administration to cancel an upcoming training session
* Allow administrator reports on user data
* Allow administrator to see changes made and who made them
* Allow drivers and users to see pictures of the other so they know who their training is with
* Make sure tests are up-to-date with the DMV tests
* Allow the training drivers to add notes to user accounts after trainings.
* Business contact page for contact information(phone number, email, etc)

**Tasks/Goals**

* Collect Requirements
* Create Use Case Diagrams
* Build Activity Diagrams for Each Use Case
* Research User Interface Designs
* Build Class Diagrams
* Build Interface
* Link Database to Interface
* Build Business Logic
* Test System
* Deliver System
* Final Sign-Off

## 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 system will be running on web-based applications both on computers and mobile devices. It will not have an application for mobile devices only a mobile version of the webpage. The site will need to load in under 3.0 seconds this will allow it to faster than 50% of websites. (Bird, 2016) Parts of the system should update as changes to the schedule or lesson are made. The overall system will need to be updated if any modules are needed to be changed or if the client wants to give anyone else the same authorizations as he, Liam, has.

#### 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 system should run on all platforms of computers and mobile devices. As Liam stated in the interview, he wants to be able to access the system from any device online or offline. The back end of the system will require a database that will generate reports for data in the database, store authorized users’ information, schedule/calendar, business expenses and revenue.

#### 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?*

* To distinguish between different users’ we will add the users’ email through an algorithm to determine what type of user they are. For example if the email for a user does not have a domain of @DriverPass.com then we will assume that they are a student for everyone at the company will have that specific domain. Now if it is someone working at the company then they will have the @DriverPass.com in their email and we look to the user name of the email. All the users names will be stored in lists and have their associated authorization attached to that specific list. The domain for the emails will be case sensitive and the passwords will be case sensitive with requirements for only secure passwords such as at least 1 capital letter, lower case letter, number, special character, and a total of at least 8 characters long. If any type of users’ login fails three times within 24 hours the system should inform the admin of the problem. The administration should also get updates about new rules, policies, or sample questions by the DMV.

#### 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?*

* To make it so the system can add/remove/modify users without changing the code base we will instill a function to accomplish those three user methods. Now to be able to access these depending on the user you will have to have authorization. For example, the only one who can add any type of administrative access will be the client Liam and if Liam allows his IT officer. The secretary users’ will be able to add, remove, and modify students. The instructors will not be able to do any adding, removing, or modifying. This system will need to have downtime if an update is to be preformed to the website, database, or codebase. There will need to be securities in place on who can do this and should only be allowed by Liam or his IT officer Ian. As stated in the requirements interview there would need to be a developer to update the codebase to add or remove modules. Ian the IT admin will need most of the permissions that Liam has, but his overall scope of power will be determined by what Liam wants to give him.

#### 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 security of this system and the users we will be using encrypted certificate verification to ensure that a secure connection is established between the client and the server. When that connection is in place the users will be allowed to log in. For the log in to take place users must submit a username that is in the database and the password associated with that username. This information will need to be encrypted when sent to validate. If we use a good data encryption algorithm like AES-128 we will be able to significantly eliminate the chances of a brute-force attack. Now what will need to be secure all the information on the certificates used to communicate and make sure those are secure and not lost when time comes to change them. If a user forgets their password, they will be able to manually reset it through the email they used to register their account with. This will be allowed for all users at all authorization levels.

### 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 a student user account.
* The system shall require the user to create a unique password for login.
* The system shall validate the user credentials when logging in.
* The system shall have different levels of security based on authorization
* The system shall be able to have secretaries register a student account by taking the following information: first name, last name, address, phone number, state, and their credit card number, expiration date, and security code.
* The system shall recognize the user by their email and give the appropriate authorization to the system.
* The system shall track and show an online test progress on the users’ home page.
* The system shall set a status of all the tests as either not take, in progress, failed, or passed.
* The system shall allow access to reports and data to the client Liam.
* The system shall allow the client Liam to modify the data when online.
* The system shall allow reports to be downloaded for offline access.
* The system shall track what changes to data are made, when they are made, and by who they are made.
* The system shall allow students and secretaries to make a driving lesson reservation.
* The system shall accept a pickup and drop-off location when a lesson is made.
* The system shall schedule the driving lessons to an overall calendar it will be scheduling the driver/instructor, vehicle to be used, and the times the lesson starts and ends.
* The system will show the matched student and driver pictures on the homepage of each users of that type.
* The system shall allow students to also cancel and modify lesson appointments.
* The system shall have 10 cars and drivers to work with.
* The system shall have 3 different lesson packages to choose from all with different costs.
* The system shall be able to disable packages as administration see’s fit.
* The system shall allow a driver to give feed back on a lesson after it is over. This feedback includes Lesson time (start and stop) and any comments the driving instructor may have.
* The system shall connect with the DMV and provide a notification if there are any new rules, policies, or sample questions on the DMV site.
* The system shall have many pages for all its features like schedule/calendar, tests progress, driver notes, account information,

### 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 interface needs to be simple, quick, and easy to see on both computers and mobile devices. The interface will need to take in user credentials to allow for login. Now if the user is validated, they will be taken to a user homepage. Each user may have different information on their respective user homepage. There are 5 different types of users’ that we will have in the system. There will be students, driving instructors, secretaries, IT administration, and the Owner administration. The student UI will need to allow them to see all tests and their respective status. It will have to allow them to take the tests and schedule driving lessons. The student UI will need to show any notes an instructor leaves after a driving lesson. The UI should allow the all users to see all their account information. The UI will also show drivers and students a photo of each other before a lesson and the ability to cancel or modify the lesson. A driver’s UI may show several different student photos as they may have more than one lesson for one day. A driver’s UI will also have their number of lessons they have done that week and how many are remaining for the week or next week. Drivers UI can also give them the ability to take the tests, so they know how to answer any questions from the students. A secretary’s UI should be simple and just show the calendar of all the tests and times/drivers available for scheduling tests. It should also allow them to schedule a driving lesson for the student. The Secretary UI will need to have a form to register student user accounts. The IT officer will have the ability to maintain and modify the system. The client’s UI will have the ability to see all data and reports that were generated by the system. The clients UI will also have the ability to see all users, and to add/modify users access ability. Since the system will only be ran on a browser over computers and mobile devices. The users of the system will interact with the UI by either mouse and keyboard, or a touch screen.

### 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?*

* For this system there are a few assumptions that we will be making that were not spoken of in the requirements interview. We are making the assumptions that the students and all other users have internet access to be able to view the up to date database. We are assuming each user has a valid email account. We are assuming that DriverPass is going to provide company emails with the domain @DriverPass.com. We are assuming that our cloud-based servers are going to be responsibly managed and secure. We are assuming that the device of the users can run the latest versions of the different browsers. We are assuming that the OS that is on the users device is able to run the supported browses.

### 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?*

* In our system design we have a few limitations that we are working with. The first one must be thought of throughout the project which is the budget. Our given schedule and budget are the way we as a team are going to be able to deliver a final system. We have created a schedule that should give us enough time to go through the systems development life cycle. If we can complete the system on time the system will need to be connected to the internet since it is run on cloud-based servers. If the user does not have access to the internet, then it does not have access to the system. Since our system is going to be running on cloud-based servers we are under a limitation of the provider having power to our servers. One limitation for users using the system is that we only discussed the system in English and didn’t discuss a translator. As far as the latest technology we can put into the system will depend on our budget and if we have enough to put in a more interactive calendar or tests. Since we are using cloud-based servers we will not be under the limitation of data space since that will be taken care of by DriverPass as how much data is actually used.

### 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 cell phone

Description automatically generated