# 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?*

Driverpass is a company that offers DMV practice written tests, and driver testing with an in-person instructor and vehicle. Their target is to be a one stop shop for student drivers looking for extra help learning to drive and pass the DMV tests. Students will be able to practice written test material, along side of being able to schedule and rent a vehicle and instructor for hands on practice.

### 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?*

* Accessible (Downloadable Only) data offline.
* Accessible (Modify/Add/Remove) data online from computer & mobile devices.
* Security system based on clearance levels (multiple roles & rights).
* Full system & database tracking/logging (Accessed/Changed/Created/Removed/Timestamped).
* 3 Types of packages, 10 cars with corresponding drivers. Customer can choose 1 package.
* \*Future\* - Module built package system (Add/Remove/Change).
* Accessibility to enable/disable certain packages.
* User Registration (First Name, Last Name, Address, Phone Number, State, Credit Card Number, Expiration Date, Security Code) – (Pick up location, and Drop off location)
* Automated password recovery for customers.
* DMV Notification system (Notification/Alert to new compliance changes made by DMV)
* Web-Based system (Cloud Hosting)

### 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?*

There are a lot of objectives for this project. Driverpass would like their system to be able to handle most of their everyday business. This means everything from user registration to accessing company data all in one program. Most of the requirements listed are relatively built off each other with the exception of a few things such as the DMV notification system. The system should be able to allow a customer to register as a user, then allow them to access practice test and register a vehicle package if they so choose. On the back end, employees actions whether it be logging in, creating a file, deleting a file, and all the steps in-between should be logged and only accessible by a higher-up employee. This system should also notify the company of any DMV policy changes to remain in compliance.

* Data needs to be downloadable in its latest form. (\*Last time it was connected to the internet)
* Data should be accessible and modifiable from a computer and a mobile device. (\*Connected to internet)
* Light security needed for roles and rights. (\*User & Employee)
* Full database tracking and logging.
* User Registration system. (\*Employee & User)
* Automated recovery systems.
* DMV Notification System.

## 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 Driverpass system will need to be web-based in order to reach their desired clientele goals. However, there is need for offline access which may need to be created in an application format and branched off the web-based system in terms of relaying and updating information when the application connects to internet again. This web-based system, depending on the size and volume of traffic should be updated monthly to quarterly to ensure best current practices are being used and any issues that arise can be addressed in a timely manner.

#### 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?*

* For the Driverpass system, the system will be web-based. Therefore, the application should work on almost any platform. There will be a need for a database to be established in order to hold account information, tracking logs, DMV information updates, etc. As far as backend tools, there will be quite a few as this is a web-based system most of the necessities can be bought and “plugged” in as it can be costly to program everything from scratch. Some tools would include a security service, database system like MySQL, task runner such as Grunt, server that will be able to support the users and employees like Apache, version control system such as Github.

#### 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?*

* The system will need to be case-sensitive for the passwords, however for usernames it will not be necessary as we will require unique usernames on a character level vs a letter case level. The system should inform the admin of potential issues such as usernames being too common, or passwords not being of secure nature. Another event, such as log-editing/removal/creation should flag for admin attention just to ensure secure practices. Other events that may constitute admin review would be system malfunctions, server failures, security breaches, and database storage capacities.

#### 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 system designed for Driverpass should allow changes to a user without changing code. There will need to be security levels and rights assigned for a higher-level user to be able to edit another lower-level user. This event should also be flagged and logged for record keeping; should it be a breach of security or an unauthorized change. Since this will be a web-based system, the platform will be updated regularly to keep up with not only the DMV regulations but also the maintain quality of the application. The IT administrator will need backend access, or it would be possible to include a front end section for them that they would need to sign into in order to access controls.

#### 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?*

* In order for a user to log in they will need to create an account and then use the same email ID and password to gain access to the system by it identifying the user from their credentials. There are many different log in tools such as a fingerprint scanner, retinal scanner, series of questions, or even a simple pin number. To secure the connection, we will most likely use a security protocol SSL. SSL or secure socket layer, works by authenticating clients and servers using digital certificates by encrypting and decrypting communication using keys that are associated with authenticated clients and servers. SSL communication between clients and servers can be set up using either one way or two way authentication; with one way authentication, a server is required to identify itself to a client by sending its digital certificate for authentication. The client isn’t required to share a digital certificate with the server and can remain anonymous to the server. Two-way authentication requires both parties(the client and server) to send their own digital certificates to each other for manual authentication . Two-way authentication is a stronger, more secure connection because we’ve confirmed identities on both sides. A brute force attack is mostly used for cracking passwords. The attacker will use a program that attempts every possible password combination based on given information(found from other areas of a persons life or leaked) and attempt to gain access into the account. A brute force attack can take a long time, or it could happen within a few minutes. To protect against this, a simple measure to check if a user has attempted to type the wrong password a number of times could engage an account lock to lockout the user and flag an administrator to reset or unlock the account. There should also be a ‘reset password’ button/link under the login to allow users to reset a forgotten password. This action can usually be secured as the reset link or temp password is sent to the users email. However, there is the option to require an administrator to approve the change.

### 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 authenticate users when logging into the system.
* The system shall authorize user powers to the unique user role/privileges.
* The system shall handle transaction functions such as corrections, adjustments, cancellations, and payments.
* The system shall handle shipping functions such as region, postage cost, shipping time, etc.
* The system shall operate using business rules established by the administration.
* The system shall update DMV regulations.
* The system shall operate under legal or regulatory statutes established by the administration.
* The system shall make use of external interfaces as they may be needed.
* The system shall collect and audit transactions with dates and timestamps.

### 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 interface will contain multiple boxes with different information. It will include the online test progress, it will show the customer’s information(first name, last name, address[city,state,zipcode], email, etc. There will also be an area to list any special needs a student may need along with a photo of them and the driver assigned. There will be a section for driver notes, which will be a table format showing the lesson time, the start hour, the end hour, and the driver comments. There will be a form for students or a secretary to fill in the students information. There will also be a page with a form for contacting Driverpass. This system will be browser based, meaning it will be accessible from any device connected to the internet with browsing capabilities.

### 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?*

* Multiple pages are talked about but implementation of them hasn’t been. The user interface design given shows a brief outline of core aspects of the interface such as driver notes, customer info, photos, needs, etc. However, there is no mention of how the other pages will be layed out or even implemented. This will fall under our assumptions and will be designed according to the other pages as far as design goes. How they function will also be under our assumption and will be based on models widely used. Another assumption is that of the end user or customer, that they will have the means of a computer or mobile device to take part of this system.

### 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?*

* Some of the limitations that are against any development are the budget, and the time. Resources and technology can be bought to save time, however it can quickly drain a budget. Another aspect of that though is the development time of certain resources or technology can also bankrupt a budget. With that in mind, Driverpass is choosing to buy hosting and security as they do not what to deal with it. They are however fully developing an interface, and a backend system to handle their orders, update their rules/regulations, and manage their business. That being said, one of the biggest limitations we are faced with is 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.*

Chart, timeline

Description automatically generated with medium confidence