# 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 has a mission to help people pass their drivers tests by providing online classes, practice tests and driving lessons. The purpose of this project is to help DriverPass make these services available and accessible to its customers.

### 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?*

* Too many drivers are failing their driving tests. DriverPass needs help developing a system to tackle this problem.
* The system will deliver online classes, and practice tests to customers so they can best prepare for their driving test.
* The system will allow customers to schedule, modify, and cancel in-person driving lessons. These in-person lessons will help the customers master the skills necessary to pass their driving test.
* The system will hold information to make the functioning of the business run smoothly. This includes information about contact, payment, and progression.
* The system will include an online portal used for interactions with customers, and drivers to allow them to interact with the system wherever they are.
* The system will include a cloud database that will allow all parts of the system to store and retrieve needed information and have a single source of truth.
* The system will include a web based interface for administrators and office staff. This will allow credentialed employees to complete business tasks and preform customer service duties.

### 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?*

* Allow access to data from anywhere by being available online.
* Allow for user roles that will limit access to data and functionality based on the principle of least privilege.
* Implement tracking of user activity.
* Implement report generation of user activity.
* Allow users to make, change, and cancel reservations.
* Track reservation information including: date, time, driver, and vehicle.
* Track payment for and progress through packages for users.
* Allow for packages to be disabled.
* Accept and securely store user information, including: first and last name, address, phone number, state, credit card number, expiration date, security code, pick-up and drop-off locations.
* Allow for users to automatically reset passwords.
* Produce notifications for all DMV changes to rules, policies, or sample questions.
* Backup and Security should be automatic and built-in.
* Display tests with name, time taken, score, and status.
* Display driver notes, and photo as well as reservations for future lessons.
* Allow for communication between the customer and an employee.

## 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?*

* Cloud hosted backend database that can scale to the load placed on it. Response times need to be less than half a second.
* Cloud hosted web-application that can be access from many different internet enabled devices such as computers, phones, and tablets.
* The web-application need to be lightweight enough that running on a 500 MB phone will not cause issue or delays.
* The database will receive automatic delta backups ever 15 minutes and then once every 24 hours a full backup will be automatically saved in cloud storage.

#### 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-application should function all the major browsers: Chrome, Edge, Firefox, and Safari.
* The web-application will be launched and scaled using
* The backend will run on an Ubuntu Linx server and manage a DynamoDB database.
* The cloud infrastructure needed will be provided by Amazon Web Services. The backend will be an EC2 instance of a Ubuntu Linx server and the web-application will be hosted using Elastic Beanstalk. The database will likewise use Amazon DynamoDB for it’s hosting.

#### 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 when signing up will use an e-mail and set a password. The e-mail will not be case sensitive but the password will be. Any user that sets up an account online will be automatically considered a customer but employees will be given a work e-mail and account set up with appropriate permissions by an administrator. The administrator will receive a e-mail immediately when a problem is detected. This could be sent when too many attempts are made at logging into an employee’s account or the database isn’t responding.

#### 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?*

* Users will be able to change their information excluding their e-mail. Addresses, payment information and passwords need to be able to be changed and reset, but not removed unless the account is being deleted. To best handle platform updates dependencies will be minimized and unit testing best practices will be followed. This will ensure compatibility long term and ease of updating when necessary.

#### 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?*

* The user will be required to have access to the web through a browser and need their e-mail and password for logging in. The connection will be secured by using HTTPS and login attempts will be capped to prevent a “brute force” attack. A password reset function will be available that will send a unique link to the users e-mail for resetting a forgot 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 validate user credentials when logging in.
* The system shall allow the scheduling and canceling of driving sessions.
* The system shall generate records and usage reports.
* The system shall allow students to purchase and track product packages.
* The system shall allow packages to be deleted or made unavailable.
* The system shall securely store user information such as personal identification and billing information.
* The system shall allow users to reset their password and change their user information.
* The system shall display online test progress, driver notes, and driver and student photos.
* The system shall send messages between users.

### 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 will be mostly used for displaying information such as scheduled sessions and test scores, and inputting information such as personal and billing. The interface will need some functionality to allow for navigating between pages of information and completing use cases such as scheduling a driving session. This interface will be used by the customer, administrators, and staff. Each user role will have different access to functionality and so see slightly different interfaces. For example, a driving instructor needs the functionality to upload session notes, but the customer only needs the ability to see the session notes for them. The users will interact through a browser interface. This could be through a phone, or computer or tablet. The interface will need to be designed so that it’s functional in all these situations.

### 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 are assuming that the users will be accessing the system through a major browser such as chrome, edge, or Firefox.
* We are assuming the user’s internet connection will be fast and reliable enough to not be a limiting factor.
* We are assuming that users will not need special considerations like translation or text to speech for the visually impaired.
* We are assuming that ever customer will have an e-mail address that they can use to log in and recover passwords with.

### 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 system will be limited in its ability to provide information when the user is not online.
* Our system will not be able to easily change the packages provided to the customers.
* Our system will be limited in its ability to schedule multiple sessions at once.
* Resources are limited as we are using AWS and the services they provide for the infrastructure.
* Time is limited to the four and a half months before the project delivery deadline.
* Budget is always a limit and will constrain the people we can pay to work on this project as well as the infrastructure we can implement to run the application.
* The fact that we are building a cloud application means that certain limitations exist. We will not be able to provide service when internet connection lost. We will also be exposed to attacks and so need to implement security best practices.

### 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 screen shot of a chart

Description automatically generated