# 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 client is company DriverPass, who wants to provide a service to better train and prepare new drivers to take their driving tests, providing online classes and practice tests. They would also like to provide on-the-road training. The project's purpose is to create a system to handle designing a program for the user and tracking the progress. They would like to be able to access this data both online and offline.

### 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 they would like to fix is to fill a void in the market when training student drivers and creating a system to support that in an organized fashion. The system is to organize the data, allowing editing and access as needed.

* The system should be able to set up profiles for customers of DriverPass with relevant information such as:
  + Name
  + Address
  + Contact information
  + Photo of the student
  + Photo of the driver
  + Special needs the student has
  + Notes the driver has made
  + Online test progress
* This information should be able to be accessed on multiple platforms, likely web based with the ability to download the profile to a spreadsheet for editing and reuploading when online
* It should be stored via a cloud-based system
* It should connect to an API created to gather latest information from the DMV to update the client
* Appointments should be able to be changed by both the users and the clients
* There should be several roles, each with differing accesses allowing the employees to access only what they need
* Security and backups should also be handled via the cloud
* The client would like the system to be as hands-off as possible to focus on the business side of things.

### 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 provide an environment to handle data and information regarding the customer, such as appointments, personal information, progress, notes, and special needs. Thsi data should be able to be downloaded for offline access. This should be done so the client can be as hands-off as possible when it comes to the system side.
* Measurable tasks include:
  + Online test progress
    - Test name
    - Time taken
    - Score
    - Status
      * Not taken
      * In progress
      * Pass
      * Fail
  + Date of lessons
  + Scheduled time of lesson
  + Start time of lesson
  + End time of lesson
  + Total time spent in lesson
  + Outstanding balances on accounts
  + Score in mock driving tests
  + Driver comments

## 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 environment this should be ran in is web-based.
* The speed the system should run should be quick, 1 second or so given a good internet connection.
* The system on the back-end should be updated as data is inputted into the web portal.
* The user should receive new data as they update information or reload, so real-time on change to user-end view.

#### 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?*

* As this is a web-based system, it should be accessible from all platforms that can use a web browser so long as the browser supports modern protocols and security features.
* A database would be required to store data.
* A web server would be required to handle access to the system, pull requests, push requests, and connection to the database.

#### 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 would distinguish different users based on the users' account.
  + The access level of the account would determine the features the account has access to.
    - The customer’s account has access to their own data and features relevant to the customer.
      * Updating payment information
      * Scheduling and rescheduling appointments
      * Viewing and editing their profile.
      * The ability to update login information
    - The employee’s account has access to specific user data.
      * Access to user’s accounts where they are the instructor
      * The profile of the user, including extra sections for notes they take
      * Scheduling and rescheduling appointments
      * Viewing a list with a search feature to find specific customers
      * Viewing the customer’s profile
      * Viewing and editing their own account options, like available hours, contact information, and updating their login information
    - The administrator’s account has access to all data and features necessary to maintain the system
      * All the previous features mentioned, given they can’t view information like specific payment information without permission.
      * Access to the server side of the system
      * Access to the database
* Inputs would be case-sensitive
* Administrators would be informed of issues when an issue is reported through a help feature or via email

#### 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?*

* Changes to the users can be made via the web portal depending on different options for different access levels and will affect the database, not the code.
* The system will adapt to changes without issue or downtime by uploading the new version while the current version is active, then switching versions. The database will remain unaffected so data will remain the same during updates.
* The IT admin would need access to the database, the web server, and administrative access on the web portal.

#### 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?*

* A username/email and password would be the basic requirements to log in, with the password being 10 characters with at least one upper case, one lower case, a number, and a special character.
* A 2FA (two factor authentication) option would be provided to the user to use an authenticator app or an emailed/texted security code.
* Using common protocols such as HTTPS, utilizing SSL (secure socket layers) or TLS (transport layer security) certificates utilizing 256-bit encryption would be the most efficient way to secure the connection and data exchange between the client and server as this is considered the gold standard for security
* There should be a limit on how many attempts can be made to enter the password for any one account, 3 or 5 attempts would be sufficient. The account is then locked for 30 minutes and a notice is sent to the user via preferred contact method (email or text) and an administrator via email or in app notice.
* There should be a “forgot password” option where the user can enter their username or email via a link along where their are 2 security questions pre-set by the user, who after answering correctly can change the password. This can also be done via contacting an administrator/help desk where you can answer the questions over the phone to reset the password and email if the email can no longer be accessed.

### 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 be web based
* The system shall have a database
* The system shall display a login page
* The system shall have the ability to create a user account
* The system shall have the ability to enter a username and password for a user account
* The system shall validate login credentials when logging in
* The system shall have the ability to enter a user’s name, address, and contact information
* The system shall be able to display a user’s information
* The system shall have the ability to update a user’s information
* The system shall have the ability to set a user’s account type to: customer, instructor, or administrator.
* The system shall have the ability to distinguish between account types
* The system shall display the page differently based on account type
* The system shall have the option to add a photo of the user to the user’s account
* The system shall be able to have different options based on account type
* The system shall display packages for purchase by the customer
* The system shall have the ability to complete payments if the user is a customer
* The system shall connect with a payment system to complete payments
* The system shall allow instructors to add notes to a customer’s profile
* The system shall include modern security features and protocols
* The system shall include 2 factor authentication
* The system shall display a profile of the customer
* The system shall include test results on the customer’s profile
* The system shall display the logo, test results, customer information, instructor notes, customer photo, and instructor photo on the overview page
* The system shall display an option to change user account settings
* The system shall display a page where account settings can be changed
* The system shall have the ability to reset password on the login page
* The system shall connect to the DMV to be updated with the newest information frequently
* The system shall provide access to online learning tools for customers
* The system shall prevent more than 3 to 5 attempts to login to be made on a single user

### 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 should be easy to use and understand
* The landing page would be the same between all users
  + Basic information with a logo
  + A login button
* The login page would be the same between all users
  + A logo
  + A username/email textbox
  + A password textbox which hides the password
  + A login button
  + A forgot password button
  + A create account button
* The create account page would be the same between all users
  + A text box for email
  + A text box for username
  + A text box for password
  + A text box for first name
  + A text box for last name
  + A text box for street address
  + A text box for state
  + A text box for zip code
* The overview page would differ based on account level
  + A customer would see a page with:
    - A logo
    - An account button
    - A box containing online test progress
    - A box containing information and schedule
    - A box containing notes provided by the instructor with an option to see special needs notes instead
    - A photo of the user
    - A photo of the assigned instructor
  + A instructor would see a page with:
    - A logo
    - An account button
    - A list of assigned customers that forward to customer page
    - A schedule
  + A administrator would see a page with:
    - A logo
    - An account button
    - A box containing opened tickets that act as buttons
    - A maintenance schedule
    - A search feature for accounts to delete an account
    - A search feature for accounts to unlock an account
    - A search feature for accounts to change password of an account
    - A search feature for accounts to change settings of the account
    - Everything the instructor has access to
* The next page would be an account page where users can adjust their accounts
  + All accounts would have access to:
    - A change password text box
    - A change username text box
    - An upload photo button
    - Update address text boxes
    - A save changes button that pops up a enter password text box to save changes
    - A discard changes button
  + The customer account would have an option to:
    - Add or change package button
    - Add or change payment method
    - The option to upload learner’s permit/driver's license photo
    - A text box to enter permit/driver’s license number
* A page specific to instructors and administrators would be the profile of the customer
  + It would be like the users overview page
    - Has a text box to change driver notes
    - Has a button to download an offline version of the profile in .csv format to use in a program like google sheets or Microsoft excel

### 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?*

* The user has internet access at some point
* The customer has access to the internet when needed to make changes to their schedule/account
* The user has a basic understanding of technology, enough to navigate the website which is simple in design
* Customers will cancel/reschedule appointments when they need to
* Drivers will cancel/reschedule appointments when they need to
* Users have access to a device with security features mentioned above that can access a web browser that supports the security features

### 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?*

* There are a limited number of cars, meaning a limited number of spots at any one time
* If there is not internet access, appointments cannot be cancelled/rescheduled

### 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.*

