# 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 DriverPass, a company that seeks to train new drivers before their driving exam.
* This project aims to create a database that trains student drivers and schedules driving practice times.
* The project aims to facilitate the education and training of student drivers.
* With the tools this project offers, customers will have access to virtual, in-person, and

### 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 has noticed there is a void in the market for educating student drivers.
* They want their system to facilitate the training of students, who are preparing for their driving exam to get their driver’s license.
* They want to provide online classes, and tests, as well as on-the-road training to student drivers.
* They are also looking to ensure the safety of their business, with traceable reports and company car usage.
* They also want to use cloud storage to outsource data security and minimize technical difficulties

### 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?*

* Their system should:
  + Host online classes/practice tests
    - Display course/test progress
    - Allow for updating as laws and regulations change
  + Management should be able to download and print
    - Driver reports
    - Car tracking sheets
    - Reservation modification history
  + Store driver reports for a scheduled driving appointment
    - Who made the appointment?
    - Who made what changes?
    - Who cancelled the appointment?
  + Allow users and the secretary to create user profiles and schedule appointments
  + Store user information in the user profile (name, address, phone number, state, payment details, and pickup/dropoff locations)
  + Notify client when DMV laws changes
  + Store and manage reservation data
  + Run over the web, preferably over the cloud
* Reservations should fit into one of three packages
  + 6 hours in the car with a trainer
  + 8 hours in the car with a trainer and an in-person lesson on DMV rules and policies
  + 12 hours in the car with a trainer, an in-person lesson on DMV rules and policies, and online classes with practice tests
  + Packages should be able to be made inaccessible by the owner
  + Driving sessions are two hours long each, so packages are split over multiple driving sessions
* Users should be able to create an account online, or by calling the secretary
  + User should be able to reset password as well
  + Registration form and user creation should be freely accessible
  + Sensitive data calls for increased security over forms that have been submitted
* Drivers should be able to write a report for each driving session
  + Scheduled time, start time, end time, comments
  + Reports should be categorized by driver and customer
  + Reports should be only be accessible by employee who made it, and management
* Car management and tracking system
  + One driver per car
  + Vehicle check-in time, check-out time, and the driver who used it should be logged and accessible by management

## 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 system should run on a web-based environment, and should store all data in the cloud for security.
* The system should run very quickly for both desktop and mobile applications. Most teenagers will be comfortable using the website on their phones, so the system should be optimized for mobile users as well.
* The system should be updated in segments, such that each week one segment could be updated, and the entire website would be updated once every four weeks.

#### 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 Windows and Mac platforms to support desktop use, but should also run on iOS and Android platforms for mobile users as well.
* The back end requires a database for information storage and access, and a server for database queries.

#### 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 allow for scalability, the username for logging in will serve the sole purpose of granting access to the user. Each user account will be given a user tag generated by the server, which will be attached to every query that user makes on the website, to identify and distinguish between users.
* The input on log in information will be case sensitive, but the input for course assessments within the site will not be case sensitive to accommodate mobile users.
* The system should inform the admin of a problem when any of the following occur and the automated systems in place are unable to resolve the issue:
  + A query is made using an invalid user tag
  + An excessive amount of queries are made from the same user within a short period of time
  + Any malfunction of the server occurs
  + Data from the database is accessed without a user tag

#### 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 user should be able from their account interface to change any personal information, however adjustments to their course progression should only be possible from the back end.
* A user tag should only be modifiable by accessing the code, as the user tag is meant for secure communication and will need to be changed never, or as rarely as possible.
* The system should have automatic adapters within the code for platform updates, but the maintenance team should regularly ensure the system is up to date with the latest version of each platform the system supports.
* The IT admin should be able to gain access to course information and web server code only with permission of the system admin. The system admin should retain the ability to cut off the IT admin’s access at any point. A user account should only be accessible by an IT admin when the user provides a verification code sent to an external communication account, and this access should last only for a limited time.

#### 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 should provide a username and password that coincide for a single user account. If the IP address of the user’s device differs from a trusted IP address, the user should be prompted through MFA to ensure the device being used to log in is a legitimate access.
* In addition to a user tag that will be specific to each user, each time a user logs in, a session ID should be generated to ensure the legitimacy of each query. This way, each query a user makes will cause the system to verify the user tag and the session ID, thus minimalizing the risk of malicious queries.
* In the event login information is entered incorrectly 5 times in one session, the user will be asked to provide MFA information. If the contact information matches with a user account in the database, communication will be sent to that phone number or email address informing them of the attempted login, its recorded location, and the IP address of the device the login was attempted on. A link will also be sent to update their password and username, which will only be valid for 15 minutes.
  + In the event a user incorrectly enters login information 5 times in one session, and then enters MFA information that does not match any user in the database, a flag will be placed on the IP address, storing it as a potentially malicious device, and alerting the admin.
* If the user forgets their password, they should click on a link to update their password, which should take them to another screen to enter either a phone number or email address. If the entered contact information matches an existing account, a link will be sent to the entered phone or email, informing of the password reset request, the IP address of the device that entered the request, and the location the request was recorded in. The link should expire in 15 minutes.
  + If the user requests a new password but enters information that does not match an existing account, an error message should be displayed on the website page.

### 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 provide a user-friendly UI.
* The system shall accept and verify user credentials when logging in.
* The system shall provide an option for resetting the password for the user.
* The system shall notify a user of multiple failed login attempts to their account.
* The system shall allow a user to create an account and store/modify their data within that account.
* The system shall allow a user to access courses provided by the system.
* The system shall provide feedback to a user based on their inputs into the course curriculum.
* The system shall allow users to schedule driving appointments with instructors.
* The system shall allow instructors to log each driving session and provide feedback through the website.
* The system shall allow users to select one of a few predetermined packages to purchase.
* The system shall accept, verify, transfer, and store financial information from users.
* The system shall allow the admin to track vehicle usage by employee.
* The system shall update in accordance with DMV rules and regulations.
* The system shall display driver information to the users and allow them to choose their preferred driver.

### 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 support use by students, and use by their parents. Through the interface they will need to:
  + Select and purchase packages
  + Schedule driving times
  + Access courses and complete assessments
  + View driver information
  + View driving session details, such as start time, end time, and driver
  + View driving session feedback left by the driver
  + Leave feedback and reviews on drivers
  + Update personal and payment information
* The interface will also support use by the company’s drivers. Through the interface they will need to:
  + Upload and edit their photo and information
  + Provide feedback to students during driving lessons
  + Set available times to drive with students
  + View schedule
  + View feedback left for them by students
* The system supports desktop access, and should be designed to interface with a standard computer mouse and keyboard
* The system also supports mobile access, and should be designed to interface with touchscreen controls

### 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?*

* Above, I did not lay out a tutorial for guiding users through the website.
  + I am assuming that most people have interacted with similarly designed websites and can understand common symbols and layouts.
* I also did not include personal information or background checks for drivers.
  + I am assuming that, if parents are concerned, they can obtain background checks on drivers based on the information provided through the website.
* I am assuming users can access the site at any time of any day they wish
* I am assuming drivers will be trained on the website’s design and layout before using the website

### 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?*

* The system is limited by the relatively small development team. Less people means less perspectives and less people to divide the work among.
* The system is also limited by being cloud compatible. While using cloud storage offers significant benefits, accessing an external database will cost the system in efficiency,
* The DriverPass company is limited by their small team as well. They only have 10 cars, which means they can currently only support 10 drivers.
* DriverPass is also limited by the cars they own. These cars will require regular maintenance and repair, which will incur costs and reduce the availability of some drivers.
* Being a small company, DriverPass may struggle to keep up if the website produces more volume than they are currently equipped to handle. Growing too fast in a business that relies so heavily on employee presence may cause some customers to have a less than optimal experience at first.

### 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.*

