# 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, DriverPass, wants to provide students with access to online classes and practice exams for written driving tests. They also want students to be able to schedule on-the-road training to better prepare them for driving tests
* The system should be able to do the following:
  + Access data from any device online with the ability to print reports or data for offline review
  + Concept of roles and rights for granting and blocking access to the backend of the system for internal staff. Including the ability to do password resets
  + Auditing system for tracking changes within the system for example:
    - Who made a driving lesson reservation
    - Who canceled a driving lesson reservation
    - Who modified a driving lesson reservation
    - Ability to print activity reports on all changes
  + Online scheduling for driving lessons. This information should be available to students and from an internal standpoint should the appointment be scheduled over the phone.
    - Ability to see driving instructors' schedules
    - Types of cars available
    - Time slots open and for what driving instructors
  + Appointments fall under the constraints of user-purchased packages. The system should keep track of users' total usage and remaining abilities within their package.
  + Packages should have the ability to be added, removed, or modified. Deemed a future feature post initial system creation.
  + Data collected from users:
    - Name: First and Last
    - Address
    - Phone number
    - Credit card info
    - Pickup and Drop Off location for driver training
  + The ability for users to reset passwords should they forget it
  + Connection to the DMV for updated rules, policies, and sample questions to update materials for study and practice tests.
    - Some form of notification for changes from the DMV
  + A Web-based application running in the cloud
  + For users there should exist on the UI:
    - An output of tests taken, in progress, failed or passed, and not taken
    - Ability to view driving inspector comments from lessons
    - Show future and past scheduled lessons
  + Contact page for the company
  + Contact information area for students or internal members to fill out

### 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 wishes to provide better driver training due to a high failure rate of driving tests at the DMV. They want to give their customers the ability to take online classes, and practice tests, and provide driving instructions to better prepare their customers for their written and practical driving tests. The system should be a fully web-based application capable of keeping track of appointments, and students’ progress in testing, a verbose backend area for DriverPass employees to aid internal resources and view reports, and sync with current DMV standards to allow for better user success.

### 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 be able to do the following:
  + Access data from any device online with the ability to print reports or data for offline review
  + Concept of roles and rights for granting and blocking access to the backend of the system for internal staff. Including the ability to do password resets
  + Auditing system for tracking changes within the system for example:
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## 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?*

* Performance is multi-faceted such that it is expressed for both the frontend and backend of the program. From a user perspective, the site needs to load each page in a reasonable amount of time to be deemed worthy of use. This number can be skewed based on the total number of users at any given time as well as potential backend issues. Metrics gathering and determining benchmark numbers through the load, and performance testing must be done. Gaining these numbers aids in the requirement base for the Scalability requirement

#### 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?*

* Linux based backend
* PCI compliant backend due to credit card transactions
* Secure database
* Access logging
* Intrusion detection system
* Load balancer
* Autoscaling

#### 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?*

* Usernames will not be case sensitive so if a user types admin or Admin they are seen by the system as the same user. This reduces duplicate users with different accounts.
* Passwords however are case sensitive to allow for upper and lower case letters that make a password more unique
* Users will have to have different usernames and a mechanism will be there to check if a username exists and then give suggestions on a different one if it does exist
* Admin alerts happen in many different situations such as brute force attempts since the activity would be exceptionally high for a single user and repeated password attempts.

#### Adaptability

*Can you make changes to the user (add/remove/modify) without changing the code? How will the system adapt to platform updates? What type of access does the IT admin need?*

* The user information such as phone number, address, username, and credit card information is stored in a database. These can be modified since they will tie to a say a person's name in the system. It could be tied to the username since people’s last names do change due to marriage so there must be one single unchangeable element that ties to info back to the database for reference.
* Extensive testing will be done in a sandbox environment with test data before the rollout of any platform updates to production. This includes system updates. All functionality will be tested to ensure the user experience stays the same. Any upcoming changes to functionality or UX would need to be communicated to all customers.
* IT admin requires full access to the system but does not need access per se to confidential information like users' credit cards. The IT admin needs enough access to do their job in terms of updating the back-end system.

#### 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?*

* Fully encrypted traffic(SSL)
* Two Factor Authentication or Authentication app options for users to secure accounts
* Real-time threat detection monitoring
* Password attempt limits with lockout period for bad attempts
* Options for users to rest password(email verification, captcha)

### 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 access to data from any device online with the ability to print reports or data for offline review
* The system shall understand the concept of roles and rights for granting and blocking access to the backend of the system for internal staff. Including the ability to do password resets
* The system shall have a built-in auditing system for tracking changes within the system for example:
  + Who made a driving lesson reservation
  + Who canceled a driving lesson reservation
  + Who modified a driving lesson reservation
  + Ability to print activity reports on all changes
* The system shall have an online scheduling function for driving lessons. This information should be available to students and from an internal standpoint should the appointment be scheduled over the phone.
  + Ability to see driving instructors' schedules
  + Types of cars available
  + Time slots open and for what driving instructors
* Appointments fall under the constraints of user-purchased packages. The system should keep track of users' total usage and remaining abilities within their package.
* The system shall have the ability for users to reset passwords should they forget it
* The system shall have a connection to the DMV for updated rules, policies, and sample questions to update materials for study and practice tests
* The system shall be usable via mobile and PC browsers.

### 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 should allow for a student to sign in and perform the following:
  + schedule lessons
  + purchase new packages
  + have access to study material
  + update contact information
  + reset password
  + View output of tests taken, in progress, failed or passed, and not taken
  + Ability to view driving inspector comments from lessons
  + Show future and past scheduled lessons
* The user interface for an admin should perform the following:
  + Access to audit logs
  + View reports
  + Schedule lessons
  + Fix any errors such as misspelled customer data or overall wrong info
  + Reset password
  + View instructor schedules and cars available
  + Update packages - this is a feature request though
* Users will be able to view the UI via both mobile and PC browsers.

### 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?*

* With the proposed timeline for coding and creating this system, this will be the first version but not the final as bug fixes and continued maintenance will occur.
* While it will be programmed for mobile browser usage a phone app will likely be requested for more seamless ease of use.

### 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?*

* For the amount of backend infra plus the front-end coding, the time will be short and would likely require some corners cut.
* Taking credit card payments creates a large complexity for PCI compliance which usually means an isolated system to protect customer data. This could skew the time frame

### Gantt Chart

