# 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?*

* Given the project’s overarching purpose is to assist students to successively complete and pass their driving tests, DriverPass has recognized the lack of tools to assist the students.
* DriverPass would like the design and implementation of a modern solution – in the form of a web app – that gives students the opportunity to adequately prepare for their exams, with practice exams as well as a booking system for hands-on training.

### 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 wants the system to address the current problems of students failing their driving test.
* The system to be implemented will provide students with online classes, practice exams, and a booking system for hand-on driver training on the road.
* DriverPass has stressed modern security features, and the ability to grant access in tiers for different types of users.
* Lastly, the system will track and catalog reservations and modifications to reservations – including cancellations. The system should also offer tiered packages for the hand-on training aspect for the students to select from.

### 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?*

* Given completion, this system is a functional web app for students to have access to:
  + On the road driver training – booking, modifying, or cancelling reservations.
  + Driver training classes.
  + Practice examinations.
* Given completion, the application will have tiers of access for employees, administrators, students, etc.
* Measurable tasks:
  + Decide operating platform.
  + Decide technology web stack from client side to server side.
  + UML design for object modelling, database modelling.

## 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?*

* Given modern best practices, application should be developed in a cloud-native environment.
* System in cloud-environment must be a distributed system in order to update in real-time across various regions.
* System updates should be performed regularly for bug reports or new feature requests, and as applicable in security audits.

#### 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?*

* Given the booking system, classroom instruction, and practice exams, a database must be designed and implemented to store user data.
* Web app should be cross-platform functional given that it will be accessed over the internet. Recommended to develop on Linux OS, possibly AWS.
* Using Linux OS in cloud environment, many out-of-the-box security features will be available, regular audit and testing must be completed to meet user requirements.

#### 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?*

* System will need administrators to grant different levels of access to various users, i.e., system admins, DriverPass employees, and students.
* Username should be a case-insensitive e-mail address and precise case-sensitive password, with the capabilities of Multi-Factor Auth to support security.
* All users should have bug-reporting capabilities to improve user-experience.
* Upon reporting, administrators and employees should be promptly notified.

#### 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’s model should allow for employees or administrators to modify accounts without changing code. A class-based backend should tier the users to grant them access to various features dependent on current access-level.
* IT administrators should have system-level access to accomplish changes as necessary, to include granting access or removing access and/or accounts.

#### 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?*

* Login will require username or e-mail address and password combination, with functionality to utilize Multi-Factor Authorization to stifle actions from bad-actors.
* Login attempts will be limited to 5 successive failed attempts before account is locked, wherein system admin will be notified to ensure user is who they say, to unlock account and reestablish a password. Authentication through this route will be used with information used at initial account creation.
* If a user is unable to remember their password, they must provide e-mail address used to create account, phone number, and respond correct answers to three security questions established at account creation.

### 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 provide classroom instruction to students.
* The system shall save classroom instruction progress for students at logout.
* The system shall provide students with a booking system that will book reservations.
* The system shall provide students with information on their pair for driving instruction.
* The system shall allow students to modify date or time in reservations, if date and time are available.
* The system shall allow students to cancel reservations.
* The system shall offer students with different packages for hands-on instruction.
* The system shall administer practice tests, with scores and progress to be saved to user profile.
* The system shall allow different access levels based on user role.
* The system shall share student progress to applicable user for verification of completion.

### 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 provide navigation capabilities for student to access the reservation booking systems, classroom instruction, practice exams, and student report on history of instruction and examinations.
* The interface should provide navigation capabilities for employees to view student progress and changes as necessary to student profiles.
* The user interface should have responsive mobile design, i.e., app should not be limited to desktop or laptop-only interfaces.

### 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?*

* Largest assumption made would include that no budget-restrictions have been clearly defined, meaning all recommendations and assertions previously stated are assumed to be “within budget”.

### 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?*

* Time limitations. The application will require a multiple-disciplinary team of engineers, designers, project manager, product owner, scrum masters, and testers.
* No budget defined.
* Manpower limitations. Given complexity of database design, several experienced back-end engineers will be required.

### 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 picture containing timeline

Description automatically generated