# 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?*

* Client: DriverPass is a company wanting to improve the passing rate for driving tests
* Objective: Create a system that can
  + Supply and host online exams and trainings
  + A tracker that tracks the progress of each student
  + Tools for administrators to manage appointments, user accounts and a place to book in person 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?*

* Problem to fix:
  + High failure rates on the driving test
  + Little to no resources and tools online to help with training and on the road training.
  + No or poor processes for scheduling appointments and managing data.
* Components:
  + Online exam and training resources.
  + Scheduling system to allow customers to book, or modify their driving lessons online
  + Progress tracking tool to show students their progress and test results.
  + User management to assign roles and permissions for staff.
  + Integration with DMV to keep all of material up to date.
  + Cloud infrastructure to help with scalability and data security.

### 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?*

* System Capabilities:
  + Host online practice exams and lessons that are up to date with DMV standards.
  + Provide a progress tracker and feedback for the online tests and lessons.
  + Provide a place for students to schedule, modify, or cancel on the road training sessions online.
  + Provide role bases access for accounts(students, instructions, admins).
  + Track and keep a log of user actions for accountability.
  + Update courses according tom DMV standards.
* Measurable Tasks:
  + Create an online practice exam with feedback
  + Develop a scheduling system for on-the-road training linked to instructors and cars.
  + Designing a progress tracker for students and admins.
  + Implement role based security for users.
  + Set up notification system for DMV updates.
  + Use cloud for data storage and scalability.

## 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?*

* Environment:
  + Web-based, accessible from desktops, laptops and smartphones.
  + Use cloud to ensure data can be accessed from anywhere and have minimal downtime.
* Speed:
  + The system should take 2-3 seconds to operate
  + If traffic is heavier it should be 5 seconds
* Updates:
  + System should have automatic updates during off-peak hours.
  + Security packages and DMV updates should happen when needed.
  + Bi-weekly updates should be implemented.

#### 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?*

* Supported Platforms:
  + System will be web-based, meaning it should be compatible with Windows, macOS, Linux, iOS and android.
  + It will require modern web browsers like Google Chrome, Firefox, Safari and Microsoft Edge.
* Backend Requirements:
  + Database: The system will use the cloud hosted database. It should be a relational database.
  + Server Environment: It should be Unix based
  + Framework/Tools:Use Spring Boot Java
  + Integration Requirements: Must be compatible with DMV systems for updates and payments.

#### 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?*

* Each user account will have a unique ID like an email address, username and password.
* Role-based access controls will help separate students, admins and instructors.
* Username and passwords will be case sensitive.
* Events like failed login attempts past a certain threshold, system downtime, connectivity issues, and failed updates and payments should alert IT Admins.

#### 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 will be able to change roles, add, remove, or modify accounts without changing code.
* DMV updates will be integrated without changing code.

#### 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?*

* Users will login using a username and password.
* Passwords need to be at least 8 characters, 1 uppercase, 1 lower case, a number and special character.
* Client and server communication will be secure using SSL and TLS.
* User data will be stored using hashed passwords
* The system will lock an account if 5 failed attempts to login were made.
* There will be a self-service password reset feature.

### 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 during login
* The system shall allow students to schedule, modify, and cancel driving lessons online.
* The system shall provide online tests and study material with feedback and progress tracking.
* The system shall allow admins to manage user roles and permissions
* The system shall log all user actions for accountability.
* The system shall create reports for management to track usage and performance.
* The system shall integrate with DMV system to receive updates on tests and standards.
* The system shall allow customers to reset their passwords through a self service process.
* The system shall allow instructors to see and manage their schedule.
* The system shall ensure payment information is securely processed for billing.

### 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.)?*

* Provide a user friendly experience for all stakeholders.
* Display important information like schedules, progress and results.
* Support quick navigation between bookings, testing and account management.
* Students
  + Schedule, modify or cancel lessons
  + Access and complete online exams
  + View progress and feedback
* Instructors.
  + View driving schedule
  + Add notes and submit feedback
* Admins
  + Manage user accounts and permissions
  + Generate and view reports on student and system activity
* IT Staff
  + Access system settings for maintenance and troubleshooting.
* Interface will be web based, accessible through all major web browsers.
* Available on desktop and mobile

### 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?*

* Users will have access to a device with internet connection
* Users will know how to navigate a website.
* The system will be reliable with no downtime
* The database will handle the user load and be scalable
* DMV will provide APIs for data exchange
* Students will interact with the system by web
* Security protocols will meet standards
* Admins will be trained and not abuse power
* Online capabilities were not included in design

### 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?*

* Cannot support full offline functionality
* Updates from DMV relay on release

### 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.*

[Insert chart]

A graph with colorful squares

Description automatically generated