# 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 purpose of this project is to develop a driver training system for DriverPass.
* The system will offer online classes and practice tests as well as on the road training and other functionalities to provide better driver 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 offer effective online classes and better practice tests so that their users have a higher success rate of passing their driver exams when they go to the DMV.
* Their goal is to use this technology to fix the problem of so many potential drivers failing their drivers test due to insufficient training materials.
* Components needed for the system would be a user interface for e-learning, along with analysis tools with feedback so users know what they got right and what they still need to work on. Also, personal interactive online learning tools for features like quizzes and progress tracking. These features should be integrated with the DMV and updated on a regular schedule to ensure accurate information.

### 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?*

* When completed the system for DriverPass should be able to perform several functions to enhance learning and improve the users DMV exam success rate. Some system capabilities include things like delivering the online classes and interactive tests along with progress tracking, so users know how they are performing and what they need to work on. Also, since users learn at different paces the system should have adaptive learning that is up to date with current DMV regulations so users can learn at their own pace.
* Measurable tasks that need to be included is quiz and test modules, as well as a user UI with a progress dashboard to visually show users their progress and test scores. It also needs to have regular update features and a user support to help with user issues.

## 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 needs to be web-based and should be updated regularly. It should also load within 2-3 seconds and give instant feedback to user’s quizzes and other user input.
* The system should be up and running as much as possible with its only downtime being for updates during its off-peak hours. These updates are for things like security and maintenance updates, as well as making sure its up to date with the newest DMV regulations.

#### 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?*

* Since the system environment is web-based it should run on all platform OS as well as mobile platforms that have access to the internet and a web browser (Chrome, Firefox, Safari, Edge)
* The system backend requires a database management system for storing and managing user data, course content, and other information such as test results. A web server would also be required for hosting the system and a content management system would be needed for easy system updating and content management.

#### 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 will distinguish between different users by having each user create their own unique username and password. Also, a role-based system would be implemented where users and admins would have specific permissions due to their needs.
* Input for passwords would be case sensitive for better security enhancement. For data that isn’t a password, such as usernames and emails input can be case-insensitive.
* The system should inform the admin of a problem for things like security breach detection or system failure. Also, it should contact the admin if users report a technical issue.

#### 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?*

* Implementing a user-friendly administrative dashboard could allow changes like adding, removing, and modifying user accounts without having to change the systems code.
* The system could adapt to platform updates by implementing an automatic update feature that can be scheduled for low-traffic periods to minimize user disruption. Also a testing or beta environment could be used to test updates before deploying the update to the live system.
* The IT admin would need to have full access to the entire system. They would be the ones doing all the security management, and system monitoring as well as backing up and recovering the system. They would also be setting up control and permissions for all users.

#### 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 would have to use a username or email along with their password to log in. For added security the user could set up a two-factor authentication if they later chose to but that would be optional and not required.
* For a secure connection of data between the server and the user HTTPS should be used on the system. Also server encryption should be used when transmitting data.
* For handling brute force attacks a users account could be locked if they failed to enter the right login after 5 attempts. This lockout could last an hour and also should notify the user through email as well as the admin of someone trying to log into the account.
* If a user happens to forget their password there could be a forgot password option. A user would have to enter their email and answer a security question or two that they made during their account creation and if answered successfully it would send a password reset link to the users email allowing them to change their password.

### 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 offer two-factor authentication if the user wishes.
* The system shall use HTTPs and server encryption to secure data between the user and the server.
* The system shall lock accounts if the user fails to enter a successful login after 5 attempts.
* The system shall notify the user and admin of the multiple failed login attempts.
* The user shall provide a password reset mechanism that includes asking the user to answer security questions that they set up upon account creation.
* The system shall allow admins to add, remove, or modify user accounts without needing to change the systems code.
* The system shall allow access from any platform with internet access.
* The system shall allow a user to choose what type of package they want.
* The system shall allow users to access online testing materials and learning tools.
* The system shall display user progress and test scores as well as adapt focus of materials to match individual users performance.

### 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 would be slightly different depending on if an admin or a user was logged in. The interface for a user would need to have a login/register page for creating their account. It would have to have a home page that showed their test progress and scores. Also their package information on what packages are available and what they chose. It would also have the online educational materials that they use to study for their tests. It would also have a contact page for customer service.
* For Admins the interface would have to have access to customer information such as who registered and how they are progressing and what package they chose. It would also have to have the ability to remove or edit packages if the customers decided they didn’t want that package anymore or if something came up and it needed to be rescheduled for any reason. The admin interface would also need a system administration area where the admin could perform admin tasks such as content updates and user management.
* Interaction with the interface would be via web browser allowing users to use any platform OS or mobile device with an internet connection and web browser. Though the website would be the same for each platform it would cater uniquely to each user based on their needs and also incorporate features like search bars and help sections to help the user navigate the interface more efficiently.

### 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?*

* Things that were not addressed in the design above were things like offline functionality and user training and support. Also though security was mentioned, specific protocols weren’t addressed.
* Assumptions made in the design is assuming that both users and the admins are familiar with using web browsers and online platforms. Also it is assumed that users have access to a web browser and internet connection. It is also assumed that users are aware of basic internet security practices like keeping their passwords safe and secure to prevent hacking.

### 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?*

* One main limitation is that of scalability. We’re not sure how many people will be using it initially nor how popular the application will become so the system might face scalability challenges if the user number grows more than expected. Also, the system being dependent on internet connectivity will cause limitations in areas with poor internet access. Another limitation is not all users have the same technical knowledge so it may still be complex for some users to learn. Another limitation is not every user has the same schedule and there will be times where the system will have to be down for updates making it inaccessible during that time for users who would like to study.
* Limitations on budgets could impact the quality of the system making it where you would have to release a base model first with the main features then upgrade it as more money was given to development. This means initially smaller servers or less features then what it could potentially have.
* A time constraint limitation could mean less time for testing the application before initial release which could have it released with bugs or other issues that would have to be patched later.

### 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 screenshot of a calendar

Description automatically generated