# 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?*

* This project is for the consulting companies’ client, DriverPass. Their purpose is to provide better driving training services to students working towards getting a driver’s license. The client wants an online service that allows students to register for classes, tests, and on-road training with a driver.

### 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 an online system that will provide driving training services by allowing students to register and take classes and tests, as well as register for on-road training and view instructor feedback
* The system will be in the cloud and users will use the internet to access the website
* The system will allow privileges to be set for the client’s employees and allow log reports to be downloaded for offline use
* The system will allow the client to disable available training packages
* The system will notify the client if the DMV updates their training guidance

### 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 will provide the user with the following functions:
  + Select an available training package
  + Input personal information
  + Input pick-up/drop-off information
  + Enroll in online class
  + Take online tests
  + View test scores
  + View driver notes
  + Upload user photo
* The system will provide the client with the following functions:
  + Download customer reports
  + Set employee privileges
  + View DMV training guidance changes
  + Upload employee photo
  + Disable available training packages
  + Update available courses

## 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?*

* Any time a user clicks a pane on the webpage, such as “Personal Information”, it should take no longer than 5 seconds for the new webpage to load
* The system will be a web-based application that can be accessed by a user on any operating system and any web browser that allows for HTTP requests to be sent
* Updates will be pushed from the development team to the cloud where the server is stored. Both a team developer and DriverPass IT member will be needed to ensure the system updates properly

Rationale: To attract more customers, the system needs to be compatible with as many operating systems as possible, since there are many that are used by different people. Additionally, the site needs to run smoothly so that customers have a positive experience, increasing the chances they’ll come back for more services.

#### 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?*

* With a client-server pattern being used, the system will run on a Linux operating system
* A database ran in the cloud will contain customer information, employee information, course information, schedule information, as well as DMV guidance changes

Rationale: A database will need to hold all customer and employee information so that the website can pull relevant information when it is used. For example, if a user clicks the test progress pane, the site needs to retrieve the customer’s test scores from the database.

#### 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 regular employees, admins, and regular users. In this case, the admins would be the owner and IT employee. An employee would be a member that works at the physical driving training site
* Logs are made for when reservations are made, canceled, or modified. When a log is made, admin members are notified through their accounts
* User input will be case-sensitive for employees and admin members, but not case-sensitive for users

Rationale: Since DriverPass requested different privileges for different users, the system needs to distinguish between customers, regular employees, and admins. Additionally, the system needs to track changes that the admins can access and investigate if needed. Since employees and admins have access to more information, their login information needs to be more sensitive to decrease the chances of their accounts being compromised.

#### 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?*

* An IT admin must have the ability to disable an available driving training package, as well as re-enable it if the team chooses.
* IT admin should have the ability to add, remove, or modify accounts. For example, if an employee is let go, they must be able to block their account from being active on the website
* A developer will be needed to add new training package modules
* An admin should be able to update course material based on changed DMV guidelines without changing any internal code

Rationale: Since DriverPass wants the ability to disable packages, the site needs to have an option that allows an admin to do so. Additionally, they need to have the ability to edit user privileges or update course material based on employee status and whether the DMV updates their guidance.

#### 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 system will allow the user to enter in a username and password three times. After the third attempt, their account will be temporarily locked. If the user returns and fails three times again, their account will be locked and they will be required to contact IT to reset it
* If a user forgets their password, they can click a “Reset Password” option to reset it using their email on file
* Using a REST API for the client-server pattern, a basic authentication scheme shall be used, where the server verifies the login credentials of a user and denies their request if they are invalid. If they are valid and have set privileges, they can access different types of information

Rationale: Since the client’s system will be an online website, there is a risk for cyber-attacks. Thus, safeguards, such as limited password attempts, will be needed to limit the ability for hackers to break into the system. Additionally, there needs to be an ability for the system to identify if an employee or admin is logging in so that it gives proper privileges to the accounts.

### 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 log any time a new user account is created, when a package is purchased, and when an appointment is created, modified, or cancelled
* The system shall use a user’s username and password to determine if they can access an account and pull their information from the cloud database
* The system shall allow the user to update their personal information, upload a personal photo, view driver’s notes, view online test progress, and take online tests on the website
* The system shall allow a user to make an appointment for a physical driving test with a driver

Rationale: The system needs to have the ability to track changes in the system for admin to review, as well as the ability to determine which users have access to what information. This is to safeguard confidential information and decrease the chances of the system being compromised. The system also needs to allow users to update their personal information, since variables such as email and address can change over time.

### 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 system consists of a web page with panes for online test progress, personal information, driver notes, special needs, driver photo, and student photo
* The user will be able to click the online test progress pane to view their statuses for given tests, as well as take a test on the web browser
* The user will be able to click the personal information pane to update
* The user will be able to click the student photo pane to update their picture
* The user will be able to click the driver’s notes pane to view driving feedback
* The user will be able to the click the special needs pane to update

Rationale: The user interface needs to allow users to click the webpages different panes so they can access their associated information. For example, a user must be able to click the test progress pane in order to study online material and take an exam afterwards. They also need to be able to update information, such as their student photo, if they wish to.

### 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?*

* Student drivers have access to the internet in order to use the online system
* Students have electricity to use their electronic devices to access the internet
* The DMV releases guideline updates that the DriverPass system can access

Rationale: With the system available to users over the internet through a webpage, they will need to have access to electricity and the internet so they can access the site.

### 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?*

* If the backend services go down, so will the website
* The system will be shut down if there are not enough funds to build and maintain it
* Frequent DMV guideline changes can result in significant upkeep

Rationale: If the cloud storing the databases for the site goes down, so will the site, since it won’t be able to access information necessary to properly run the system. Additionally, if the DMV frequently changes their guidance, then constant upkeep will be needed to ensure the course materials/tests remain relevant.

### 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 graph

Description automatically generated

References

(2023, Jan. 28). “Using HTTP basic authentication with the REST API.” *IBM.* Retrieved from <https://www.ibm.com/docs/en/ibm-mq/9.3?topic=security-using-http-basic-authentication-rest-api>

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