# CS 255 Business Requirements Document

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?*

* DriverPass, the client of this project, is seeking to build a web-based application. This application will handle major pieces of the operations surrounding the DriverPass company.
* Their operations include on-the-road training, practice tests, learning materials about practice driving, DMV related information,
* Features will be presented in a designed user framework provided by the client. The features will include online practice tests, virtual classroom/training materials, practice driving scheduling, user/driver related info, and updated DMV related information.
* They need this application to be adaptable with support for their internal IT administration.
* They need the infrastructure to be out-of-sight, out-of-mind and able to operate without fail. They recommend using a cloud-based solution.

### 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’s vision is to provide a better driver training solution for their local area.
* This solution will fill a void in the market and provide unique training opportunities for those seeking their driver’s license/permit.
* They desire a user portal that is intuitive and paramount to the student’s success.
* This portal will have multiple features where the student can plan/practice their practice driving through in-person sessions, online tests/classroom material.
  + The student may also choose to call instead so that a secretary may adjust their information for them.
* These features will be broken down into ‘opt-in’ packages that will have varied prices depending on the level of student involvement.
* The system needs to be adaptable to adjust for updated DMV policies and student training packages.

### 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?*

* Collect Requirements
* Create Use Case Diagrams
* Build Activity Diagrams for Each Use Case
* Research User Interface Designs
* Build Class Diagram
* Get Customer Approval
* Build Interface
* Link DB to Interface
* Build Business Logic
* Test System
* Deliver System
* Sign-off Meeting

## 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?*

* This system will need to be run on a web-based platform. This is because web-based platforms can be accessed anywhere (on most any device) and is, by far, the most ubiquitous platform available.
* The infrastructure for a web-based application would be negligible and be primarily handled by the server host and/or cloud infrastructure platform.
* The system needs to run at average web-page speeds (there aren’t many special considerations for increasing the speed of the system). The average webpage load speed, according to a Google recommendation, is around two-second response time.
* The system will need to be updated when a package or layout is altered. However, it’s important that SSL security certificates be kept up-to-date for the domain (especially considering sensitive information will need to be stored).

#### 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?*

* The platform should run on a Unix-based platform. Unix-based platforms provide excellent versatility when hosting web-based platforms (less-frequent reboots and high server loads).
* This application will most definitely require a database to store user information (such as login credentials, quiz progress, driver training information, etc).

#### 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 need role-based credentialing to distinguish between users, drivers, secretaries, and administrators.
* The username does not require case-sensitivity; however, the password should be case-sensitive to provide greater password complexity.
* Dates entered into the system must also not overlap if a driver is already scheduled. Users should also be able to request support incase errors occur (whether ticket based, email based, or support phone number). Therefore, there should be alerts to secretaries if either of these scenarios are encountered.
* The system should inform the administrators of repeated failed password attempts or excessive network usage (such as DDoS attacks). There should also be alerts if the platform is inaccessible from the internet (report outages).

#### 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?*

* Changes to users should absolutely be a standard feature implemented with code. The system should not need to be altered every time a user needs to be added, removed, or modified. Thus, there needs to be an administrative portal or front-facing UI to adjust user information.
* The system will need to be adjustable in case there are platform-based updates. The code will need to be clear, concise, and object oriented so that modifications are easily done if major overhauls are required.
* Minor platform changes should be handled by the administrator via a platform UI. (To adjust customer packages, Basic UI layout, etc).
* It should be noted that web-based platforms rarely need to be concerned with systemic updates as there are rarely dramatic changes to web-based protocols (HTTP, HTTPS).
* IT Administrators will need access to all website functionality. The way this functionality is viewable can be decided upon (how advanced the front-facing UI should be). IT Administrators should be able to adjust user roles and handle maintenance on user 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?*

* The user will require their username/password to login.
* The platform will be secured via HTTPS which will ensure a secure handshake between the client & server.
* Brute forced login attempts can be deterred via temporary/permanent account lockouts if the password is guessed incorrectly too many times.
* There should be a “Forgot Password” option when signing in. This option should email the users personal email (verified with the users account) with a reset link to reset their password manually.
* The user should also be able to change their password once they have successfully logged in.
* Security questions could also be featured within the system as an alternate option for forgotten passwords.
* However, the “Forgot Password” process may need to rely on human support in case the manual method fails (thus it is important that secretaries and administrators can manually reset user’s passwords).

### 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 require all user information be filled out correctly and using the correct format (email address, phone number, address, etc).
* The system must retain user login information in a database.
* The system must retain a backup of all data in case of corruption.
* The system shall have a valid SSL certificate.
* The system shall allow addition, cancellation, and modifications of driver lessons.
* The system shall utilize CRUD authorization (change, read, update, or delete) based on the assigned roles.
* The system shall provide users driver lessons information.
* The system shall provide online learning activities (such as practice tests and virtual classroom content).

### 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 will require a login portal (all users), user portal (students), driver portal (trainers), secretary portal (secretaries/management), and administrative portal (IT management).
* The login portal will provide authentication of the user which will, in turn, provide authorization levels depending on the assigned user’s role.
* The **user portal** will provide the user with all driver training related information: practice tests information/progress, virtual classroom option, basic student information (name, address, phone, email), driver notes, special needs, driver photo, and student photo.
* The **driver portal** will allow the driver to view their assigned schedule, adjust changes, update/view student notes, and view their own account information.
* The **secretary portal** will allow for overall user management. They will need to be able to (in their portal): add/remove/modify users, add/remove/modify schedules for drivers/students, modify user information (including password & payment information), audit/review user information.
* The **administrative portal** must allow for: role access manipulation, add/remove/modify/delete users, modify user information (including password), modify basic website UI/Layout/Packages.
* The users will interface with the platform via a webpage. The webpage will need to adapt to the screen size and device type (whether small or large screen, or iOS/Android vs MacOS/Windows).

### 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?*

* Detail for the virtual classroom was not specified as the interview hinted at this being a desired feature of the DriverPass platform.
* The different portal options are an assumption based upon the utilities required for each end-user. However, the UI/Layout of these portals has not been specified.
* The current user information will need to be in a database like format (such as a CSV) to import it into the new platform.
* The cloud-based infrastructure chosen will be properly networked to intake external traffic.
* The infrastructure will be setup with CRUD roles to allow IT Administrators to manage the infrastructure if needed.

### 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?*

* The amount of storable user information within the system will be limited based upon the infrastructure chosen.
* The complete re-designing of the webpage, at will using featured UI, will be limited based on the scope of this project
* Network speeds will be limited based upon the infrastructure chosen.
* The DriverPass system will work with all operating platforms as that is outside of the scope of this project.
* The UI/Functionality of different role-based portals will be limited based on the scope of this project.

### 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.*

