# Ronald W. Sudol III

SNHU CS-255

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Project One

# 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?*

* DriverPass is a driving school looking to develop their business by implementing a new computer system that helps students track their progress, take practice tests, and schedule appointments for in-car training. The purpose of this project is to design an implement a system that meets their needs.

### 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 to aid student drivers in passing their driving exams at the DMV by providing interactive online practice tests and in-person driving instructions.
* The system should support student user accounts that allow students to track their progress.
* The system should allow student users to access and customize their accounts.
* They also want their system to allow new students to sign up and pay for a variety of packages.
* The system should include administrator access accounts that support tracking of student progress, business traits, and system changes.
* The system should include secretary/clerical user accounts that can be accessed by office personnel.
* System should support Driving instructor user accounts that allow for interaction between instructor and system.
* Additionally, the system should allow employees of different roles to have access to data and reports and other features according to their designated rights and privileges.

### 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 should be made cloud based so DriverPass doesn’t need to be concerned about physical database maintenance.
* System should offer a variety of lesson packages.
* The system must be secure in protecting user data and payment information as well as authenticating user rights and privileges.
* Employee users should be able to log in from any internet connected device.
* System should support administrative accounts that allow for tracking user’s status, tracking student progress, maintaining a list of cars used for driving test, and viewing reports/logs about any changes made to the system.
* Owner’s administrator access should support resetting passwords or restricting access in the event that an employee is let go.
* The student users should have a profile page that displays their progress, personal information, and comments from their instructors.
* System should support driving instructor user accounts that allow driving instructors to leave comments about student progress on student accounts and allow the instructor to adjust their availability for in person lessons
* The system should allow secretary/clerical users to schedule lessons and process payments in-person or over the phone and enter the information into the system
* The system also needs to support online scheduling and payment for in-person training sessions with a variety of adjustable packages.

## 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 shall run in a cloud-stored web-based environment.
* The system shall be fast enough to support near real-time updates of object like driver comments, available in-person appointments, and updates to DMV testing policies and procedures.
* The system shall update small changes in near real-time but larger system updates like performance or storage updates should be performed overnight to minimize interruptions to service.

#### 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 system shall run on all applicable platforms including web-browsers supported by Windows OS and Mac OS as well as mobile platforms including Android and iOS.
* The system shall build upon back-end development framework like Django which supports efficient and secure cross-platform web-development.
* The system shall employ cloud-based databases for backend storage of data including user authentication information, system logs, and items like user profile pictures and practice test results.

#### 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 shall institute subclasses that inherit from a User object class that grants encapsulated access privileges only to the appropriate users.
* The system will utilize case-sensitive input for authentication and security-based functions to further promote security.
* The system shall notify admins of problems immediately. These problems include issues like user password lock outs, unauthorized access or changes to sensitive data, and system malfunctions or crashes.

#### 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 shall provide functionality to allow users to update aspects of their user profile including billing information and user preferences.
* The system shall also provide functionality for admins and office personnel to add/remove/ and modify user account information.
* The system shall be designed in a way that is modular and reusable to minimize the impact of updates and changes to system platforms.
* The system shall provide IT admin with ability to reset passwords, restrict user access, and view system reports about system performance and changes.

#### 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 shall require user authentication that prompts for the user for a case-sensitive username and a case-sensitive password that includes a minimum number of letter characters, a minimum number of integer characters, and a minimum number of special characters.
* The system shall secure connections and data exchanges between client a server by utilizing HTTPS formats which utilizes end to end encryption.
* The system shall work to prevent brute force attacks by locking out any account that enters a wrong password three consecutive times.
* The system shall allow for IT and designated admins to reset user passwords in the even of accidental lockouts.
* The system shall allow a user to reset their own password, in the case that it is forgotten, by confirming their identity through secondary protocols.

### 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 authenticate users, differentiate between user types, and regulate access accordingly.
* The system shall lockout repeat authentication failures.
* The system shall have functionality to facilitate new customers creating accounts.
* The system shall link to DMV system for testing updates.
* The system shall provide scheduling functionality for managing in-person driving appointments.
* The system shall generate logs of all activity.
* The system shall support payment processing.
* The system shall record and present student progress.
* The system shall facilitate instructor feedback.

### 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.)?*

* All pages shall be headed with company logo.
* Pages should be formatted to fit both Desktop and Mobile browsers depending on user’s device.
* Drop down menu and clickable icons for site navigation.
* Student users should be presented with a homepage including objects: Online Test Progress, User Information, Instructor Notes, Special Needs, Instructor Photo, Student Photo.
* IT Admins should be presented with options to view system performance, review system logs, and manage user accounts.
* Office admins should be presented with options to manage scheduling system and manage payment transactions.

### 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?*

* The system assumes that user is familiar with basic computer and mobile operations.
* The system assumes users have internet access and has a browser application installed.
* The system assumes the users’ devices are sophisticated enough to support currently common browsing methods and applications.
* The system assumes users have an established means of making online payments.
* The system assumes students do not already have a driver’s license.

### 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 system is limited in that DriverPass does not have its own in-house development team, so future code-based changes will require coordinating with another development team.
* The system is limited in that hands-on driving experience must still be achieved through in-person driving lessons.
* The system is limited in that official testing must be executed in-person at a State-run DMV facility.
* The system is limited to servicing new student drivers and lacks functionality for advanced defensive driving course or punitive driver retraining courses.
* The system is limited in that it cannot provide service to users in areas that lack adequate internet access.s

### 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.*

Timeline

Description automatically generated