# CS 255 Business Requirements Document Nick Burnette

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 wants to provide students with access to online practice exams, and they want to provide on-the-road training to prepare them for driving tests.
* The purpose of this project is to provide a brief analysis of both process modeling and object modeling as approaches to design a system for DriverPass.

### 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?*

* Client DriverPass wants to improve driver training to address the high failure rate at the DMV.
* Client DriverPass wants the system to allow access to user data from any mobile device online.
* System allows for download of reports and other information to work on at home using standard programs like Word and Excel.
* System needs to be secure for users with different roles. Administrators have greater privileges than Clients, like password resets or blocking account access.
* System must be able to track user activity such as who made a reservation, who canceled a reservation, who modified a reservation, etc. An activity report showing all modifications allows for accountability.
* System allows customers to make and manage their own reservations, either online or via phone call.
* System should be able to identify the driver a customer is scheduled to drive with.
* System should be developed in a modular way to allow change and growth of features over time.
* Integrate with DMV for updates on rules and policies.
* Driverpass needs a system developed with components like a User Interface, a Database, a Security System, an Appointment Scheduler, a Tracking Module, a User Management System.

### 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?*

* Upon completion, the system should provide online classes and practice tests for driver test preparation. Measurable steps include designing on-the-road training sessions and training materials for use by customers and instructors.
* It should allow customers to schedule and modify appointments online. This is measurable with an Appointment Scheduler.
* It should track user actions and changes for accountability. This could be measured through designing logging mechanisms for changes within the system and a reporting system.
* It should enable different rights for the different user roles. Measurable tasks of Developing User Interface include interface for Customers and a different Interface for Administrators.
* It should integrate with the DMV for updates on laws and regulations. Measurable steps could include a communication channel with DMV systems and the development of automated processes to integrate with the DMV.
* It should ensure data security online and offline. A measurable step of implementing encryption protocols will protect user data.
* It should generate activity reports for system use. A measurable step would be an accessible report generated for Administrators, as well as another report available to Customers.

## 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 will run on web-based environments and be accessible via typical browsers like Chrome and Firefox.
* The system will preferably operate on a cloud based system like AWS or Google Cloud for scalability and accessibility.
* The system would allow deployment on devices with local storage capabilites so it can operate offline in a limited capacity.
* The system should have fast response times to ensure smooth user experiences. Web page load times should be less than 3 seconds for most pages. Transaction processing for appointment scheduling should take less than 1 second.
* System will need to be able to support a high volume of simultaneous users, which is supported by the Cloud based system mentioned earlier.
* System should be available almost always with minimal maintenance time or updates. 99.9% uptime with extended periods without experiencing system failures.
* Critical updates should be addressed immediately upon discovery, while regular maintenance can handle minor improvements or small bug-fixes on a weekly basis, scheduled during low use periods.
* Feature releases should be done periodically to scale with user needs and changes to the long-term appearance of apps and websites.

#### 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?*

* DriverPass system will run on the chosen Cloud-Based service.
* A database service will be required in addition to the cloud-based service, such as Amazon RDS or Google Cloud SQL.
* A cloud-based storage system may be necessary if storing photos and videos, such as Amazon S3 or Google Cloud Storage.
* Other needs such as secure data handling and logging services can be handled by the DriverPass application itself, but also may be outsourced for maintainability. Services like AWS Security or Google Cloud Security Command Center free up the developers from being responsible for safe data practices, and Amazon CloudWatch or Google Cloud Monitoring can provide Logging services conveniently.

#### 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?*

* System will maintain and store individual user accounts.
* Each account will be either a customer or an administrator.
* Each account will have a unique user ID that is case sensitive.
* Each account will have an industry standard password.
* The monitoring system chosen will alert administrators immediately of any problem.

#### 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 can be made to any user without changing code through a profile template.
* The system will be developed in a modular way so changes can be made to indivudual modules without affecting the overall codebase.
* IT admin will need access to system logs and user accounts including passwords and userID for customer and admin.

#### 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?*

* Accessing a user account will require industry standard security like a unique ID, a password, and email confirmation.
* After 5 attempts, the user account will submit an error to Admin and be locked until handled by an administrator.
* Data transfer will be secured through HTTPS and 256-bit AES encryption algorithms.
* A user can reset their password by clicking a link that sends a reset confirmation to their email.

### 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 allow users to register for an account with DriverPass.
* The system shall authenticate user access.
* The system will enable enrollment in driving courses.
* The system shall manage course enrollment.
* The system will provide online classes and practice tests to perpare for driving exams.
* The system shall provide interactive and educational materials for the users to study.
* The system shall allow users to schedule driving lessons.
* The system will show users available time slots when booking appointments.
* The system allows users to schedule on-the-road training sessions with DriverPass instructors.
* The system should track training sessions and assign instructors as necessary.
* The system shall allow Administrators the ability to manage user accounts.
* The system shall support different levels of control based on the role of the user.
* The system shall integrate with DMV databases to receive policy updates, providing users access.
* The system shall generate activity reports that track user interactions and usage.
* The system shall implement security measures to protect user data and to protect data transfer.

### 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 users will interact with the online system via a web browser, either mobile or home PC.
* All users need a way to Register and Login to the DriverPass system.
* Users will be either Customers or Administrators.
* Customers will be able to set up their own account, enroll in courses, take online training and practice tests, and schedule appointments
* Administrators will be able to manage other user accounts including adding new or deleting accounts.
* Administrators will be able to create and update training materials and driving courses as needed.
* Administrators will have all features a Customer account has.
* Administrators will have access to reporting tools and analytics.

### 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?*

* Assumptions are that users will have internet access.
* Assumptions are that users have the technological capability of creating online profiles.
* Assumptions are that users are primarily English speaking or English capable.
* Assumptions are that users have devices capable of accessing the system.

### 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?*

* Resources available include Jennifer as Project Lead, Sam as systems analyst, Liam as the DriverPass Owner, Ian as DriverPass IT officer.
* A budget was not determined but assume that it will need to manage all expenses to return a profit.
* Changes in technology during development could create a constraint with compatibility or in additional training needs.
* The time constraint was in development and appeared to be flexible over the course of approximately 16 weeks.

### 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*