# CS 255 Business Requirements Document Template

## 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 our client, DriverPass. The purpose of this project is to build DriverPass a system that allows its customers to access comprehensive driver training through online classes and practice tests, and reserve in-person on-the-road training so that they are better prepared to pass their driving test at the department of motor vehicles (DMV).

### 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 requests a system that allows customers to create accounts online, access online training content, and schedule driving reservations (appointments) over the internet.
* The system must be web-based and limit the technical overhead on DriverPass to run.
* The system needs to enable self-service for customers to make and edit online reservations for driving lessons using their accounts.
* The system needs to enable tracking of reservations and generate reports.
* The system needs to allow access to be distributed and modified by DriverPass based on roles within the organization.
* The system must notify DriverPass when an update is published by the DMV so that content can be updated to reflect the most current and 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?*

* The system will allow DriverPass to:
  + Track customer reservations and identify drivers
  + Generate activity reports that can be printed and/or downloaded for offline viewing
  + Disable a driving package from being purchased
  + Create, modify, and remove access for different roles
* The system will allow the Secretary to make, modify, and cancel customer appointments
* The system will allow Customers to:
  + Create an account
  + Add or update personal and payment information
  + Purchase a driving package
  + Schedule, cancel, and modify on-the-road driving lesson reservations
  + Take online classes and tests
  + Reset password
* The system will include an interface that displays:
  + Online test progress
  + Driver notes
  + Customer information (including Special Needs and photo)
* The system will include a page for contacting DriverPass.
* The system will be connected to the DMV to allow a notification to be sent to DriverPass when changes to current or newly adopted policies, rules, and sample questions occurs.
* The system will be hosted over the cloud and accessed through the web to mitigate the responsibility of backup and security on DriverPass.
* The measurable tasks that are included in the system design to achieve this are:
  + 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?*

* The system needs to run in a cloud-based environment that can be accessed anytime and anywhere through a web browser on both a desktop and mobile.
* The time it takes the system to retrieve a user’s account information from the cloud should not exceed 10 seconds.
* Updates to the system from Microsoft will be automatically pushed weekly and the IT Officer user and Admin user will be notified.
* Updates to the system from the cloud provider will require assistance from the IT Officer user and be pushed on an as-notified basis.
* Updates to the system will be pushed by the IT Officer user whenever the DMV notifies of an update.

#### 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 will run on a virtual server in the cloud using windows operating system.
* The system will require a database to hold sensitive user information and application logic.

#### 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 a driver, customer, and internal user based on their username and password.
  + Internal users consist of the Secretary, IT Officer, and Admin user.
* The system’s input is case-sensitive and will require multi-factor authentication (MFA) to identify the Admin user and IT Officer.
  + MFA will be implemented through SMS or a code generator.
* The system will inform the Admin and IT Officer users of problems immediately when they occur.
  + Problems that require notification include site outages, high traffic requests, and locked accounts.

#### 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 will adapt to changes to the user without changing code.
  + Edits include adding, removing, and modifying a user.
* The system will adapt to weekly updates from Microsoft by automatically downloading and installing them.
* The system will require the IT Officer user to oversee and initialize platform updates released by the cloud provider.
* The IT Officer user will require the ability to perform cloud provider updates and confirm that Microsoft updates executed properly.
* The Admin and IT Officer user will require access to the system to add, remove, and modify an internal user

#### 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 require a user to have a username and password to log in.
* The system will hold a Secure Socket Layer (SSL) certificate issued by a third-party Certificate Authority (CA) to secure the connection and exchange of data between the client and the server.
* The system will use a hash function to authenticate users when they log in with their password and to store sensitive information. (PCI Compliance)
* The system will allow a user 5 attempts to log in before locking their account. A user must wait 24 hours to log in again or reset their password.
* The system will track failed login attempts and locked accounts in a separate report and notify the IT Officer and Admin if there is a “brute force” hacking attempt.
* The system will allow a user to automatically reset their password if they forget it.
* The system will adopt the principle of least privilege to help secure authorization.

### 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 notify the Admin user and IT Officer user of suspicious activity or hacking attempts.
* The system shall track user activity and produce a daily activity report.
* The system shall allow a customer user to create, modify, and cancel their account.
* The system shall allow a customer user to purchase a package.
* The system shall allow a customer user to make, cancel, and modify reservations for driving lessons online using their account.
* The system shall allow a customer user to take online classes.
* The system shall keep track of a customer user’s online test progress and allow the status of a test to change.
* The system shall allow a customer user to reset their password.
* The system shall allow a driver user to enter notes for a customer user
* The system shall notify a driver user of a new reservation.
* The system shall allow the secretary user to make, modify, and cancel reservations for a customer user.
* The system shall allow the Admin and IT Officer user to reset, create, and modify an internal account and block user access.
* The system shall allow a package to be disabled.
* The system shall track driving reservations.
* The system shall perform automatic weekly Microsoft updates.
* The system shall connect to the DMV to notify when changes to or new rules, policies, and sample questions are made.

### 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 needs to consist of multiple web pages that are accessible through web browsers on desktop and mobile.
* The interface needs a login page that accepts username and password as input and displays links for creating a new account and resetting a password.
* The interface needs a registration page that takes customer information as input to create and modify an account. It also allows for an account to be canceled.
* The interface needs an account dashboard page for each type of user: Customer, Driver, Secretary, IT Officer, and Admin.
* The interface needs a page that displays packages offered by DriverPass and a page to collect payment.
* The interface needs a page that allows a customer user to make a reservation (driving appointment).
* The interface needs an online class page that includes content/material and practice tests.
* The interface needs a page to allow the Secretary user to create customer accounts and schedule reservations.
* The interface needs a contact page that lets customers contact DriverPass.
* The interface needs a reporting page that allows the Admin to be print, download, and modify reports.
* The interface needs a schedule page that tracks reservations.
* The interface needs a reset password page.
* The interface needs a message inbox page that allows DriverPass to respond to customer user inquiries.
* A customer user dashboard page will display:
  + Online test information progress (information and status)
  + Customer Information
  + Special Needs
  + Driver and student photos
  + Driver comments with times of lessons
* The interface needs to consistently display the DriverPass logo.

### 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 dashboard interface for each type of user will be different and allow for different functionality.
  + A driver user can update notes for a customer user through their own dashboard.
* The pick-up and drop-off locations for a reservation require one input field since they need to be the same.
* Driver account registration is a function able to be performed by the Secretary.
* The secretary uploads photos for students and drivers.
* The online class page will consist of multiple pages including one for a message inbox.
* DriverPass will have one inbox page for inquiries.
* Customers and Drivers have access to the internet.
* The IT Officer is responsible for disabling a package per request of Admin.
* MFA is required to log into Admin and It Officer user accounts.
* The cloud provider will maintain physical and cyber security of infrastructure.

### 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 not accessible and will not function without internet.
* The interface for the system may take longer than expected to build because of unaccounted web pages that need to be created to satisfy the needs of DriverPass which could also result in an increased budget.
* The system may create vendor lock-in with the cloud provider.
* Updates from the cloud provider may take the system offline.
* Current team member on vacation until March 1st.

### 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.*

