# CS 255 Business Requirements Document Template

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## 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, a private drivers education company
* Many new drivers are failing their driving tests. DriversPass would like to gain customers and ensure their success by providing driving lessons in-car, in the classroom, and online. Practice tests for their students will help participants pass on their first attempt.
* System will allow DriverPass students to manage their reservations and track progress online. DriverPass employees will also be able to manage these reservations for customers who register by phone or online.

### 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 would like a cloud based reservation system for lesson scheduling and student profiles
* Reservation system - self scheduling by users online, or by secretary over phone or in person
  + Assign a car, driver, lesson time, pickup/dropoff location
  + Different tiers of lesson packages available
* Student profiles
  + Register with username, password. Ability to reset lost passwords.
  + Customer information (name, address, phone, payment info, etc)
  + Online test progress (test taken, time taken, score, status: not taken/in progress/passed/failed)
  + Driver notes (lesson time, start hour, end hour, driver comments)
* Online lessons and practice tests
* Admin features
  + Privilege to add/update/remove all accounts, reset passwords
  + View reservation details (date created, created by, last modified)
  + Print activity report
  + Disable lesson packages available for purchase
* Alerts when DMV rules and regulations are updated

### 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?*

* Reservation scheduling
  + Set of reservation packages
    - Pack 1: 6 Hours of in car with instructor
    - Pack 2: 8 Hours of in car with instructor + In classroom lesson
    - Pack 3: 12 Hours of in car with instructor + In classroom lesson + online content
  + Assign car, driver, time slot, pickup/dropoff location
  + Each reservation contains tracking info (Date created, created by, last modified)
* Different level user accounts
  + Admin account
    - Manages all accounts
    - Enable/disable lesson packages available for purchase
    - Activity reports and full reservation details and tracking
  + Employee accounts
    - IT Officer account for system maintenance
    - Secretary account for reservation maintenance
  + Student accounts
    - Register account online, reset password
    - Self-schedule lessons
    - Profile with test and lesson progress, driver notes
* Online lessons and practice tests
  + Progress is tracked and synced to user profile

## 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 platform should be web-based. This way students are able to sign up for lessons at any hour of the day, from their own devices. If the student purchases the package that includes online material, they should also be able to access this material from their personal devices. The secretary can access the same web-based application from the office using their account with specialized employee level permissions to assist customers who call in to sign up or change their accounts.
* The main system should operate at a speed that is able to handle a large number of users at once at normal broadband internet connection speeds. The user profile and lesson signup portions of the website are not very resource intensive, so this should not be hard to accommodate. The online lesson materials should also exceed the student’s internet connection data transfer rates, even if these are HD streaming videos. An option for lower definition streaming resources should be available for students who are accessing the material from a slower connection.
* The system should be updated whenever the DMV updates their practice materials or issues new guidelines for drivers. The system may also be updated when the business owner would like to change or add packages of lessons that are available for purchase by students.

#### 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 web-based application could run on a Windows based server or a Linux based server. It should be designed to be accessed by recent releases of popular web browsers such as Google Chrome, Mozilla Firefox, Apple Safari, or Microsoft Edge.
* A database for customer and employee profile information will be required.
* A database could be used for the online learning materials and practice tests, depending on the interactivity of these resources.

#### 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?*

* Users will access the system by using their email address and password. The email address does not require case sensitivity, whereas the password field does. If an email address has already been associated with an account, it will not be possible to register a second account with it. A unique key could be generated and assigned to the account upon signup for the backend of the system to utilize.

#### 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 should be designed to allow making changes to a user. Add/remove/modify are part of the basic functionalities of the system and should be included from the initial release. The system may be updated by the developers in the future, but these changes should not interfere with the system as it currently exists.
* The IT admin should have significant access and ability to add, modify or delete accounts, and possibly reverse changes made by employees with less privilege in the system. They should also have access to logs within the system that document details about every change that is made.

#### 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 must enter their email address and case sensitive password to log in. When transmitting sensitive information such as login credentials between the client and the server, encryption should be used to obscure the data and protect it from being intercepted and compromised.
* If a user tries to log in several times unsuccessfully, their account should be locked for a period of time to help prevent a brute force attack from being able to identify working account credentials.
* If a user forgets their password, they should be able to request to reset their password. An email would be sent to their email address associated with the account with a link to reset the password. In this way, only a user with access to that email account would be able to reset the account password.

### 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 and create a new account.
* The system shall validate user credentials when logging in to an account that has already been registered.
* The system shall allow users to reset a forgotten password.
* The system shall display user profile information such as name and address.
* The system shall display online classes and learning content to qualifying users.
* The system shall allow qualified users to take practice tests.
* The system shall save and display online test practice results.
* The system shall display drivers notes.
* The system shall display special needs.
* The system shall display student and driver instructor photos.
* The system shall allow a student to purchase different packages of lessons.
* The system shall allow a student to schedule in car driving lessons.
* The system shall track changes made to reservations for employee reference.
* The system shall alert administrators of any changes made by the DMV.

### 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.)?*

* There are at least 4 different categories of users that must each have their respective interface.
* Customers
  + Register an account, upload photo, view profile
  + Pay for lesson packages and schedule or change reservation for in car lessons
  + View online classes and take practice tests
  + Reset password
* Secretary
  + Register new student accounts by taking information by phone
  + Input payment information on behalf of student
  + Schedule or change in car lessons
  + Reset password
* Driver
  + Register account, input profile information, upload photo
  + View upcoming reservations for in car lessons including student name and pickup location
  + Input driver notes for student after each in car lesson
  + Reset password
* Admin
  + Full access for add/modify/remove user accounts including resetting passwords
  + View logs for all changes made to reservations, including employee who made change and timestamp when the change took place
  + Disable or reenable certain lesson packages as needed
* The interface should be responsive and automatically adjust to display properly on all screen resolutions. It should be intuitive for both desktop/laptop computers, tablets, and smaller mobile devices.

### 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?*

* A third party will handle payment transactions. The system will just receive confirmation that payment has been processed successfully.
* Students will have adequate bandwidth rates and limits to access the online class materials, including streaming video.
* It is assumed that students will have reasonably updated web browsers (i.e. releases within the last 5 years) to access the learning platform.

### 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?*

* Users will need reliable internet access to interact with the web application.
* The schedule for this project is approximately 4 months.
* It will only be possible to enable or disable lesson packages that are being offered. Upon the initial release, it will not be possible to add additional packages.

### 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.*

