# 5-2 Project One Business Requirements Document

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CS-255

# CS 255 Business Requirements Document Template

## System Components and Design

### Purpose

* Build software and network facilities to provide DriverPass – the client, the capability to provide online training, scheduling, and preparation that allows the end user to pass driver test taken at the Division of Motor Vehicle or DMV.
* Software should be web/cloud based and allow the Client to administer the product.
* Software should allow the end user to schedule lessons, take practice tests, monitor progress, and more.

### System Background

* The system should allow the client and its end users to form a partnership where the client provides the user access to information, tests, and lessons to help the end user pass driver exams.
* By allowing scheduling both online and via the phone the Client will be able to administer end user progress while generating revenue for the company and allowing the end user a structured approach to practicing and ultimately passing driver exams.
* The Client is seeking a cloud-based solution.
* The Client will require a Font end GUI for end-user and client-administrator access.
* The Client will require a backend that servers the Front-end interfaces with a more than one data base interface.

### Objectives and Goals

**The System should allow the Client to:**

* Access data online from any computer or mobile device.
* Variable access rights depending on rank and role of employee.
* Log operations performed by its employees, such as making a change to a record or make a reservation.
* Make reservations for its end users.
* Allow employees to register End-User.
* Add or modify End-User Records. Such as Name, Address, etc.
* Schedule and track bookings of inventory of cars and trainers.
* Allow downloading of reports for offline viewing of data.

**The System should allow the End User to:**

* Make, modify, and cancel appointment online lessons. System will accommodate appointments in two-hour blocks – the time it takes for a lesson.
* Purchase and select between three packages:
* Package One: Six hours in a car with a trainer
* Package Two: Eight hours in a car with a trainer and an in-person lesson where we explain the DMV rules and policies
* Package Three: Twelve hours in a car with a trainer, an in-person lesson where we explain the DMV rules and policies—plus access to our online class with all the content and material. The online class also includes practice tests.
* Schedule appointments over the internet.
* Reset or modify password and login information.
* Monitor, track and take tests online. While allowing the End-user to monitor progress.

## Requirements

### Nonfunctional Requirements

#### Performance Requirements

* Customer requires a cloud-based web application to access data and to serve a specific front-end design via a webpage to the customer.
* Cloud platforms allow the ability to scale this operation to dynamically serve the client’s customer based on the generated traffic. Therefore, the performance of the system is less of a concern. However, an initial idea of the expected amount of traffic will be helpful in the determination of the starting specifications. Therefore, expected traffic based on advertisement reach, beta user lists, and customer registrations would be useful metrics in this sort of planning.

#### Platform Constraints

* The system needs to be cloud-based and accessible via a web browser.
* The cloud platform will need to support databases and the appropriate schemas for customer login authentication.
* The system needs to securely hold customer profile information. Therefore, support for a relational database would be ideal in this situation.
* For serving user data that will be displayed to users such as lesson and test progress, appointments, and instructor information a NoSQL option supported by the cloud platform will be favorable.

#### Accuracy and Precision

* All accounts will have a user type which can be Administrator, IT Administrator, Teacher or User.
* Information that is displayed on the front end will be dependent on the user type.
* Logins will require password protection and use the cloud platform-supported encryption types such as DES, AES, or RSA.

#### Adaptability

* Users will need to add, remove, or modify appointments.
* Teachers will need to add Lesson Time, Start and End Hours, and comments to user accounts based on lessons given.
* Needs to serve a web page in the form of the provided customer design/wireframe.
  + Should display online test the customer is working on/completed.
  + Should show the progress of the test via a status display
    - Can be *not taken, in progress, failed, or passed.*
  + Driver notes should be added and need to display:
    - Lesson time, Start hour, End Hour, and comments.

#### Security

* System needs to allow proper operation and security measured that are dependent on four user types:
  + Boss account – which allows for full access to all information held on the system.
  + Admin – Allows for user administration and account administration.
  + Teacher – Allows access for editing Lesson information on a user’s profile.
  + User account - for use by the customer and secretaries who need to add customer accounts process payments and schedule lessons.
* The back end needs to support all databases and serve an appropriate front end for the specific user type accessing the system.
* The front end needs to interface with the appropriate databases for displaying authenticated and non-authenticated information
* Front end and back end need to communicate for Password reset.
* The system needs to be able to respond to brute-force attacks based on the frequency of incoming requests. The system needs to notify admins during high-traffic periods or in cases where low traffic is normally expected but is unexpectedly high. The system needs to shut down and go into a high-protection mode automatically when a compromise is detected. These detections can be implemented by detecting repetitive requests for instance abnormal registrations. Bot detection sporadic requests from differing locations. Etc.

### Functional Requirements

* Customer should be able to log in to the system and access data from anywhere online. Should be able to download information for offline analysis.
* System shall track all activities for Boss, Admin, teacher, and user accounts. These activities should be accessible to a Boss or Admin for via an activity report. Each activity should be tied to the appropriate account.
* System shall support users by allowing them to:
  + Schedule lessons in two-hour increments.
  + Allow for online scheduling of lessons.
  + Allow client employees to schedule lessons via phone for the customer.
  + Identify the teacher who will work with the customer.
* System shall allow the customer to create an account via registration. The information needed will be:
  + First and Last Name.
  + Address.
  + State.
  + Phone Number.
  + Credit Card.
  + Expiration Date.
  + Security code.
  + Pickup and drop off location.
* Appropriate input should be provided to Customers or Client employees who will populate the fields for the above information.
* System will need to interface with an external DMV server for content updates and notifications.

### User Interface

* For Customers a GUI needs to display the following.
  + Customer logo on the page header.
  + Test progress information.
  + Customer information.
  + Driver notes.
  + Special needs.
  + Driver photos
  + Student photos.
* A similar interface is required for employee access and populate this information when customers call via phone.
* An interface for bosses and Admins will need to be developed and allow for elevated privileges.
* An interface for teachers to provide Lesson time, start and end hour and comments on customers will also be required.

### 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?*

* There is no specificity on GUI designs for Admins, Teachers, and employees.
* The access for employees and customers is assumed to be the same.
* Very little information is provided for backend operation therefore back-end specifics are assumed such as database types and backend security.
* Some of the timelines seem tight.
* No mention of cost and budget.

### 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 needs to be cloud-based and accessible via a web browser is a requirement which limits the design to a certain number of programming languages and in turn developer types who can do the job.
* Information on the design is limited and a lot is assumed about it, especially when considering Boss, Admin, and employee access.
* Cost and budget should be something mentioned upfront or very soon after the intention is communicated. Without solid mention of budget and cost effort should be limited.

### Gantt Chart

