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3 April 2024

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CS-255-R4790 System Analysis and Design

# CS 255 Business Requirements Document

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

* Liam, the owner of DriverPass, is hoping to take advantage of a void in the market when it comes to training students for the driving test at their local department of motor vehicles (DMV).
* Liam wants his customers to be able to take online classes and practice tests. Liam’s company will also provide them with on-the-road training if they wish.

### System Background

* The system data needs to be accessed from anywhere, online as well as offline.
* DriverPass wants to access data online from any computer or mobile device. The ability to download reports and some information that can be worked on at home, using Excel, for example.
* Different levels of access for different Employees. For example, Liam needs access to all the information so Liam can reset passwords for employees if they forget their password, or if an employee is fired, Liam needs to be able to block their access.
* DriverPass needs to have an accurate record of who made a reservation, who canceled it, and who modified it last. All this must be clear in case something goes wrong. DriverPass also wants to be able to print an activity report and figure out who is responsible.
* Customers need to be able to make reservations for driving lessons. Each lesson is two hours long, and the customer should be able to choose the day, time, and when they want to take that lesson. They should be able to make this reservation online using their account. Or they could call or visit a DriverPass office to schedule an appointment.
* DriverPass needs to be able to track which user is matched up with a certain driver, time, and car.
* The customer needs to be able to make appointments, cancel, and modify appointments online if they wish.
* Customers need to be able to choose from 3 packages.
* Each driving session is two hours long. For example, in Package One the six hours would be spread over three separate sessions.
* The ability to disable a package if DriverPass doesn’t want any more customers to register for it.
* Users register through providing information: first name, last name, address, phone number, state, and their credit card number, expiration date, and security code. Include pickup and drop-off location.
* The ability to automatically reset passwords.
* DriverPass needs to be connected to the DMV and receive notifications in case any new updates can be provided for new rules, policies, or sample questions.
* Web interface needs to run off cloud and include online test progress. Shows what customer is in process and what is completed.

### Objectives and Goals

* Customer needs to be able to change, modify, and cancel appointments.
* Customers need to be able to choose from 3 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.
* Each lesson is two hours long, and the customer should be able to choose the day, time, and when they want to take that lesson.
* The web interface will show online progress of customer progress. Includes name, time taken, score, and status.
* Different levels of access include the owner Liam, IT Officer Ian, and the secretary.
  + The owner has access to all data of DriverPass.
  + Ian has full access to accounts, maintaining and modifying systems.
  + Secretary makes appointments.

## 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 LMS should be capable of handling large numbers of concurrent users without compromising speed or reliability. Scalability ensures seamless access and functionality during peak usage periods.
* The system should be updated frequently(weekly) to make all content is up to date and any bug reports need to be fixed promptly. However, any changes int he DMV guideline is grounds for an immediate update. This will ensure that everyone using the systems is informed with the right information on DriverPass.
* The system will run on the world wide web.

#### 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 should be able to run on all web browsers such as Microsoft Edge, Google Chrome, and Mozilla Firefox.
* The application requires a database to store information and keep a reliable and stable record.

#### 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?*

* Each user will have their own unique ID with their personal email, profile, and account.
* The inputs will be cases sensitive to bolster security.
* The system should only inform the admin of a problem when a user enters the wrong information more than 3 times.

#### 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 admin and owner are given access to freely add, remove, and modify users that have an account without changing the code.
* The system can be updated with small changes through IT or bigger changes through programmers.
* IT admin would need access to all user accounts to remove clients that dropped out or employees that are not with DriverPass anymore.

#### 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 will require to register their email and set a username and password to log in.
* Users will also require having a device that is able to connect to the internet such as a computer system, or mobile device.
* Implement encryption protocols, data masking techniques, and secure data storage practices to protect sensitive information.
* Brute force hacking attempts will be stopped at the 3rd wrong input with account lockout and CAPTCHA as security measures to stop it.
* Users that forget their password may get a password reset link through their email with a time limitation and security questions to verify their identity before allowing them to reset their 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.”*

* Include analytical tools to track student progress, participation rates, and performance trends. Generate customizable reports for instructors and administrators to make data-driven decisions.
* Students will have easy access to school events and the ability to plan out their schedule for programs, classes, and events.

### 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.)?*

* **User-Friendly Navigation**: The interface should be intuitive and easy to navigate, allowing users to find the information they need quickly.
* **Interactive Learning Tools**: Incorporate interactive elements such as quizzes, videos, and simulations to engage users and enhance learning.
* **Accessibility**: Ensure the interface is accessible to all users, including those with disabilities, by adhering to accessibility standards.
* **Progress Tracking**: Provide features for users to track their progress through the course, including completed modules, quizzes, and overall completion percentage.
* **Support Resources**: Offer access to support resources such as FAQs, help guides, and customer support channels to assist users with any issues they encounter.
* The different users are the Admins, Devs of DriverPass, and New Drivers. The users will be able to interact with the interface through online web browsers and mobile apps.

### 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?*

* Reliable Internet and Compatible Devices.
* Faculty members know how to utilize LMS effectively.

### 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 initial implementation of the LMS system may require a significant number of resources for development, customization, and training.
* LMS design and functionality may evolve over time based on user feedback and technological advancements.

### Gantt Chart

*Please include a screenshot of the GANTT chart that you created with Lucid chart. Be sure to check that it meets the plan described by the characters in the interview.*

A close-up of a gantt chart

Description automatically generated