**5-2 Project One Submission**

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CS 255: System Analysis and Design

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February 18, 2024

## CS 255 Business Requirements Document

## 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?*

* DriverPass is a driving school that would like a system for drivers’ education.
* The purpose of the DriverPass system is to provide scheduling services for in-person driving lessons and tracking for online practice tests.

### 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 addresses the problem of many people failing their driving tests at the DMV.
* The client wants a web-based system with an interface that includes features such as: online test progress, driver notes, user information, special needs, and photos of both the instructor and student.
* Each component would have separate distinct pages. These components consist of inputting forms, contacting, scheduling, and registering for service packages.

### 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 main objectives of this system are purchasing packages, reserving appointments, tracking tests, and inputting forms.
* These objectives can be achieved by successfully completing features for: online purchasing by credit card, access to purchased packages, calendar pop-ups for scheduling, list of both past and future appointments in the driver’s notes, online test progress including both score and status, contact pages, and student information input forms.
* Additional tasks pertaining to administration include implementing high-level accounts that will be able manage: users’ status, driver data, DMV policy updates, vehicle history, and system activity logs. Company agents should be able to handle purchasing, registration, and scheduling for any user— if they so choose.
* Each task could be completed with dummy data and tested for correctness within both a users’ and administrators’ profiles.

## 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 shall run in a web-based environment.
* The system shall provide a smooth user experience with fast loading times.
* The system shall be updated with every new change to DMV rules, policies, or sample questions.

#### 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 shall use a cloud hosting provider to host the system. A Linux distribution would be a preferred architecture.
* The system shall use a relational database, such as MySQL, to store customer and driver data. Cloud hosting providers offer many integrated tools for tasks such as database storage.
* The system shall support common web browsers such as Firefox, Chrome, Safari, and Edge.

#### 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 shall support user created accounts with unique usernames, emails, and passwords.
* The system shall use case sensitive inputs for password fields.
* The system shall inform the administrator account when an employee user requests a password reset.

#### 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 shall support the disabling of packages offered to users.
* The system shall allow for changes to user accounts through self-service online or through a secretary account.
* The system shall be flexible and provide minimal technical problems.
* The system shall provide high-level access to the IT admin to both maintain and modify the system.

#### 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 shall require the user to have a stable internet connection to log in to the web application.
* The system shall use a client-server architecture, implementing a RESTful API. Communication between the client and server takes place over an HTTPS connection and provides security with SSL certificates, authentication, hashing and input validation.
* The system shall suspend a user account after a set number of unsuccessful login attempts, and require a manual password reset by email.
* The system shall allow the user to automatically reset their password if forgotten.

### 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 sign in with a username and password.
* The system shall keep a log of both user and total system activity to generate reports when requested by an administrator.
* The system shall provide several options of accounts with varying levels of access including user, driver secretary, IT, and owner.
* The system shall provide authority to the owners’ account, with full access to all other accounts, to reset passwords and block access.
* The system shall allow users to purchase packages and schedule appointments­—either online or by phone with the secretary.
* The system shall track each user and their appointment: including the driver, car, and time.
* The system shall require the following customer information: first name, last name, address, phone number, pickup location, drop-off location, and credit card.

### 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 shall be accessible from common web-browsers, and cross-platform compatible.
* Client devices supported should include mobile, tablet, and desktop. Operating systems such as Android, iOS, iPadOS, MacOS, Windows, and Linux should also be considered.
* Both customers and higher-level accounts will use this interface.
* Customers need to access a variety of features, such as: monitoring their online test progress, viewing their driver notes and lesson times, inputting personal information forms, contacting a company representative, purchasing packages, and scheduling lessons.
* Secretary accounts need to be able to: input user forms, process transactions, register packages, and schedule appointments.
* Drivers need to be able to view appointment details such as: student name, special needs, pick-up location, drop-off location, date, time, start hour, end hour, and car assigned. They should also be able to input driver comments.
* The IT account needs to be able to maintain the system. This may include access to stored customer information, appointments, and pricing packages.
* The Owner should have an administrator account with access to all other accounts. This account should be able to manually reset passwords, disable access, and generate activity log reports on the system.

### 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?*

* It is assumed that all users have access to a stable internet connection.
* It is assumed that customers have a personal email, home address, and credit card.
* It is assumed that customers have a learners permit on file before scheduling in-person lessons with a driver.

### 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 will not be able to make any changes offline without an internet connection.
* The system must comply with local data protection laws.
* The system must be user friendly due to a lack of a technical expertise. It should be easily maintainable with cloud solutions for backup and security.
* The system modules are not easily modifiable by a non-developer. Addition and subtraction of modules is currently unavailable in the current system. Disabling of packages is allowed.

### 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.*

