**CS 255 DriverPass Business Requirements**

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**CS 255: System Analysis and Design**

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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?*

* The client for this project is DriverPass: a driver training company.
* DriverPass would like us to develop a system with a front-end which allows students to sign up for online classes and on-the-road lessons and track their training progress, and a back-end which allows the company to view and update important data.
* The purpose of this system is to provide an easy streamlined way for the business to interact with it's students/customers.

**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 has identified a void in the market in terms of student driver training. Many students fail their DMV tests due to a lack of adequate training. DriverPass aims to provide the training that fill this void.
* The system should streamline the student driver training process so that it is as easy and intuitive as possible for students to interact with the business and track their training progress.

**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?*

* DriverPass would like students to be able to sign up for classes or driving lessons over the phone, in-person, or online.
* Students should be able to select one of the three lesson packages when signing up.
* Students and employees should be able to view the times and dates of the lessons students have scheduled, who the instructor will be for any lesson, and which car that instructor and student will be driving.
* The system should track any changes a student makes (such as making reservations, cancelling reservations) and those changes should be visible from the back-end.
* Students should be able to see their testing/training progress as well as driving lesson progress and any notes the driver left for them during their lesson.
* The system should be accessible from anywhere online and from any computer or mobile device.
* Security for the system should be role-based.
* Any changes to DMV rules, policies, or sample questions should prompt a notification to both students and the company.
* The system should be cloud-based.
* Students should be able to upload a photo to use as a profile picture.

**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 DriverPass system system should be accessible from any computer or mobile device.
* The system should be able to be accessed from any popular web browser.
* This system should be web-based a so that it can be accessed using an http request.
* Page load time should be under two seconds for all pages including the landing page.
* The system front-end should be built using dynamically templated html so that it can automatically update lesson times, dates, user progress, etc. and display these updates on the user's dashboard when the back end database receives an update pertaining to that specific user.
* The system should be constructed with a mobile-first approach so that it is responsive to various screen resolutions.

**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 back end will require a database which stores information on drivers, instructors, student progress, lesson times, etc.
* The system should utilize cloud hosting so that DriverPass do not have to invest in a physical server or have to monitor a physical server and only have to pay for what resources they need.

**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?*

* Usernames and passwords should be case sensitive in order to bolster security against brute force attacks.
* The system should consult the databse before confirming a user's username input and prompt them to create a different one if that username has already been taken.
* If a user has attempted login more than 5 consecutive times admins should be alerted to that particular user.

**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?*

* Both the users and admins should be able to make changes to user accounts without touching the actual code. These changes would be made via a UI and then saved to the database. The changes (depending on what they are) should then present via dynamically templated html pages.
* The system will be cloud-hosted and so any updates will be automated and create minimal disruption to users.
* It admins need access to the database and the ability to make direct changes.

**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 should have to log in to the system using their username and password.
* A user's password must include capital and lowercase letters, at least one number, at least one special character, be at least 8 characters in length, and not include any common dictionary words
* Password recovery should be available through either a series of three security questions a user sets for themselves, or a recovery email.
* The user's account should lock in the event there are over 5 attempts at login.

**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 create a username and password
* The system shall validate user credentials when logging in
* The system shall lock users out after 5 consecutive login attempts
* The system shall provide a password recovery option
* The system shall allow administrators to view and manipulate the database data
* The system will notify all users of any changes to DMV policy updates
* The system shall allow students to choose from one of three plans
* The system shall update the database based on user input
* The system should display to users their test statistics
* The system should display to users any lesson times for upcoming lessons, the driver the student will be working with, the car they will be driving, and any driver notes from past lessons
* The system should allow the user to upload a profile photo
* The system should allow the user to input any special needs the user would like to disclose to their instructor
* The system shall allow users to schedule and cancel lessons

**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 user will interact with the system via any popular browser
* The UI will need to be designed with a mobile-first approach so that it is legible on any device
* Users will need to be able to login via username and password fields
* Users will need to be able to schedule lessons via the UI
* Users will need to be able to edit their profiles
* Users will need to be able to select a driving package
* Users will need to be able to pay via the UI
* Users will be split into standard users and admins
* Admins will have an expanded UI with more options upon login
* Admins will need to be able to manipulate user information via the UI

**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 user has access to the internet
* The user is technologically literate to a point

**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?*

* DriverPass, like any business, has a budget that we must work within
* The system must be delivered within ~ 4 months
* DriverPass has limited resources to hire new staff to maintain the system

**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.*

