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# 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?*

* The client for this project is DriverPass, a company whose focus is on helping students prepare for and pass their DMV driving tests.
* The purpose of the project is to create a system which allows students to schedule time with a driving instructor, study with online classes, and take online practice tests, all while getting feedback on their progress.
* In addition to this, the system should allow DriverPass to track results and generate reports to download and be used with other programs such as Excel.

### 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?*

* Per Liam, the owner of DriverPass, they are attempting to reduce the number of people who fail their driving test at the DMV.
* DriverPass wants the system to allow students to schedule appointments with driving instructors for certain timeframes depending on the packages they purchase and be able to do so by either calling on the phone and speaking with DriverPass or doing so online through their website.
* Students who purchase package three should also be able to access online classes and practice tests.
* The site should allow students to get feedback from their driving instructors and show the student’s progress on recent practice tests.
* Components needed for this system are a database to hold student information, a website with all associated coding / API to display the system as provided by the interview sketch, different security levels for various users of the system, and a cloud server solution with automatic backup and security.

### 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?*

* Data access should be available online, with the ability to download reports and information for use with other software such as Excel.
* High-level users should be able to generate activity reports to track use of the system by any user (ex. students, secretary, admins, etc.).
* There must be a reservation system to book lessons in two-hour durations. Information gathered for this purpose should include the date, time, driving instructor, student first and last name, address, phone number, state, credit card number, expiration date, security code, and pick-up / drop-off location (which should be at the same place).
* Initially there should be three different packages available to be purchased by the student. Package one includes six hours in a car with a trainer. Package two is eight hours in a car with a trainer and an in-person lesson explaining DMV rules and policies. Package three is twelve hours in a car with a trainer, the in-person lesson, and access to the online class with all content and material / practice tests.
* The system should have the ability to disable packages once a package is sold out.
* Students should be able to automatically reset their passwords as needed.
* A notification should be received by DriverPass whenever the DMV updates their rules, policies, or sample questions.
* The system should be accessed through the web and hosted on the cloud with backups / security already taken care of (DriverPass does not want to have to handle this).
* The system should display information on their website in the same format as the sample DriverPass provided in the interview. Per the sample, information should be displayed with boxes arranged on the web page, each including various pieces of information about the student, their progress, and feedback from their driving instructor.

## 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 should be web-based.
* The system should be hosted on the cloud.
* Web pages should be returned to users within a 5 second window of a request, assuming the user’s connection speed is able to handle this.
* System updates will depend on DriverPass’ needs moving forward.

#### 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 run on any platforms with access to a web-browser, including Windows, Mac, Linux, Android, and iPhone.
* The system will require a database to hold user information, class information, reservations, and data reports including an activity log.

#### 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 should have a unique username which is case sensitive.
* The admin should be alerted of a problem either when a user submits a help request, which may include a request for a password reset after three incorrect login attempts, or other technical issues a user may come across and manually submit. Requests should include a user’s contact information for the admin’s response.

#### 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 student or authorized DriverPass employees (such as the secretary) should be able to update the user’s profile with first name, last name, address, city, state, zip, phone, email, and payment information.
* As the system will be hosted on the cloud, updates should happen over the air and be implemented after a backup of the system has taken place.
* IT should have the ability to maintain and modify the system with access to certain abilities restricted to certain levels of IT. As an example, Ian, the IT officer of the company, should have access to all accounts with the ability to reset their passwords, or remove employees and block their access when they are let go.

#### 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?*

* For a user to login, they should supply their username and password.
* The connection to the website should use HTTPS encryption to protect user information.
* If a user incorrectly guesses their password three times, the account is locked and requires the user to contact IT through their email for a reset.
* If the user is unable to remember their password prior to their account being locked, they may use a password reset feature which automatically sends a password reset to their email address.

### 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 validate user credentials at login.
* The system shall allow users to book lessons in two-hour increments. Information collected by the system should include student name, address, phone number, state, credit card number, expiration date, security code, and pick-up / drop-off location (which must be the same).
* The system shall provide a calendar showing driver availability when a user attempts to book a lesson.
* The system shall not allow double-booking of the same driver / time by multiple students.
* The system shall track car use by drivers providing lessons, and prevent double-booking a specific car.
* The system shall provide three different packages for purchase by the student, disabling packages as they sell out. Each package provided should include an explanation of the hours of training the student will receive, and information on the online content provided if the student purchases package three.
* The system shall provide the ability to automatically reset passwords for users as needed.
* The system shall have a nightly backup to the cloud service being utilized.
* The system shall be secure from threats, based on security provided the cloud service.
* The system shall provide student users with a profile including their personal information, recent online test progress, and driver notes showing lesson time, start hour, end hour, and driver comments.
* The system shall provide online lessons to students who have purchased the appropriate package.
* The system shall track use of the system by various users and save this activity in a report.
* The system shall allow authorized administrators to download activity reports of users, as well as other data reports to be used in Excel.
* The system shall provide a notification to selected DriverPass staff whenever the DMV updates their rules, policies, or sample questions.
* The system shall allow drivers and authorized users to update driver availability.

### 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 should run within a web browser.
* Users included in the system are students, administrators, IT, drivers, and DriverPass staff such as the secretary.
* All access to the site should be done using an API, with most of the work done server side.
* Users should be able to access the website and navigate using either a mouse and keyboard or mobile phone touch screen.
* Student users should be able to sign up for packages, update their personal information, list special needs, review feedback, upload their picture, review online course material (if paid for), book driving sessions, and review driver notes for their most recent lesson.
* Authorized DriverPass staff, particularly the secretary, should be able to perform the student’s actions listed above for student users.
* Administrators should be able to access back-end controls through an admin page, particularly to view activity reports and alter or remove user accounts as needed.
* User profiles should display online test progress, user information, driver notes, any special needs, a photo of their booked driver, and the student’s picture if uploaded, per the interview with DriverPass.

### 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?*

* Students will use their own devices to access the DriverPass website or otherwise call DriverPass to schedule an appointment through the secretary.
* All online learning content will be provided by DriverPass for students who purchase package three.

### 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?*

* Any loss of connection to the internet will result in the system not operating.
* The system will be developed according to DriverPass’ budget and requirements.
* The system will not provide the ability for non-developers to add or remove modules.

### 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.*

Chart, timeline

Description automatically generated