3/9/2022

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**CS 255 Business Requirements Document Template**

System Analysis and Design

# CS 255 Business Requirements Document Template

## System Components and Design

### Purpose

* The client is DriverPass and in the interview transcript, DriverPass is represented by the owner Liam and the IT specialist Ian.
* The purpose of this project is to design an online system for DriverPass’s driver education program.
* According to the transcript Liam would like a system that provides online classes and practice testing, with the added option of scheduling on-the road training.
* This system is meant to help the vast number of drivers who fail their driving test, up to 65% fail.

### System Background

* DriverPass would like the system to be accessible remotely, allowing the ability to download reports and spreadsheets.
* The system that DriverPass is looking for must fill the void currently present in the driver education program. According to the transcript Liam states that, “I noticed that there is a need for better driver training. So many people fail their driving tests at the DMV”.
* The different components for this system are the various actors associated with the system’s functionality like the customers using the system. Another component of the system is the storage and databases linked to the system in this case the DMV’s database. The various processes that this system will have included within itself like user verification, authentication and so on. Last component for the system is the various output devices that the system can be accessed on, the different platforms that are available.
* Cloud-based system

### Objectives and Goals

* After completion, the system should be fully online, remotely accessible, secure and linked to the DMV database.
* Customers should be able to access the system and schedule appointments as they need to.
* DMV compliance and updates should be automatically set to the always keep the system compliant with DMV regulations.
* Administrative functions should be set in place with varying user level authentication for access to the system.
* Ultimately, DriverPass clients should show a higher passing rate than clients that go to the DMV without DriverPass services.

## Requirements

### Nonfunctional Requirements

#### Performance Requirements

* The system will be developed for web-based and mobile application environments.
* Every system designed today is designed for both web and mobile web usage because of the vast number of mobile devices that have web capabilities (smartphones).
* DriverPass would like a cloud based system to handle backups and storage.
* The system should be fast enough to handle heavy traffic simultaneously from different IP addresses.
* Updating the system should happen monthly or as required by the DMV to stay compliant.
* The system must be a multi-user system. Enabling multiple users to be on the system at the same time from different locations and devices should be a requirement.

#### Platform Constraints

* In deciding which platform, the system should run on will require DriverPass to determine what platform they would like. Different requirements are needed to meet certain platform specifications. A case in point, “ determining which platforms to build for, if not all of them is key when constructing a system design” (Dalbey, 2016).
* DriverPass did not specify which platform they would like so considerations would be made for Windows or Lunix.
* Windows offers a vast accessibility with a large market share, whilst Lunix offers better security and dependability.
* Most corporate organizations prefer to use Lunix because of its speed and reliability.
* The backend will require a connection to the DMV database to support the system with testing and general compliancy.

#### Accuracy and Precision

* Each user will have a user ID that is unique to them. This user ID will have a corresponding master password stored in the system.
* Passwords will be case-sensitive with hexadecimal properties as well as special characters to stop brute force attacks.
* After 3 failed logins or in the event of a brut force attack attempt, the system must immediately notify admin.
* The system must be easy to learn after completion. This will limit the number of mistakes that would trigger alerts when not necessary.

#### Adaptability

* Liam, the owner of DriverPass, wants to be able to changes accounts, block access as well as reset passwords if need be.
* These changes should not require any changes to the coding.
* IT needs full system access for maintenance, updates and any system changes or upgrades that may be handled at the IT level.
* Automatic updates are always good, and they help with staying current with any DMV changes.

#### Security

* The IT specialist Ian mentioned security and backups being handled by a cloud based server.
* SSL will have to be implemented to secure the connection between the client and the server.
* DriverPass would have to engage a third-party for CA’s to ensure encryption and decryption is managed using digital certificates.
* Brute force attacks are attacks on the systems login passwords for various system users. The most obvious way to stop this is to have a password attempt limit, 2 or 3 depending on how secure the system needs to be.
* Failed attempts at logging in should result in a system lock out for that user.
* Making sure that users change their passwords every 60-90 days can prevent brute force attacks.
* Having difficult passwords with a mixture of lowercase, uppercase, special characters, numbers to gain system authentication and access can also mitigate brute force attacks.

### Functional Requirements

* The system shall allow different levels of administrative functions. Administrative functions will be reserved for higher management and ownership.
* The system shall authorize different levels of access. Not everyone will have the same authorization for example, only authorized users can change or void transactions or close accounts.
* The system shall authenticate the user login. Only one user login can be used at a time. Users cannot be logged into the system simultaneously with the same user.
* The system shall detect cyber threats. This is an online system which means it will be vulnerable to cyber attacks at some point. A full system shutdown should be automatically implemented in the event of a cyber threat detection.
* The system shall verify every new user. The verification process here can include an email being sent by the system to the user’s email and a user response prompts the verification of the user as well as the email.
* The system shall store data remotely. The system will be on a cloud-based server for storage and remote accessibility purposes.
* The system shall update automatically. Automatic updates will be set up for the system, but a provision will be made for manual updates in the event of a DMV sudden change to law or policy.

### User Interface

* The interface will need multiple web pages to satisfy all the requirements. A page would be required for the user and employee logins, contacting DriverPass, a homepage, terms and policies and so on.
* The system will have two sections, one for management and employees, and the other for clients and customers.
* The DMV will have a backend access to the DriverPass system for auditing and inspection purposes.
* The different users for this interface would be the customers, the DriverPass employees and the DMV.
* The customers must be able to see their driving profile and current completed tests. They can also schedule a lesson, take a practice test and pick a driver for their lesson.
* New clients can create an account with verification and then they can log in once email is verified.
* The user interface will be developed for both web and mobile web devices. So, clients can either sit at a computer or browse their phone or tablets for the same access.

### Assumptions

* The assumption here is everyone will and can access the website through their mobile devices if need be.
* Designing for a Widows platform first with the hope that the demand will migrate to apple and Lunix devices.
* That all tasks will be completed within the allocated timeline.
* The system will be a little complicated for the non-tech savvy individuals but anyone with browsing experience should be able to navigate the system with ease.
* Team members will perform required tasks to the best of their ability within a timely manner and they poses the required skill sets needed to accomplish these tasks.

### Limitations

* The small teams provide for little margin of error. If two or more team members are potentially down for medical or any unforeseen emergencies this can pose delays.
* Small teams are effective but have a little resources in the form of manpower.
* This whole project should be complete in three months according to the interview transcript, that is from January 22nd – April 10th.
* DriverPass did not disclose how much their budget would be for this project. That is a limitation because it is an unknown.
* If DriverPass chooses to focus on one platform that would mean other platforms would not have access to the service until the system is developed for various platforms.

### Gantt Chart

*Chart

Description automatically generated*

**References**

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