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**CS 255 Business Requirements Document Template**

**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 is:** DriverPass
* **Problem to address:** There is a need for better, more robust training for new Drivers. A large number of people fail their driving test at the DMV.
* **Project purpose:** Provide better training for drivers by offering an easy to use interface that can be accessed from anywhere. We want to offer In-Person training, Online clases, and 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?*

* The DriverPass system will offer appointments for in-person driver training, online courses, and practice tests all in an easy to use interface.
* DriverPass aims to bridge the skills gap for new drivers by enhancing their training experience. This system addresses the shortcomings of current driver education materials, ensuring comprehensive and effective training for beginners.
* The different components of the system include:

**1**. 10 Drivers with 10 Vehicles

**2**. Instructors

**3**. A Web-based distribution application that stores user information, DMV course matieriel that is current and up to date with an online reservation system. Lastly, a backend and database layers included in distribution system.

* Reservation tracking (Create, Modify, and Cancel)
* Full access for Owner (Ian) to edit, create or delete credentials and data
* System roles defining access for Owner, IT Officer, Secretary and Customers/Students
* Schedual appointments for driving lessons

**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?*

* Users should be able to create account
* Users should be able to reset passwords
* Users should be able to select from one of the three instruction packages
* Users should be able to create, edit, and cancel driving reservations
* Users should be able to view online course material from any device that is connected to a internet
* Users should be able to take practice exams
* System should track user data
* System should allow for owner to have full access of user data
* System users should be able to edit there personal information

**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.*

* The system needs to run reliably, be resilient and be secure.
* The system must perform. Fast page load time with quick data retrieval.
* The system needs to be scalable. There should to be room to accomodate a growning number of driving students and data associated.
* The system must have full support for mobile devices.
* The system interface must be user-friendly.
* All system learning material must be current, correct and compliant with DMV guidelines.
* All employees and instructors should be accredited and vetted if possible.

**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 is a web-based distribution system. The backend will be a Linux-based that serve various browser clients.
* The system must have enough performance to run the application under intense network activity when accessing DMV material and sending in form data to make reservations or update account information.
* The system should update database layer whenever progress has been made on practice exams, when feedback is received from driving lessons, the reservations system is edited in any way or when DMV updates their information or data.

**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 is web-based so we only need to worry about the web browser.
* Browser's we will be developing support for include:

Google Chrome

Microsoft Edge

Mozilla Firefox

Safari for Mac

* The backend will need a database. We can choose an SQL or non-SQL based system depending on requirements.

**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 users should be distinguished by password protected accounts.
* Usernames and passwords will be used for authentication. 2-Step verification if necessary.
* System users will be assigned roles. Roles will define their authorization levels and access to system resources.
* User input will be case-sensitive for greater security.
* There will be a limit placed on the number of attempts of incorrect password submissions. Once limit is reached, Admin will be notified.

**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?*

* System developers will design the code with add/remove/modify functions in mind.
* System users (including DriverPass staff) will be able to create, edit and delete their accounts.
* System user browser's will automaticly update. This will not effect backend. Patches and Updates will be applied when necessary.
* System application updates will be completed through the Agile SCRUM method and durring off-peak hours.
* The IT admin will require full access over accounts for troubleshooting editing user data.

**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?*

* System users need both Username and Password to log in.
* Network requests will be made through HTTPS and SSL. This will provide the most secure communication between client and backend applications.
* Sign-In form submissions will be made with HTTP POST requests. This will provide the best security possible when making changes.
* Too many sign-in requests will result in a locked account. The IT Admin will be notifed and user will need to be notified of steps needed to unlock account. This will provide some sort of defense durring a Brute Force attack.
* User password resets will be accompanied by a set of security questions and 2-Step verification through email or a cell phone number.

**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 enforce user authentication and authorization, meaning it will validate user credentials upon login. The authorization level, or access permissions, will be determined by the user's account type.
* The system shall be web-based. While instructional materials can be downloaded for offline access, data updates and modifications (such as reservations and password resets) must be performed online.
* The system shall monitor user activity, recording which user made, canceled, or last modified a reservation.
* The system shall start with three types of DriverPass course packages, and it will provide the option to disable individual packages. Additional packages can be introduced in future updates.
* The system shall accept customer details for account registration. (First Name, Last Name, Address, Phone Number, Credit Card Number, Expiration Date and Security Code).
* The system shall allow users to reset password.
* The system shall provide instructional material compliant with current DMV guidelines.
* The system shall display user exam progress and grades.
* The system shall provide instructor feedback to students.
* The system shall allow users to be contacted by IT Admin, Instructors and Secretary.
* The system shall allow the exams and materials to be added, modified and deleted.

**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 for basic users will include the following:

Main home page

Registration page

Course material page

Reservation page

Student information page:

- Includes sections for testing progress, contact form, driver notes, ect.

- Test progress section includes test name, time taken, score and status. The status is ether not taken, in progress, failed or passed.

- Driver notes section should contain a table with lesson time, start/end hours and driver comments fields.

DriverPass contact page

* The interface access levels are structured in the following manor:

**DriverPass Owner** - Full access over all accounts

**DriverPass IT Officer** - Full access over all accounts

**DriverPass Secretary** - Access to schedual and ability to make, modify, and cancel appointments

**Customer/Student** - Access to create an account, all learning material, view schedual and to make and modify appointments for self.

* Since the system is Web-based, the interface interactions will happen through a Web browser.

**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 internet/wifi is available 24 hours a day, 7 days a week in order for system communication, student progress records, exam updates and scheduling driver lessons.
* It is assumed that DMV guidelines are always up-to-date.
* DriverPass customers might not have an up to date client on their device that meets DriverPass system requirements.

**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?*

* With a Web-based client, being connectec to the internet is a must.
* Electricity is necessary to keep servers running.
* Physical hardware, such as servers, entails significant upfront costs along with expenses related to provisioning and maintenance.
* Budget and time constraints will dictate the number of staff assigned to this project and whether it will be necessary to hire additional staff or engage outside contractors.
* The skill set of our current staff may affect our budget and timeline, as developers are required for both the web-based interface and cloud-based backend/database layers. If they are unfamiliar with the necessary technology, additional training may be required.

**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.*

