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CS-255 Module 5 Project 1

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# CS 255 Business Requirements Document

## System Components and Design

### Purpose

* Project client: DriverPass
* The client wants a multi-platform, web-based system that will help driving students by providing online practice exams as well as on-road training.
* The system should allow students to schedule appointments, take tests, and monitor their progress.

### System Background

* DriverPass wants to fill a perceived gap in the driver-training market by making it easier for potential students to get on-road training and practice for written exams.
* The system should allow students to access their own individual dashboard where they can check their progress, schedule appointments for live training, and take practice exams.
* The dashboard should allow students to view their progress and history.

### Objectives and Goals

* Overall system objectives:
  + The system will be web-based and must function with all major web browsers.
    - Chrome, Edge, Safari, Firefox
  + It is preferable that the system can run from a cloud-based environment.
  + It must be accessible through both desktop/laptop and mobile devices.
  + There must be connectivity with DMV to retrieve regulation changes/updates.
* Basic system security:
  + All users must log in with unique username and password.
  + Owner and IT aministrator will have full access to read/modify all data.
    - User accounts
    - Appointments
    - Instructors
    - Etc.
  + Instructors should have special access to review their schedules and request changes if necessary.
  + Employees will have access to create and modify appointment schedules.
  + Employees will have access to create and modify user profile information.
  + User access will include:
    - Taking online tests
    - Scheduling live training sessions
    - Basic note-taking functions
    - Adding/modifying personal information
* User profile management functions:
  + User can modify personal information
    - Name
    - Address
    - Credit card information
    - Training pick-up location
  + Upload and modify current photo
  + Change account password
* Training packages and lessons
  + Users will have a choice of 3 packages.
    - Package 1 – 6 hours in-car with instructor
    - Package 2 – 8 hours in-car with instructor plus in-person class explaining all DMV rules and policies
    - Package 3 – 12 hours in-car with instructor, in-person class explaining all DMV rules and policies, plus complete access to all online learning material including practice tests.
  + Individual lessons will be scheduled as two-hour sessions.
  + Owner must have the ability to disable individual packages when needed.
  + Owner must be able to see which instructors are working with each student.
* Online practice tests:
  + Users must be able to choose and take online practice tests.
  + Users must be able to see which tests they’ve taken with results.
  + Progress must be shown as one of the following:
    - Not taken
    - In progress
    - Failed
    - Passed
  + Test backend must store:
    - Student name
    - Time/Date taken
    - Score
    - Passed/Failed
* Student notes section:
  + Notes should appear in a standardized chart in sequential order.
  + Each note should contain:
    - Lesson scheduled time
    - Lesson start time
    - Lesson end time
    - Driver comments
* Two-way messaging system:
  + Message system must allow customers to contact DriverPass staff and vice versa.
  + Message history should be stored and available to view on both sides.

## Requirements

### Nonfunctional Requirements

#### Performance Requirements

* User interface will be 100% web-based
* Information updates and retrieval should happen in real time
* Must be able to update whenever there are regulatory or legal changes

#### Platform Constraints

* System should run on a Linux server or cloud-based environment
* A database system will be required to store user, regulatory, legal, and test data

#### Accuracy and Precision

* All connections will use HTTPS or other encrypted secure protocols
* Username and password data will be case-sensitive
* All usernames must be unique
* Passwords must contain minimum 12 characters with 2 numbers and 1 non-alphanumeric
* After authentication, browser cookies will be used to maintain online session continuity
* System should warn admins of possible failures such as low disk space, low memory, etc
* System should notify admins immediately via email and SMS of critical failures/crashes
* System should notify admins via email of any internal errors that affect system operation
* System should gracefully ask user to try again later in case of error or malfunction

#### Adaptability

* Functionality will be provided to make changes to users without the need to change code
* Platform updates will be scheduled to take place during off hours to reduce any inconvenience to users
* Operating system updates should not affect the system as it will be using standard database software and web communication protocols that require no special server configuration
* IT admins will need complete access to the operating system as well as the DriverPass system to diagnose and fix any problems that occur. This means they will have access to all data

#### Security

* Users will login with a unique username and password
* Passwords will require at least 12 characters with 2 numbers and one non-alphanumeric
* All communication between user and system will use HTTPS encrypted connections
* Users will have an option to reset passwords by following a unique link sent to their registered email address
* If a password is entered incorrectly more than 3 times, the account will be locked, and the user must follow a unique link sent to their email address to choose a new password and restore their account.
* If incorrect login attempts are made on more than 3 accounts coming from the same IP address, that address will be ignored and reported to administrators as a possible denial of service attack. Restoring access to that IP address must be done manually by an admin.

### Functional Requirements

* The system shall validate user credentials when logging in.
* The system shall allow users to modify their password easily.
* The system shall be accessible through desktop, laptop, and mobile devices.
* The system shall be able to automatically check for updates from the DMV.
* The system shall allow users to modify their own information.
* The system shall allow users to administer their own schedules.
* The system shall allow administrators to view and edit all data
* The system shall recognize different access levels for different types of users.
* The system shall allow users to choose from 3 packages.
* The system shall track user progress through lessons and exams.
* The system shall allow users to make notes about each session.
* The system shall allow two-way communication between students and staff
* The system shall provide useful reports for DriverPass management

### User Interface

* The user interface will be divided into several web pages
* Each page should have a persistent main menu at the top
  + Home page
  + User dashboard
  + Account information and editing
  + Course list and selection
  + Session history and notes
  + Practice exams
* Admins will have access to extra pages
  + System reports (reports on system functionality)
  + Business reports (reports on finances, students, instructors, etc.)
  + Main user list
  + User editing options
  + Course list and editing options
  + Package editing and management
* Interface functionality must be responsive and usable with mobile touch-screen devices as well as traditional desktops and laptops with keyboard and mouse.
* Readability and usability on small screens should be considered during all design phases.

### Assumptions

* Users have internet access
* DMV will provide automated electronic updates to regulations and policies
* Users have email access
* System will have permanent, reliable internet connectivity

### Limitations

* Users must be online to use the system
* To get the best combination of cost vs functionality, cloud-based system will be preferred
* No official budget was set but we should strive to keep client costs as low as possible

### Gantt Chart

