# CS 255 Business Requirements Document Template

## System Components and Design

### Purpose

* The client is DriverPass.
* They want to create a web-based service to supply vehicle driving training, with a combination of in-person training sessions and online training & test.
* DriverPass has identified a need for better training options to improve driving test passing rates with an online option that can automate training scheduling.

### System Background

* The client DriverPass has noticed a lack of options in the driver training market. They believe that there are not enough options to help drivers prepare for both written and driving tests.
* DriverPass wants a web-based system, with user accounts for both students and employees, with a user access control system, and information security should operate with minimal client interaction.

### Objectives and Goals

* User Objectives
  + Create and edit user account profile
    - Profile contains: Name (First & Last), Address, Phone Number, State, Credit Card Information, Pickup/Drop-off Location, User Photo, Password
  + Reset password options both an admin & employee initiated, automated user reset option)
  + View training packages
  + Managing training sessions, with scheduling, cancellation, and modification options
  + View training materials
  + Take practice online tests, view progress, status, and results
  + View instructor notes from training sessions
* Administrator Objectives
  + Multiple levels of employee account rights and roles
    - Owner should have full access rights, with rights to manage all access rights and roles
  + Create user accounts
  + Manage training packages. With options to edit, delete, disable, and create new packages
  + Manage training sessions for student users
  + Track training sessions with driver, trainer, time, and car information
  + Edit user profiles
  + Information edits should be tracked with, who edited, what was edited, and when it was edited
* System Objectives
  + Web-based platform
  + Main page layout based on client sketch
    - Additional pages to be designed: User Information, Contact Information, with additional pages to-be-determined
  + Link to DMV for information updates
  + Contact information and messaging system between employees and students

## Requirements

### Nonfunctional Requirements

#### Performance Requirements

* The DriverPass system is to be a web-based system that should work on of the major internet browsers.
* As a web-based system, it should be an operating platform agnostic, if a compatible internet browser is available.
* The system response time should target anywhere between 250 -500 ms and should never exceed 1 second, to be competitive with modern web sites.
* The system updates would be split between technical updates and content updates.
* Technical updates should be at a minimum, when and only when technologies or APIs used are updated.
* Content should update as the DMV provides new rules and regulations, as well as when the administrators deem appropriate.

#### Platform Constraints

* The system should be platform agnostic, with all functions available via an internet browser.
* The back end does require a minimum of one database.
  + However, depending on the size and growth DriverPass desires, separate database for users and user information, content, and appointment scheduling might be worth further research and testing.

#### Accuracy and Precision

* User account should have a user login name, password, and a user Id number unique to the user.
* The ID number should be automatically generated at account creation and not be changeable.
* Whether the login name is changeable should be decided by the client, but the option should be available to them.
* Password reset should be automated, with options for administrator to reset password via the backend, for both single users and mass user password reset.
* System should have a timer based on client desired notification time setting. 5 to 15 minutes seems like a reasonable suggestion, but the actual time should be decided by the client.

#### Adaptability

* Admin should be able to add, remove, modify users without changing code.
* Platform updates should be automatic as possible with as little oversight from the client as possible.
* Any associated downtime due to platform updates should be announced to users as soon as possible.
* An IT admin user type should be specified by the system administrator.
  + The IT admin user should have a similar level of access as the system administrator, meaning access to all user accounts, content management, and system technologies, but not have source code level access.

#### Security

* The user should access the system via a username and password.
  + The username should be unique, and password should meet standard password requirements.
  + Multiple failed login attempts, 5 per username, should trigger a password reset.
  + The reset process should include options such as email-based reset and security question-based reset.
  + Two-factor authentication should be recommended to the client.
* The system should use standard SSL encryption to create a secure connection.
* “Brute force” hacking attempts, 10 failed attempts per IP address, should trigger a user account lockout, including a warning notification sent to the administrator accounts. Lockout removal should require admin approval.
  + Hacking attempts on admin accounts, particularly the system administrator, should be removed with use of security question or two-factor authorization.
  + DDoS protection should be considered but given a cloud-based platform might not be necessary.

### Functional Requirements

* The system shall collect and validate user credentials upon login attempt.
* The system shall determine user type upon login and display customized home screen based on user type.
  + Student users should see options related to their role as customer: view/purchase training packages, schedule/modify/cancel training appointments, view training session/ test notes and results, contact instructor/administrators, access/download online training materials, and access practice tests.
  + Instructors should be able to view assigned students, access student test results, upload student driving sessions notes, view student appointments, contact students and administrators.
  + For different admin users: add/modify/delete user accounts and type designations, reset user passwords, validate user lockouts, schedule/cancel/modify training appointments, edit/disable/delete/add training packages.
* The system shall provide email receipt for all purchases to users and provide receipt list on platform.
* The system shall provide appointment notifications via email and internal contact system to both students and instructors.
* The system shall track all information changes via list of username, date and time information were changed.

### User Interface

* User Interface shall be based on client provided mock-up.
* User Interface shall be accessible via both traditional input devices on a display screen as well as accept touch-based input via mobile browser. Mobile customized interface should be recommended to clients.
* The UI shall be accessible via internet browser.
* The UI shall consist of the following basic options for different user types:
  + User Not Logged In:
    - Login
      * Username and Password fields
    - Business Information and Services List and details.
  + Customer/Students:
    - Home Page
      * View Packages
      * Schedule/Modify/Cancel appointments panel
      * Session Notes panel
      * Online Test progress panel
      * User Information panel
      * Special needs panel
      * Instructor photo
      * Student photo
    - Contact Page
      * View/manage messages
      * Create messages
    - User Profile Page
      * View/Modify User Info
      * Reset User Password
  + Instructors
    - Home
      * View students list
        + View student sessions

Upload session notes

* + Administrator
    - User Management Page
      * Add/modify/delete users
      * Change Passwords
    - Content Management Page
    - System Reports Page
      * View/Print Reports
    - Package Management Page
      * View/Modify/Disable/Delete Packages
    - Session Management Page
      * Schedule/Modify/Cancel Appointments
  + All logged in users
    - Contact Page
      * View/manage messages
      * Create messages
      * Contacts List
        + This may be user type specific. Students should access to contact their instructor and admins. Instructors should have access to their assigned students. Admins should be able to access all students, instructors, and fellow admins.
    - User Profile Page
      * View/Modify User Info
      * Reset User Password

### Assumptions

* Users shall have a reliable, high speed internet connection.
* Users shall have the necessary hardware to access the platform.
* Users shall have a modern, major internet browser to access the platform.
* Backend servers can provide bandwidth to support all users with minimal bottlenecking of access.

### Limitations

* The system cannot function without internet access.
* The system relies on stable server hosts.
* Stated timeline might limit functionality, leading to feature cuts for later work.
* Standard security options might leave the platform to be a vulnerable target. Given financial information is used and stored, additional security, such as two-factor authentication should be discussed with client.

### Gantt Chart

