# CS 255 Business Requirements Document - Nicholas Bean

## 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?*

* Purpose; Design and build a web-based system for DriverPass to help improve students’ education to pass their driver’s test.
* Client; DriverPass’s representatives, Liam (Owner) and Ian (IT Officer), wants their system to be able to access data from anywhere at any time
* Wants;
  + Provide online classes, practice tests, and driving lessons
  + Enable scheduling for reservations
  + Allow access to data remotely
  + Provide role-based access control for employees
  + Track all records of changes and actions
  + Offer a cloud-based solution with a user-friendly web interface

### 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?*

* DriverPass wants to address the lack of training options for people preparing for their DMV driving tests. The majority fail due to poor preparation and DriverPass aims to improve their experience through structured training.
* Wants;
  + Online access to services and records
  + Scheduling system for customers and employees
  + Offer different packages for different levels of service
  + Role-based security system
  + Online registration and profile management
  + Password reset function
  + Activity and lesson progress tracking
  + Real-time updates for changes
* Components;
  + User interface
  + User Roles & Security Layer
  + Scheduling & Reservation
  + Package & Lesson Management
  + Driver & Vehicle Tracking
  + Customer Registration
  + Online Class & Test Module
  + Progress Tracker
  + Reporting system
  + Cloud Hosting with Backup & 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?*

* Complete System;
  + Allow customers to register, log in, select package, and schedule lessons
  + Track lesson status, student progress, and results
  + Enable admins and IT staff to manage accounts and block/reset users
  + Provide Password recovery
  + Sync DMV updates and notify staff changes
  + Provide offline access to downloadable reports
  + Run to the cloud to ensure backup and security
  + Custom interface
* Measurable Tasks;
  + Create use case diagrams for each user role (Customer, staff, admin, IT)
  + Build activity diagrams for scheduling, registration, and testing
  + Design and implement user interface based on DriverPass’s sketch
  + Develop database structure and connect it to the front-end
  + Ensure data logging for tracking
  + Perform tests to confirm functions meet requirements

## Requirements

### Nonfunctional Requirements

#### 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 needs to be run off the web, preferably through the cloud.
* The system should run constantly with minimal technical problems.
* Should be updated when the DMV adds new rules, policies, samples while connected to the internet.

#### 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 both computers and mobile devices.
  + Technicians should be allowed to download files from the cloud for research (Database of cloud)
  + Should also allow support desk to reset passwords to help accounts (Database of user account details)

#### 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?*

* Head Owner – Liam
* IT Officer – Ian
  + Maintain the system, modify performance, et cetera.
* Secretary/Staff
  + Answers phone and make appointments
* Users
  + Be able to make appointments, cancel, and modify appointments online
* No case-sensitivity
* Informs admin through calls or taken care of by IT security.

#### 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?*

* Add user information, create appointments, modify and delete appointments through the user controls and the admin controls, if they are connected to the internet.
* Receive a notification whenever the DMV updates.
* The IT Admin needs access to the full system to maintain and modify.

#### 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?*

* Staff or IT staff login credentials
* Data is collected and stored into the cloud that is accessible through a computer or mobile device that can download information and once connected to the internet, upload added information. Having the system run off the cloud prevents dealing with backup data and become secure automatically while Driverpass focuses on running the business.
* Staff can track any changes into accounts with notifications, can block account access, and reset passwords.

### 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 when logging in
* The system shall allow users to reset their passwords if forgotten
* The system shall support different user roles
* The system shall allow or restrict access based on user’s roles
* The system shall allow customers to create, modify, and cancel appointments
* The system shall allow the secretary to create, modify, or cancel reservations on behalf of customers
* The system shall assign a schedule with a designated driver for reservation based on availability
* The system shall record and track modifications and canceled reservations
* The system shall allow customers to choose between three training packages during registration
* The system shall allow admins to disable training packages and restrict access to unwanted customers.
* The system shall provide online classes and practice tests for customers registered, tracking the progress of each test, and display the summary of the results
* The system shall generate printable activity reports showing reservation and user action history
* The system shall record driver comments for each lesson session and notes
* The system shall log all changes made to data, including when the change was made and by who
* The system shall collect student information including last name, first name, address, phone, state, email, pickup/drop-off locations, and credit card information
* The system shall provide an input form for student registration
* The system shall receive updates from the DMV regarding rules, policies, and sample test questions.
* The system shall notify administrators when DMV updates are received
* The system shall be accessible through web browsers on both desktop and mobile devices.
* The system shall allow authorized users to download reports and data for offline analysis
* The system shall include a user interface that displays online test progress, student information, driver notes, special needs, and student/driver photos.

### 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.)?*

* Web-based, accessible through browsers on both desktop and mobile
* Top section; Company logo
* Top left; Online test progress
* Top right; Student information
* Bottom left; Driver notes
* Bottom right; Special needs, driver photo, and student photo
* Additional Pages
  + Student registration form
  + Driving lesson scheduling/rescheduling interface
  + Login/Account management
  + Package selection page
  + Contact us form
  + Administrative dashboard
* Secretary
  + Register new customers over the phone
  + Schedule, reschedule, or cancel appointments
  + View driver assignments and lesson availability
  + Access and update customer information
  + Access customer records and generate reports
* Admin
  + View business performance reports
  + Enable/disable training packages on restricted users
  + Track all user activity and data changes
  + Access logs of modifications and appointments
  + View student progress and driver notes
* IT Officer
  + Manage user accounts
  + Manage technical issues and perform system updates
  + Set permissions and user roles
* Instructor
  + Enter comments/notes after each session
  + Access student photos and special needs
  + View assigned available cars and routes

### 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?*

* Payment processing
* No mention of customers being notified
* No mention of encryption, user consent, or policies
* No information on scalability
* Details about support desk (Chat or ticket system)

### 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?*

* Limited customization
* Basic payment handling
* Single-language and locale
* DMV Integration is unclear about methods of being updated
* Scalability Constraints
* Limited Offline Functionality
* Small Team of a few members working on a tight project timeline that could have some unforeseen delays
* Liam emphasized not wanting to manage backup/security with using a cloud-based system, limiting hosting options and features
* Browser-only system (No apps)
* No AI/Automation

### Gantt Chart

*Please include a screenshot of the GANTT chart that you created with Lucid chart. Be sure to check that it meets the plan described by the characters in the interview.*

