# CS 255 Business Requirements Document

## 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 and they are looking to build an online system where their users can do a number of things that fill the gap between what the DMV provides and what they need to pass their driver test.
* The system can be separated into the user experience and the company experience.
* DriverPass wants this to operate in the cloud to reduce the technical overhead for the company.

**End User Experience**

* Take online classes with practices tests for the driving exam.
* Book, change, cancel reservations for on the road driving instruction.
* View progress on tests and reset passwords.

**Company User Experience**

* Add/ disable booking packages.
* Access data from anywhere.
* Download reports with Excel or similar program.
* Be alerted when changes are made to bookings.

### 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 problem that DriverPass sees is that there is a void in the market when it comes to training students for the driving test at their local DMV.
* They are focused on filling the knowledge gap for the students by providing classes and practice tests for them based on the current DMV information.
* They are also providing on-the-road training to those students to enhance their understanding of the DMV requirements.
* Able to track changes and generate activity reports for drivers/ cars.

### 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?*

**End User**

* Create account
  + Name, address, phone number, credit card information
  + Choose pick up and drop off locations
* Scheduling appointments
  + Chose training package and time
* Access to reset password
* Access lessons/ information
* Take practice tests
  + Show progress, test name/ number, time takes, score, and status
* View driver notes or comments

**Company Users**

* Allow access to specific employees
* Track which user is matched with driver, time, and car
* Track reservations and be notified when a user changes one
* Addition/ removal of training packages in the future
* Connect with DMV for information
  + Notification for any new updates
* Show tests customers took and their progress
  + Test name or number, time taken, score, and status
* Show drivers notes
  + Lesson time, start hour, end hour, and driver comments
* Generate activity reports for drivers/ cars.

## 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.*

#### 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?*

* System should be web-based and accessible from desktop and mobile devices and work with iOS and Android
* Allow multiple users to access and interact with the system simultaneously without lag
* Online booking and test-taking should process in real-time
* Reports should be generated and downloadable quickly (under 5 seconds)
* Database inquires for retrieving user information, test results, and booking should execute in less than 2 seconds
* System should receive regular updates for security, bugs, and performance at least once per quarter with features/ improvements being deployed biannually
* DMV related content should be reviewed and updated as needed with changes to the information provided by the DMV

#### 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?*

* Must be web-based and accessible from both desktop and mobile devices and compatible with windows, macOS and Linux as well as iOS and Android
* Should be cloud-hosted to minimized local IT maintenance and ensure remote access
* Platform should be compatible with common browsers (Chrome, Firefox, Edge, Safari)
* System needs a cloud-based database (MySQL, PostgreSQL, or Firebase) to store user data, reservations, test results, and driver schedules

#### 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?*

* Users will be distinguished by unique account credentials and an ID – based system
* Role-based access control will ensure appropriate permissions
* Input for login will be case-sensitive while names, addresses, and others will follow standardized formatting
* System will notify admin immediately in cases of failed login attempts, unauthorized access attempts, payment failures, or scheduling conflicts

#### 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 will allow admins to add, remove, or modify users through a web-based admin panel, thus eliminating the need for direct code changes
* System will be cloud-based and designed with API compatibility to ensure smooth integration with updated web browsers, operating systems, and third-party services. Regular automated maintenance checks will be implemented
* It admin will have full system access, including user account management, data security settings, reservation tracking, and system logs

#### 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?*

* Users login with unique email/ usernames and strong password. May use MFA for employees and admins
* System will use SSL/ TLS encryption for all data transmissions between client and server. Passwords will be hashed and salted in storage and sensitive data will be secured using PCI-compliant encryption
* If multiple failed logins occur in a short time, account will be temporarily locked and user will need to complete a CAPTCHA challenge or receive email verification. Admins will be alerted of suspicious activity
* Users able to reset paswo4ds through secure password recovery system. Reset link will be sent to their registered email with identity verification before allowing password change

### 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 create an account with their personal information and payment details.
* The system shall enable users to book, reschedule, and cancel driving lessons.
* The system shall provide access to online learning materials and practice tests.
* The system shall track user progress on practice tests and display results.
* The system shall notify users and instructors of booking changes in real-time.
* The system shall allow company administrators to manage available training packages.
* The system shall generate downloadable reports in Excel format for administrators.
* The system shall notify administrators of system updates or issues with user accounts.
* The system shall securely process payments for driving lesson packages.
* The system shall integrate with the DMV to retrieve relevant testing information.

### 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.)?*

* Interface will be available via web-based browser and a mobile-friendly application
* User Roles:
  + Students- Register for accounts, book lessons, access learning materials, take practice tests, and view test progress
  + Instructors- View scheduled lessons, track students’ progress, and enter lesson feedback
  + Administrators- Manage training practiced, track reservations, access reports, and receive alerts for changes
* System will have a intuitive, easy-to-navigate dashboard for each user type
* Users will interact with system primarily through touchscreen (mobile) or mouse and keyboard (desktop/ laptop)

### 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?*

* Users will have internet access
* System will support modern web browsers
* Mobile users will access the system through a responsive web design or dedicated mobile app
* Users will provide accurate personal and payment information when booking services
* The system will have scalability to accommodate future growth in users and training packages
* Team has the skills and ability to develop the features requested by the client

### 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 budget may restrict advanced features like AI-based test recommendations or real-time driving feedback
* Development and testing must be completed within a fixed timeline
* Some users may have older devices or limited access to high-speed internet
* Integration with DMV databased may require legal approvals and compliance with state regulations
* Protecting user data will require ongoing updates and security audits to prevent breaches

### 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.*

A screenshot of a computer

AI-generated content may be incorrect.