# 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 purpose of this project is to create a comprehensive system for DriverPass, with the client being the owner of the company, Liam. DriverPass intends to address the need for better driver training by preparing students for their driving tests at the local DMV. The system should provide online classes, practice tests, and on-road training. The key objectives are to enable online and offline data access, maintain data security, offer role-based limited access, enable tracking of user activities, manage reservations for driving lessons, and ensure compliance with DMV rules and updates.

### 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 intends for us to design a system that offers a range of services related to driver training. The components of the system will include online and offline data access, user management, reservations handling with tiered packaging and modification enabled by administration, data tracking, compliance with DMV regulations, and a user-friendly interface. The system will entail different types of role-based users, such as customers, employees, and administrative personnel, and provide various services. These services include scheduling appointments with pickup and drop-off location and times, taking driving lessons, and accessing online learning materials. The data generated should be able to be exported into a file or document that can be read by a program like Excel.

### 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?*

* Enable online and offline access to data.
* Implement standard data security with role-based control with user account management.
* Provide tracking of user activities, including reservations, cancellations, and modifications.
* Provide the creation and management of driving lesson reservations.
* Ensure compliance with DMV regulations by establishing a connection to receive updates and notifications.
* Develop a user-friendly interface that aligns with Liam's provided sketch, showcasing user progress, pictures of the driver and student, and driver notes. Information about the student including name, address, email, and phone number.
* The Driver Notes should display a table indicating the start and end time of lessons and comments from the Driver.
* Include a contact page for customers to contact company
* Accommodate future flexibility for potential system enhancements or changes.

## 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?*

* Considering offline access is necessary an application will be best suited to this system as any online hosting will be inaccessible without internet connection.
* With the app being native to the phone results should be quick depending on the OS and hardware limitations.
* The app should connect to the database any time it is accessed with the internet to update the online database and backup information, such as offline edits or progress made on tests. As bugs and security flaws are found and fixed the app should be updated in regards to this, preferably monthly as fixes and testing take time. Updates should happen immediately upon the Legal Team reviewing new laws and regulations that are passed.

#### 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?*

* Mobile OS such as Android and Apple for the application
* There should be a web-hosted browser version using a Cloud-based server with appropriate API integrated into the system
* A SQL-based database containing user information will be needed that is updated and backed up twice a day

#### 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?*

* Roles will be assigned to each User within the system:
  + Student
  + Driver
  + Admin
  + Support
  + Database Administrator
  + Data Analyst
  + Billing
* Input will follow industry standards of alphanumerical non-sensitive usernames and case-sensitive passwords that contain One Uppercase letter, One lowercase letter, One number, and/or One symbol.
* All exceptions/errors thrown should be automatically recorded and filed under a daily report that details when the exception occurred and what was happening when it occurred, if possible for further testing and analysis.

#### 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?*

* Changes to user should not affect the data it contains unless illegal characters were manually inputted by administration or support to cause an error, if a string contains quotation marks or an apostrophe it could potentially crash the system, so these characters should be illegal and prevent the user with inputting them. Data types such as integer or float should not be affected so long as their inputs stay within their parameters.
* Platform updates should not affect the application or Cloud-based host unless integral components are changed in how the basic functions of the system is performed, which would need immediate correction and would be caught by thrown exceptions and error reporting.
* IT Admin(Support) should be able to change limited perimeters of a User. Due to security the IT Admin should not have direct access to passwords, but should be able to send a password reset link to an alternate e-mail. These users should also be able to delete accounts, change the e-mail, cancel service, and read user data of all roles below it. Billing is the only role accessible to change payment information or directly influence Account Balance. Support would not have access to other Support role accounts or the Database Administrator account for security reasons.

#### 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?*

* User sign in will require User Name, email, phone, or SystemID.
* User sign in will require a password following industry standards of alphanumerical non-sensitive usernames and case-sensitive passwords that contain One Uppercase letter, One lowercase letter, One number, and/or One symbol
* Data will use HTTPS certification and proper cybersecurity protocols such as SHA-256 cryptographic hash algorithms, AES 256-bit encryption, and Security API that detects attempted attacks.

### 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 display the home page containing information about DriverPass and their services.
* The system shall register users when necessary data is given and the password meets minimum requirements.
* The system shall validate user credentials when logging in.
* The system shall allow customers/employees (for customers) to reserve driving lessons, including giving them the ability to select from a schedule of available dates/times.
* The system shall allow customers/employees (for customers) to purchase an education package.
* The system shall be connected to the DMV and display the latest laws, policies, and sample questions for customers to practice.
* The system shall allow customers to take online practice tests, which will also display on their profile for Drivers to view.
* The system shall contain a page that shows the customer’s online test progress, their information, the Driver and student photo, and the Driver’s notes.
* The system shall query the database and generate reports for employees with access to view.

### 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.)?*

* Students
  + Access/Modify Account Settings and Preferences
  + Reserve Drivers Tests
  + Access/Modify Payment and Subscription Plan
  + Take Practice Tests
  + View Progress
  + Connect with Support
* Drivers
  + Access/Modify Account Settings and Preferences
  + Add/Modify Availability
  + Decline Student reservation
  + Access/Modify Banking Information
  + Confirm Payment Transfer
  + Pass/Fail Student
  + Modify Student Notes
* Admin
  + Access/Modify Account Settings and Preferences
  + Add/Remove Accounts
  + Generate Reports
* Support
  + “Student” Privileges
  + “Driver” Privileges
  + Push Password reset to alternative e-mail
* Database Administrator
  + Access/Modify Account Settings and Preferences
  + “Student” Privileges
  + “Driver” Privileges
  + Generate Reports
* Data Analyst
  + Access/Modify Account Settings and Preferences
  + Generate Reports
* Billing
  + Access/Modify Account Settings and Preferences
  + Modify Account Balance
  + Generate Reports

### 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?*

* It is assumed that due to the LMS being hosted online that students will need access to the internet to access it.
* It is assumed that users will have the required knowledge and intuition necessary to interact with and navigate the LMS.

### 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?*

* The development, maintenance, and continuous improvement of the LMS may be limited by the available budget, potentially restricting the implementation of advanced features or regular updates.
* It is challenging to ensure a system will operate adequately across various OS, Browsers, and Technical Specs as well as integrate with third party software that may be necessary for personnel.
* 15-week deadline

### 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.*

