# 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?*

* DrivePass wants to offer a web based system to reserve and access driver’s education material and in-person instructors with a vehicle

### 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?*

* There is an increasing trend of failures to pass basic driver licensing written and practical testing
* DrivePass wants to provide a service that is accessible to non-licensed drivers so that they can train and study in preparation for the driver licensing tests.
* Because their customer base cannot reliably get to an on-site facility, providing a service that can pick the customer up is vital to the success of the service

### 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?*

* Customer facing objectives
  + Tiered customer packages that associates a user to a package
  + Provide a GUI that the user can navigate to make reservations, update information, receive feedback, personal account management and access study material based on package level
  + Be accessible through a web based client at any time
* Business facing objectives
  + Provide a user management account for personnel to make changes to other customer accounts via a secretary or reservations management team
  + Provide an administrator account for system management and tailoring
    - Must be able to deactivate and reactivate modular functions built into the system
    - Query and store system and user reports for work in an offline environment
  + Modular build of the system to allow for expansion and modification of services/modules provided
  + Host classroom and online training materials on a web server
  + Database storage for reservations, drivers, instructors, and users that allows for error checking to prevent events like double booking of vehicle, instructors, and times

## 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 must be accessible via a web interface
* System must have patching and updates automated
* System must be hosted on a cloud platform
* System should communicate with users and complete system operations in real time
* System must have a connection to a map API like Google Maps

#### 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?*

* System should be run on a Windows based cloud deployment
* System must have virtual machines run on a host machine
* Updates to the system must be automated
* Management Interface must be simple and intuitive for non-technical personnel
* System will require separate databases for users, trainers and appointments

#### 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?*

* System must create a unique user identification number that is associated with only one user account for the lifetime of the system
* User unique ID number should be associated with user defined, case sensitive login account name that is also unique to the user
* System must user the user unique ID number for all processes
* All system errors should trigger a notification to administrators when the error occurred and include error type, error message, and log locations for errors

#### 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?*

* Individual users must be able to modify their user details such as address, phone number, etc.
* System administrators must have total access to entire system to support the following functions
  + Add, remove, modify, enable and disable user accounts
  + Install, enable, and disable both old and new portions of the system
  + Install, update, and rollback system patching and maintenance

#### 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 must create a case sensitive password as part of the account creation process
* System must assign users to appropriate user groups at creation
* System must use a minimum of sha256 encryption for all connections inside and outside the system
* All unused ports and interfaces will be strictly closed and strict port security enforced
* User account will be automatically disabled after 3 failed login attempts
  + For regular users, there will be an email-based process to unlock and reset user password if account is locked
  + For admin accounts, another admin will be required to enable the disabled admin account

### 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 create, modify, or disable a user account
* The system shall store and provide the data of 3 packages for regular users
* The system shall validate and charge users based on package purchased
* The system shall create reservations for training and validate that there is no conflict in scheduling
* The system shall store and provide training material for validated users
* The system shall update training or notify trainers based on a connection to the local DMV regulation updates
* The system shall fingerprint every transaction with the user ID that initiated the transaction requested
* The system shall be built in a way that it can accept new modules, packages, and training
* The system shall reference a map API to validate and save reservation pick-ups and drop offs
* The system shall store and display the resources for a web-based Interface for regular users
* The system shall take regular user inputs from the web-based interface
* The system shall provide reports as required for printing or saving for viewing when not connected directly to the system

### 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.)?*

* The interface shall provide user information, online test progress, driver notes, special needs, and photos of the user and their driver-trainer
* The interface shall have buttons to view individual portions of the interface in a separate window with edit features for personal information and communication tools
* The interface shall have a banner menu that has drop down to navigate to purchasing packages, making and cancelling reservations, and to navigate to individual windows of the interface
* The interface shall be accessible as a web-page that will present the same elements in slightly different visual forms based on whether accessed from a browser on a computer versus a smart device

### 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?*

* There is an assumption that users have access to a smart device or computer that can connect to the internet and thusly the system
* There is an assumption that users are familiar to how a web-based interface works
* There is an assumption that a majority of functions the system will provide will be relatively static

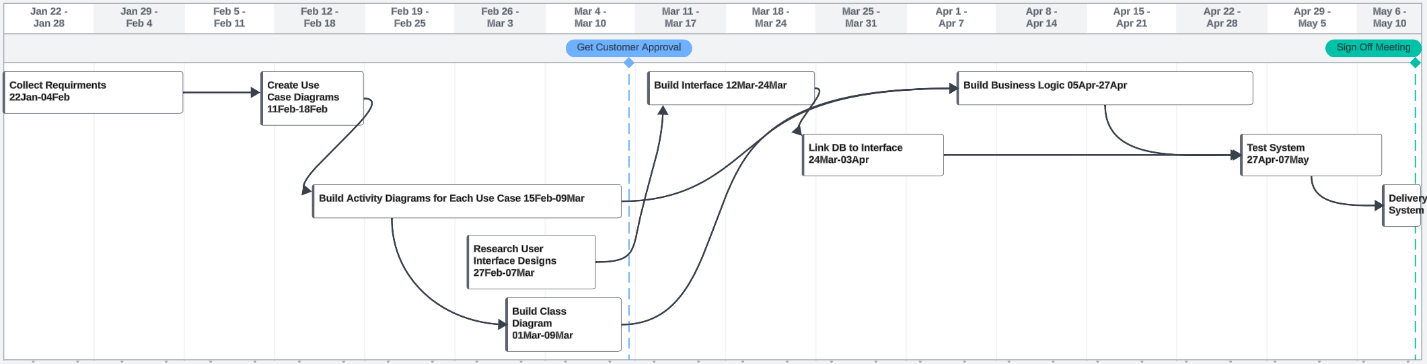
### Limitations

*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?*

* There is a limitation on whether or not there will be internet access either for the user or for administrators
* There is a limitation on access to the system as it is hosted on a cloud platform and there is not guarantee that the cloud-based host will have 100% uptime.
* User computing device’s status cannot be anticipated and cannot guarantee access if user’s device fails

### 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.*

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