# CS 255 Business Requirements Document Template

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## 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 design a system for Liam, the owner of DrivePass, to help train students for their driving tests by allowing them to take online classes, practice tests, on-the-road training and schedule their own appointments at available times for person training.

### 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?*

* DrivePass wants the system to be able to provide vehicle training services to students who need to obtain their license at the department of motor vehicles (DMV).
* The problem that Liam states is that many people fail their driving tests at the DMV and that providing these services will help them pass.
* The different components for this system include providing a service, modifying information, and run off the web – preferably over the cloud.
* Additionally, DrivePass would like to implement a user system in which students are a secretary are able to fill in a student’s information such as first and last name, their address, and other information to have stored online. Administration would have access to these accounts if they needed to change the password for those who have lost them.

### 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?*

* The objective of this system is to provide student drivers with the ability to set up driving appointments, tutoring sessions, and provide online practice exams to help train them for the DMV exam.
* The system should be able to provide the following functionalities once completed:
  + Allowing student drivers to register their account
  + Allowing student drives to take an online course and practice test
  + Allowing student drivers to choose from three training packages
  + Allowing students to set and modify their appointments online
  + Allowing students to check their real time progress with their training.
* Additionally, the system should allow administrative users such as the secretary, IT department, and administrator to have access to user accounts and help modify the system to keep it maintained and functional.

## 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?*

* The environment is not specified in the document, such as a website or application. Therefore, the assumption that a website would be used for users to log in and retrieve their information.
* Preferably, this web-based program will need to be able to run on Google Chrome, Firefox, Microsoft Edge, and Safari, as they are the most well-used web applications.
* The computer’s system requirements do not need to be high-end to run this application. If there is a stable Internet connection, the user should not run into any problems.
* As stated by the team, the system would need to be updated every time the user logged online. This means that information presented to the user while connected to the Internet is shown in real time, such as available appointments, current test progresses, and current information (first name, address, zip code, etc.).

#### 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?*

* If this system were to support several different web-based applications such as Microsoft Edge and Safari, the Windows and Mac operating platforms would have to be supported. However, for simplicity, we would focus on just the Windows platform as an overwhelming majority (73%) of users use Windows platform operating systems (Liu).
* Back end would require a database to store the administrator’s, secretary, and user account information. This information will be retrieved when the user logs on.

#### 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?*

* The different users are categorized as such:
  + Student drivers: regular users that will be using the service and have limited inputs such as creating, modifying, and cancelling an appointment.
  + Ian (IT Officer): user with some administrative power to help maintain and modify the system as needed.
  + Secretary: user with some administrative power to help confirm appointments and modify accounts if needed.
  + Admin: Has full administrative power and can retrieve information from all user accounts to print out a report.
* Input will be case-sensitive, including email, username, and password.
* The system should include a report section for users to submit, which would notify the system’s administrative team about a problem.

#### 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?*

* The administrative accounts, such as the IT Officer, Secretary, and Admin, should be able to add, remove, and modify the accounts without changing the code. By using polymorphism in code, a user class will have all the basic information and attributes every user needs. By inheriting from this class, administrative users will have special functions and attributes tied to those classes that will assist in modifying a user class.
* The system will adapt to platform updates by having the website’s domain updated to the standard of current technology. Typically, this is not something that happens very often and therefore not presently a concern for DrivePass.
* IT admins would need access over the system as a whole – meaning they need to retrieve information from users, modify packages and appointment availabilities, or assist in password and information recovery.

#### 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?*

* The user log in requires the user’s email for their username and password. A password criterion will be in place for when a user creates an account to ensure their security is to standard.
* The connection between client and server will be secured using token-based authentication which generates a unique token for the user that allows them a secure and stable connection with the server without outside interference.
* If a brute force or any other kind of hacking attempt was made, the administrative users would be able to modify the account and save it from being long. The account information can be stored in a placeholder account while the afflicted account is deleted.
* If a user forgets their password, they can click on a Forgot Password hyperlink which would ask the user to enter their email and later check their email for a new password. Instructions will be provided to have the user change this password in their account once they log in.

### 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 should be able to perform the following after completion. The system shall:
  + Allow students to register their account
  + Allow students to take online courses
  + Allow students to take practice tests
  + Allow students to choose from three packages for training
  + Allow students to modify reservations for on-the-road training
  + Allow students to upload a driver and student photo
  + Allow students to register special needs
  + Allows students to view Drive notes.
  + Allow students to view their online test progression as either:
    - Not taken
    - In progress
    - Failed
  + Allow the owner (Liam) to retrieve up-to-date information on the system such as:
    - Access to other accounts
    - Access all personal information
    - Identify the driver in a reservation, time, and car
    - Passed

### 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 user interface requires multiple objects to display the user their current information.
* For all users:
  + An online test progress chart will be displayed on the top left of the website.
  + An information box will be displayed on the right. This includes:
    - First name
    - Last name
    - Address
    - City
    - State
    - Zip code
    - Phone number
  + Driver notes will be displayed beneath the online test progress box, showing the most recently posted notes about the driver and how the student is currently doing. Additionally, the driver notes will consist of remarks that regard:
    - Lesson time
    - Start hour
    - End hour
    - Driver comments
  + A special needs box will be listed right below the information box describing any special tools and services needed to accommodate the student.
  + A driver photo and student photo will be posted below. The student will be able to modify their own photo while the driver photo is automatically updated by the system depending on the driver assigned to the current student.
* For all administrative users, their own information will be aligned with that of the layout for a regular user. In addition, administrative users will be able to appoint drivers to students and confirm appointments (for secretary only). Administrative users will be able to check a student user’s profile and retrieve information to pass down to the driver.
* The interface will be interacted through a web-browser for the moment.

### 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?*

* The owner of DrivePass did not express whether they wanted to have this system implemented through a web-browser or application. Therefore, the assumption we are making is that it will be web-based.
* The other assumption I am making is that users who can interact with this system will have an Internet connection and computer that can use the more common web-browsers.
* The final assumption being made is that a user can navigate the website with the simplicity of the interface and layout.

### 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 most noticeable limitations I see with this system design is time and resources. While we have gathered the information and requirements from DrivePass, there were still some other questions that were not answered such as how the system should be accessed and what would happen if there were no available drivers to help students train. Resources are also uncertain because to have a database of information with the company, we would need to use cloud-based platform (as stated by Liam) which would most likely require us to subscribe to current services such as Microsoft Azure or Amazon Web Services.
* Online traffic was not considered as to how the website would be able to handle that but having a cloud-based platform should not be much of an issue.
* Some assumptions were made for the missing information, except for the budget. There was not much information as to what the budget for this project is and no indication of how much we would need aside from cloud services and labor.

### 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.*

Chart, timeline

Description automatically generated

**References**

Liu, S. (2021, September 10). *Desktop OS Market Share*. Statista. Retrieved October 2, 2021, from https://www.statista.com/statistics/218089/global-market-share-of-windows-7/.