# CS 255 Business Requirements: Brianna McCollum

Complete this template by replacing the bracketed text with the relevant information.

This template lays out all the different sections that you need to complete for Project One. Each section has guiding questions to prompt your thinking. These questions are meant to guide your initial responses to each area. You are encouraged to go beyond these questions using what you have learned in your readings. You will need to continually reference the interview transcript as you work to make sure that you are addressing your client’s needs. There is no required length for the final document. Instead, the goal is to complete each section based on your client’s needs.

**Tip:** You should respond in a bulleted list for each section. This will make your thoughts easier to reference when you move into the design phase for Project Two. One starter bullet has been provided for you in each section, but you will need to add more.

## 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 company DriverPass, which is lead by the client Liam and his IT director Ian, wants to help teach people how to drive and improve success results for driving tests at the DMV.
* This system aims to cover a void in the market: teaching and training people for DMV tests specifically online.
* This system provides people with online driving rules of the road tests and physical driving lessons.
* The online tests can be taken at any time, but Driving Appointments must be reserved before hand and be given important information like drop off and pick up locations.

### 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 company wants to fix the low pass rates of DMV driving tests, helping people get on the road safely and with proper training.
  + They also want to make a profit off the opening in the market, since there’s very little competition for this idea.
* The system for users allows them to take online tests about driving and schedule in person driving lessons.
  + Therefore, the system needs to have accounts for the users to store their data, rules of the road tests for them to take which track progress, and ways for them to schedule and manage driving appointments online.
* The system needs to be able to log and track the activities of many different user accounts so it can keep track of each student’s progress. New accounts are made by phone call, with specific information: first name, last name, address, phone number, state, and their credit card number, expiration date, security code, pick up location, and drop off location.

### 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 client has a specific design for the UI in mind, which can easily be compared to the given visual examples to make sure it matches.
* The system is strictly a web interface for the users, running off a cloud which supports the data access the company desires and covers backups and some security concerns.
* Users should each have their own account, which tracks and stores their activity both for personal convenience and system security/tracking. The information for these accounts is listed above.
* All data in the system should be easily viewable and editable while online and downloadable for Liam so he can view it while offline.
* Ian should have full control and full access since he’s the head of the IT department, then other roles with varying levels of security for other employees and users.
* The content of the tests should be updated to fit DMV requirements. This means the company will need a direct connection to the DMV, and detailed notifications whenever any test specifications are changed.
* Reservations for a driving appointment can be made online, and any reservation made will draw from available dates, cars, and the driving package of the users. Reservations will be logged for security and will take up that spot on the company calendar, preventing any other reservations in the same time slot.
* Driving Packages come in three different forms, with varying amounts of lessons and price tags. These packages should be able to be “disabled” by the company so that they stop appearing as options to users at any time.
* Contact should be open, allowing for the company to get contact information for the students and for students to contact the company. This contacts page is an additional page not given in the UI example but should look similar in style to fit with the company’s overall design.

## 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 system is a web-based application, and therefore needs to run in most web browsers. Chrome, Firefox, Microsoft Edge, and Safari are the big four must-supports to guarantee that any hardware can use the DriverPass service.
  + Other lesser used browsers could be supported (for example, I personally use OperaGX), but this isn’t a requirement and more of a supplement.
* Ideally the system is fast and responsive, so that students can take live tests online and not lag out.
* The system should also be updated frequently, due to the need for academic regulations and changing schedules with the DriverPass company when scheduling driving appointments.

#### 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?*

* Due to being web based, we mostly only have to worry about back-end platform constraints for managing the system. So whatever operating system Liam and his IT director Ian own, is what the system will be built to run on.
* The back end will require a database to manage the class information, such as the standard rules of the road information, specific tests for the students to take, and the students themselves with their account information, packages, and academic progress.
* There will also have to be a calendar tool that keeps track of all the DriverPass driving appointments. This can be custom, or a third-party tool such as Google calendar, whatever works best. So long as backups are kept somewhere safe in case of third-party issues.

#### 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 each have an account, which will be purchased when first signing up and regularly paid for with a subscription. These accounts will have typical login credentials that validate the user and allow them to access the information their account allows.
* Inputs will be monitored and regulated, with everything either being selection from options on a test or mostly text boxes. Inputs won’t need to have unnecessary inconvenience like being case sensitive, but they will have to have things like limits on character length to prevent unnecessary system strain.
  + To add on to that system strain point, nothing like a zip file will be allowed as input, to protect from security threats and DDoS attacks.
* If the system detects a security breach of even just an attempt, the admins will be notified immediately. It’ll have to be a case-by-case basis to see if it was a security breach or an accident like a bug, and the consequences for users attempting attacks will be addressed in the Security section.
* If the user is having a problem, they will have a hotline to call for help and basic troubleshooting resources always available to them.

#### 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?*

* User data will be stored in a database, not directly placed into the code. This means that the database can be manipulated using the proper tools, changing the data of a user’s account without issue.
  + This will functionally allow admins to do things like changing the account’s password if they forgot it or shifting around their driver package if they want to change it.
* Platform updates will be automatically rolled out to users, due to the nature of a web application. They don’t need any software on their system to use DriverPass, so updates will only affect the backend and the directions the system sends out to the web browser.
  + This back-end updating is even easier considering that the system is using a cloud to store data, as the only thing that will need to be changed is the software itself.
* The IT administrator will need high-level access to be able to manage the system and use the tools mentioned above to access the cloud, where they can change user data and other system data. This access would use the same account verification as the users but have a lot more permissions attached to it.

#### 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?*

* For our system, an email and password will work perfectly fine. These will be used to validate their initial login and give them access to the system, with access that is proportionate to the type of user they are (normal users, users with access to online classes, and admins or other employees).
  + Two-factor authorization will be available to those who want the extra layer of safety in logging into their accounts.
* Using data encryption is a good way to protect data in transit and will be applied to all data requests users make. The system will be kept up 24/7, besides when large updates or changes are needed, and using a third-party cloud will further help with keeping the connection smooth and consistent.
* If an account is found to have attempted hacking into the system, and this attempt is then verified by the admins, then their account will be revoked, and their package dropped from our service. There will be a legal disclosure about this when they sign up, stating that if they try to attack the system, they forfeit the account. The connected email will then be blocked from applying for DriverPass again.
* As stated above, the user can contact DriverPass at any time through email, or by phone call during their hours. There will be an option for if you forget your password, that will direct you to the correct contact areas to reach out and get it back.

### 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.”*

* This system shall validate users when they log in by email and password.
* This system shall track the activity of each user while they’re using the DriverPass system, storing the tracked data in the cloud.
* This system shall offer three different driving packages to users, which have different scheduling and online access, and charge them a fee accordingly.
* The system shall have online classroom materials, such as tests and lessons, that are only accessible by users with the correct package.
* The system shall take communications from the DMV and notify staff when an update to DMV requirements requires changing classroom content.
* This system shall allow admin users to print an activity report for user activity.
* This system shall give admin users full control over user data, allowing them to modify it and even remove it if a deliberate hacking attempt is found.
* This system shall allow admin users to remove certain packages from being purchased or accessed without removing the package from the system.
* This system shall support many different types of communication, giving users resources for them to access ones that aren’t on the web page (phone numbers and in-office meetings).
* This system shall connect to a third-party calendar tool to submit and keep track of driving appointments. The calendar tool will require plugins with the web application to show it to users.
* The system will allow users to schedule their own driving appointments, updating the central calendar system with that information.
* The system shall provide an option to the user if they forget their password. They can either reset it with their email address and a security question or contact the company directly.

### 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 client has a specific design for the UI in mind, which can be compared to the given visual examples to make sure the system needs fit their UI ideas.
* The user interface needs to handle all of the functional requirements stated above, while also being easily readable and comprehendible.
* The different levels of users are in this order: user with package #1, user with package #2, user package #3, IT worker/employee, administrator. Each level has different levels of access depending on the contents of their package of the needs of the employee for maintaining the system. The UI will need to be designed with each of these levels in mind, changing to display their requirements.
  + The initial login screen will look the same for each user.
* The user interface should be able to align to all desktops and most common web browsers, as stated above. Currently speaking, the only planned mobile support is for the admin to check and print user data, which would probably be a simplified version just for him. Later, mobile support could be added for users, but doesn’t need to be included in the first wave.

### 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?*

* Initial sign up was not addressed in the designs above. DriverPass specified that they wanted sign up to be over phone, so the front page before sign-in will have a prompt leading to the phone number and in person office. Initial sign up requires the user to give the office first name, last name, address, phone number, state, credit card number, expiration date, and security code. This data will be added to their account, which will then use an email and password to log in to
* DriverPass assumes that the user has a computer with internet to have access to the system.
* DriverPass assumes that a valid third-party cloud storage company will be able to handle all of the data that goes in and out of its system without massive strain while also fitting in budget.
* DriverPass assumes that a valid third-party calendar tool can be properly integrated as a plugin and be available to the users for scheduling while also fitting in budget.

### 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?*

* DriverPass cannot function without an internet connection.
* If the Cloud that stores user data is down or attacked, then DriverPass will also be down or may have data leaked.
* If the Calendar Tool that stores driving appointment schedules is down or attacked, then it would stop DriverPass from making new appointments online. However, due to keeping backups and being able to print user data summaries, the schedule can be continued in office. But it will still be much more difficult than usual.
* The DriverPass company is a newer start up, with only one office location and a limited number of staff. The budget also isn’t very large, so they don’t have a ton of resources. Those restrictions make programming anything ginormous difficult, which is why so many third-party and open source resources will be employed.

### 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.*

Table

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