# Wesley Blackwell

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 client, DriverPass, would like to create an online driver training program to help people pass their driving tests.

### 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 client asked us to build a system that enables our customers to take online classes, practice tests, and schedule on-the-road training online if they wish.
* The system will be cloud-based and run off the web.
* The system needs to be accessible from any computer or mobile device.
* Customers will be able to make, cancel, or modify reservations a driver.
* The system will need to be connected to the DMV and receive notifications on changes to rules, policies, or sample questions.
* Administrative users need access to all data for reports, password resets, and access restrictions.
* Administrators need to be able to track cars, drivers, schedules and students so they can track which student is with what driver in which car.
* The secretary needs access to profile creation and scheduling.
* Drivers need access to the “driver’s notes” page to write comments and times relative to each lesson.
* Administrators need to be able to add, modify, and delete purchase package information for future availability.

### 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 system will provide the user with the following functions:
  + Online classes
  + Online practice testing
  + Scheduling, cancelling, or modifying reservations for on-the-road training
  + Resetting their personal password
  + Tracking progress on their practice tests
  + Profile creation for contact and billing
  + Selection of the current packages available for purchase (subject to change)

## 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 should be cloud based
* Updates should be frequent and regular for updates to the DMV requirements, system maintenance, and to remove excess data that is no longer needed. Users who have completed their courses, passed the tests, and are now licensed to drive do not need this service in it’s current state.
* There will be multiple users accessing the system at one time so the speed needs to support many users. Disks with higher rotational speeds can be used to reduce random request service times.
* Large cache space and processors with high address space are also useful in keeping the system fast enough to handle the volume of use.

#### 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?*

* Databases will be required to store data from the users, images, rules and requirements, tests, scores and other data.
* Windows and IOS should suffice to cover the vast majority of users.

#### 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?*

* Each customer will create their own case sensitive login and password that will be unique to their data and account. These logins cannot access the administrative section of the application.
* Admin users should have their own login page in the application and they will be super users.
* Administrators will need to be notified immediately when a problem occurs. Users need to have 24 hour access to their subscription or purchase. Above all else is security. User’s information needs to be safeguarded at all times.

#### 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?*

* Admin should be able to make changes to the list of users without affecting the source code. This should be as simple as accessing the list of users and removing them from the list along with any data stored that is associated with that object.
* The platform should update independent of the application and a scheduled restart of the system should occur.
* Admin should have complete access to all data in the system.
* Admin should be able to hide or unhide packages offered by DriverPass
* Admin should be able to access all user profiles including admin
* Admin should NOT be able to edit the source code. Any edits that need to be made must be planned and scheduled by the whole development team.

#### 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 enter their username and password credentials to access their account.
* Encryption must be used to secure the connection between the system and the user. SSL encryption protects the data using a TLS handshake and generates session keys to encrypt all data within each session.
* Brute force attempts should be blocked by locking user accounts after a certain number of failed attempts.
  + Administrators should be locked out by less than 5 failed attempts.
* Abnormal login failures, such as more than 10, should trigger a notification to an admin and lock the account until an administrator can contact the customer for support.
* Forgotten passwords need an option for the user to reset their password by answering a security question and entering their email associated with the account. Text message confirmation codes are optional.

### 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 read in and validate user credentials when logging in.
* The system shall verify the role of the user, access and load the associated profile data, access and load the user’s progression, and bring them to the homepage.
* The system shall provide customers with packages to choose from for purchase.
* The system shall provide customers with scheduling options for driver training.
* The system shall automatically update the DMV rules and requirements on a scheduled basis.
* The system shall send confirmation emails to DriverPass and the customer for purchases, changes, and scheduling.
* The system shall send customers receipts via email.
* The system shall send reports to administrators on a scheduled basis.
* The system shall only allow customers access to their purchased content and all other purchasable content will be restricted.
* The system shall allow users to reset their password by answering security questions, entering their email address, and confirming with a text message passcode.

### 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 needs to recognize touch screen devices and keyboards for input.
* Users will interact with the system via mobile device, kiosk, and desktop/laptop.
* There will be multiple age groups on the customer and admin end. Two user types will use the interface: customers and administrators.
* Each customer user will need to be able to create login credentials, enter their personal information, enter their payment method, reset/change their password, select/unselect a package, schedule appointments, and access their purchased online material.
* Drivers need to be able to update their notes and keep up with their schedule.
* Admin need to be able to access and edit all data in the system within security requirements.

### 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 have internet access and are familiar with similar systems and technologies
* Users have the proper hardware and software capabilities
* Reports from the system are the only important data that admin need

### 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 system will be reliant on a constant internet connection
* Microsoft is often a target for hacking

### 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 calendar

Description automatically generated with low confidence