Southern New Hampshire University

CS 255 Business Requirements Document Template

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?

- DriverPass initial objective is to utilize a system for training students for the driving test at department of motor vehicles. The objective of the project is to increase performance and access to driving test classes and online practice tests. DriverPass is a new company with Liam as the owner, who will be in charge, and Ian as the Information Technology Officer responsible for maintaining the system and modifying it, and secretary answering phone calls and makes appointments.

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 wants the system to be able to access data online and from any computer or mobile device.
- Need to be able to download the reports using Excel Spreadsheets. DriverPass will have users, access rights with authentication, and authorization.
- Account activation and deactivation rights.
- Driver test reservations and real-time data management necessary, such as booking a scheduled driving exam appointment.
- Print activity reports and identify ownership.
- Need date and time for appointments, along with specifying length of appointment (2 hours), driver assigned for examination along with examiner and car number (total of 10 cars).
- Appointments should be modifiable with three different actions {make, cancel, modify or create, delete, update}
- Three separate package options, modifiable by administrator only {create, delete, update}:
    - Package one: Six hours in a car with the trainer
    - Package two: Eight hours in a car with a trainer and an in-person lesson, taught DMV rules and policies

    - Package three: Twelve hours in a car with a trainer, an in-person lesson where we explain the DMV rules and policies, access to online class with all content and material, includes practice exams.
- Individual profile provided over phone call and through online form, includes following information:
    - First name, last name, address, phone number, state, credit card number, expiration date, security code, pickup location/drop off location (same)
- Automatic password reset and authentication, authorization.
- Updated information streamlined through API to DriverPass to get up to date changes, notify administration
- Client/Server architecture with a database storing user information and credentials all protected via encryption and predefined trustworthy and stable backup and security packages
- Site will have information on test progress or examination days remaining with tests taken (name, time taken, score, status). Status will include taken, in progress, failed, passed. One page will show individual information and credentials, one page has a section for special needs, driver photo, student photo including a page for driver notes. Driver notes will show a table of any comment's driver left, as well as times for the lessons.
- Contact page includes information for both the user and DriverPass

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?

- System should be able to add users with proper information for driving tests. A user will first begin by creating their profile or contacting DriverPass directly.
- Once the user is created with a username and password while filling in all necessary credentials, the user will be prompted by the tests progress page showing current, past and future driving tests along with all relevant information specified above.
- The user should be able to request to modify the time for the appointment, or request cancellation, in which the administrator should be able to approve, and the admin can modify all necessary information.
- The user will also have access to the information page along with the special needs section and driver and student photos. The driver will also have access to this information such as the photo and user relevant information, along with driver notes.
- Design and build use case diagrams and activity diagrams – 8 days.
- Research user interface designs that suite well for DriverPass – 9 days – no dependency.
- Class diagram – 9 days.
- Work on Interface – 12 days.
- Build database and tables and link to interface – 9 days.
- Business logic (security, role, right) – 22 days.
- GANTT chart for documentation.

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?

- This system needs to handle multi-platforms and operating systems. The best solution is to have the application web based running a server-client architecture with a database.
- The speed of the system will be real-time since the application will be solely dependent on the client and not the server. Server traffic will be greatly reduced through storing most resources client-side, which will make for a fast UI experience.
- System will be updated regularly and directly connected to the local DMV and federal driving laws databases and sites in order to provide up-to-date information. The system will display notifications regarding updates, errors, and crash reports.

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?

- The system will be capable of running on IOS, Android and web-based platforms or systems.
- The backend will require a database to support the users and their specified credentials and information.

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?

- Distinguishing between users will require individuals to create an account with a username and password and some form of authentication (2FA, phone confirmation).
- Passwords must be stored properly with encryption and security standards in place for password specifics such as length, case-sensitivity, numbers, and symbols.
- The system should inform the admin when the user attempts to enter a failed password multiple times and locks the account (after 5 attempts). The account will remain locked until either security question information is confirmed, and the password has been reset. This will inform the admin that the user is the designated user and just forgot their password. There will also be an option to reset the password which will send a confirmation link to the designated user's email.
- The system should also inform the admin of a problem when the system fails to display, provide, or create relevant information which is dependent on the applications functionality.

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?

- Without altering the code, the users will follow a CRUD standard which includes the core functionalities of creating, reading, updating, and deleting. This in turn should be reliant on the users account permissions and accessibility to specific content.
- The system will adapt to platform updates through using a Roll-Out method for updates on all platforms and having temporary and general maintenance on the servers outside of regular operating hours (mainly in the middle of the night).
- The IT administrator will need access to an administrative portal which provides specific functionalities such as giving permissions to users, granting access to users, modifying limited data that relates to the site excluding users. This way we follow the principles of least control access in the event a breach was to occur with the administrative level account.

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 must have a valid username and password which follows the password and username creation constraints. Passwords must be stored properly with encryption and security standards in place for password specifics such as length, case-sensitivity, numbers, and symbols.
- In order to secure the connection between the client and the server we must put security restraints on path visibility and follow principle of least control access. Hashing passwords and using encryption algorithms will increase protection for passwords and hashing site resources that are user specific will decrease a breach in unwanted access or control.
- Ensuring the user has the right access control and providing only potential routes or links the user has access to will prevent a breach in the application, which could further provide the user with context on how the system/source code operates/performs otherwise.
- If there is a brute force hacking attempt, the account will be locked, the user will be informed on the attempt and a security alert notification will be sent to the administrative department of the application and will go under investigation. The attempted breach will store the individuals IP address, location, time and date, as well as prior attempts associated with the anonymous record.
- If the user forgets their password, they may submit a request for reset through providing their email. The email will send them a confirmation code and a link, in which the confirmation code will be received on their mobile phone and a warning letting the user know that their password has been requested for a reset along with a confirmation/ignore. The user will continue to verify the required information and reset their password with the constraints.

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 implement a reset password function
- The system shall permit modification of user information on all platforms supported

- The system shall display a user's information and details
- The system shall sync with all corresponding platforms along with all corresponding information
- The system shall allow for the creation of a driver's appointment
- The system shall notify/remind a user when the drivers' appointment is prior to the appointment
- The system shall provide submission of information and account creation along with identity verification

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 needs of the interface include a dynamic resizing UI that will remove and refine the interface based on the size of the screen.
- The different users of the interface will include drivers and trainers along with administrators.
- There will need to be separate designs for the drivers, trainers, and administrators.
- Drivers will need to be able to view driver information for exams and study materials. They will also need to be able to access appointments and their current schedule.
- Trainers will need to be able to review and confirm appointments along with managing driving sessions. They will also need to review driver information along with a record of the driver's history with training. Administrators will need to have access to a UI that provides control context, access modification, system performance, and system 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?

- Users will have access to the Internet
- Users will be knowledgeable about the process of making a driver test appointment
- Users will be knowledgeable about how to operate the operating platform they choose to use the system with
- Users will create a username and a password in order to access the system

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 encounter a limitation on performance when it comes to mobile versus computer systems and their optimal speeds.
- Their may be limited resources available, limiting the capabilities of the application to scale
- Budget may be limited due to funding for the project and since the project does not generate revenue

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.

Southern New Hampshire University

Driver Pass Gantt Chart

Blaze Heidelberger | January 27, 2022