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?

- The purpose of this project, based on the interview transcript with Liam from DriverPass, is to address the inadequacies in driver training that lead to many individuals failing their DMV tests. DriverPass aims to provide comprehensive driver training solutions, including online classes, practice tests, and on-the-road training options. Liam, the client and owner of DriverPass, envisions a system that allows users to access training materials online, schedule driving lessons, track reservations, and maintain compliance with DMV regulations through regular updates and notifications. The system should also support various user roles, from administrators like Ian who manage system access, to customers who can easily schedule, modify, and cancel appointments online.

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 seeks to address the high failure rate in driving tests by developing a system that offers comprehensive driver training through online classes, practice tests, and on-the-road sessions. The system must facilitate easy appointment management, allowing customers to schedule, modify, and cancel driving lessons online or via direct **contact with** their secretary. It also needs robust reservation tracking to match customers with specific drivers and cars efficiently. Ensuring compliance with DMV regulations is crucial, requiring integration for timely updates and notifications. The system will support various user roles, including administrators like Ian and customers accessing training materials and scheduling tools, aiming to improve overall preparation and success rates for driving test candidates.

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 completed DriverPass system aims to provide comprehensive online driver training and test preparation services. It will allow users to access interactive classes and practice tests, schedule driving lessons online or through direct communication, and receive on-the-road training with designated instructors and vehicles. The system must effectively track reservations, ensuring accurate matching of users with trainers and vehicles. It will integrate with DMV systems for timely updates on regulations and policies, support multiple user roles with varying permissions, and provide robust reporting capabilities to monitor system performance and user engagement. These components are crucial to delivering a secure, efficient, and user-friendly platform for driver education.

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 DriverPass system needs to run primarily in a web-based environment to ensure accessibility from any device with an internet connection. It should be optimized for speed to provide seamless user experience during tasks such as accessing online classes, scheduling appointments, and viewing test results. As for performance metrics, aiming for quick response times (typically within a few seconds for critical operations) is ideal to enhance user satisfaction.

- Regarding updates, the system should follow a schedule that balances the need for new features and security patches with system stability. Updates should be scheduled regularly, perhaps on a quarterly basis, with additional updates as needed for critical security fixes or new regulatory requirements from the DMV. Regular updates ensure that the system remains current, secure, and capable of meeting evolving user needs and industry standards.

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 DriverPass system should ideally be platform-independent, capable of running on both Windows and Unix/Linux environments to accommodate a diverse user base. For the backend, a robust database management system is essential to handle data storage, retrieval, and management efficiently. This requires selecting a database tool that supports scalability, reliability, and security, such as PostgreSQL, MySQL, or MongoDB,

depending on specific performance and feature requirements outlined during the system design phase. Integrating appropriate backend tools ensures the system can manage user data, reservations, and administrative functions effectively, supporting the overall functionality and reliability of DriverPass operations.

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?

- In the DriverPass system, users are distinguished by unique identifiers or usernames linked to their accounts, ensuring secure authentication through case-sensitive credentials. The system alerts the admin promptly in critical situations such as severe errors affecting functionality, security breaches, or performance degradation. These notifications are essential for maintaining system integrity and ensuring timely resolution of issues to uphold operational reliability and user trust.

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?

- In the DriverPass system, flexibility is key to managing user access and adapting to platform updates without requiring code changes. Administrative functionalities, such as adding, removing, or modifying user roles and permissions, are designed to be configurable through administrative interfaces or management consoles. This approach ensures that adjustments can be made swiftly and efficiently without disrupting the core system functionality. Regarding platform updates, the system is engineered to accommodate changes seamlessly by adhering to best practices in software design and architecture. This includes compatibility testing and adopting modular components that can be updated independently as platform updates are released. The IT admin requires full access to manage user accounts, perform system maintenance, configure security settings, and oversee database operations to ensure smooth operation and data integrity.

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 user login in the DriverPass system, authentication requires a username and password. To ensure secure connection and data exchange between the client and server, HTTPS (SSL/TLS) encryption is employed, safeguarding data integrity and confidentiality. Additionally, server-side validation and multi-factor authentication (MFA) enhance security by requiring additional verification steps beyond the password.

- In cases of a "brute force" hacking attempt, where repeated login tries are made to guess a password, the system responds by implementing safeguards like temporary account

lockouts or CAPTCHA challenges to thwart automated attacks. These measures protect against unauthorized access and ensure account integrity.

- For password recovery, if a user forgets their credentials, DriverPass provides a secure process to reset the password. This involves sending a password reset link to the user's registered email or SMS verification code to their phone, coupled with identity verification steps. This approach maintains account security by allowing only verified users to regain access to their accounts.

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."

- 1. **Manage Reservations:** The system shall allow customers to schedule driving lessons online, including selecting the date, time, and preferred instructor, and provide options for cancellations or modifications.
- 2. **User Authentication and Authorization:** The system shall authenticate users based on credentials (username/password) and authorize access levels (e.g., administrator, instructor, customer) to ensure data security and privacy.
- 3. **Reporting and Activity Tracking:** The system shall generate activity reports that track reservations, modifications, and cancellations, including user actions and timestamps, to maintain transparency and accountability.

These functions are crucial for fulfilling the requirements discussed in the DriverPass scenario focusing on managing reservations, ensuring secure access, and providing comprehensive reporting capabilities.

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 for DriverPass needs to cater to diverse user roles effectively. Customers (students) will use a user-friendly web and mobile interface to schedule driving lessons, manage reservations, access learning materials, and update personal details. They should also have easy access to support channels for assistance. Administrators, such as the owner and IT administrator, require a robust web-based admin panel. This panel should enable them to manage user accounts, configure system settings, monitor reservations, generate reports, and ensure system security comprehensively. It needs to be intuitive for efficient oversight and maintenance of the platform.

- Instructors will utilize a dedicated mobile app or web portal to view schedules, access student information, mark attendance, provide feedback, and possibly access instructional resources. Their interface should facilitate seamless interaction during driving lessons.

Each user group's interface should prioritize usability, responsiveness across devices, and clear navigation to optimize their respective workflows within the DriverPass system.

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?

- In the outlined design for the DriverPass system, several critical aspects remain unspecified. Integration with DMV systems lacks detail regarding data update frequencies, transmission methods, and security protocols. Specific security measures beyond basic authentication and data encryption need elaboration. Additionally, plans for user training, customer support strategies, and troubleshooting procedures were not detailed, assuming user familiarity with technology and reliable internet access. Assumptions include initial compliance with DMV regulations without clear provisions for ongoing compliance and regulatory audits. Addressing these gaps through detailed planning and explicit specifications will ensure the system's functionality, usability, and security align closely with user needs and regulatory requirements.

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?

- In the proposed system design for DriverPass, several limitations are anticipated. Firstly, resource limitations may impact the scope and scale of the system, particularly in terms of hardware and software infrastructure required to support concurrent user interactions and data processing. Time constraints might restrict the depth of testing and refinement phases, potentially leading to initial system instability or unaddressed user interface issues. Budget constraints could limit the extent of security measures and ongoing maintenance support, affecting the system's resilience against cyber threats and ability to adapt to evolving regulatory standards. Technologically, compatibility issues with legacy systems or emerging platform updates may pose integration challenges, potentially affecting system reliability and user experience. Addressing these limitations requires careful prioritization, effective risk management, and continuous stakeholder communication to align project expectations with available resources and technological capabilities.

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.