Southern New Hampshire University

Joseph Cassello Jr.
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 is to design a system for DriverPass that enables students to prepare effectively for DMV driving tests.

- DriverPass is an organization focused on helping students successfully pass DMV tests through a structured learning platform.

- The system should be able to:
  - Provide students with online practice exams, track their progress, and allow scheduling for driving lessons.
  - Offer DriverPass staff the ability to manage appointments, view student records, and securely handle sensitive data.
  - Support continuous updates to the training materials to ensure alignment with DMV standards.
  - Deliver a user-friendly interface for both students and staff to improve accessibility and system usability.

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 believes a significant number of students struggle with passing the DMV driving test. DriverPass believes that with improved preparation tools, students will be better equipped to succeed.

- The system should be able to:
  - Provide accessible, secure, and reliable online practice exams and training materials.
  - Allow students to schedule, manage, and attend both online and in-person lessons.
  - Grant staff and administrators the tools to manage student data securely, track individual progress, and adjust resources as needed.
  - Update course materials and test questions promptly in response to DMV guideline changes.

- Components needed for the system:
  - A student portal for registration, scheduling, practice exams, and progress tracking.
  - A staff dashboard for appointment management, student performance tracking, and secure user account management.
  - Administrative controls to access a data-rich dashboard, grant control over training packages, and notifications on DMV updates to ensure accuracy in content.

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?

- Students will be able to:
  - Register, update and manage their accounts.
  - Schedule, update, or cancel driving lessons.
  - Choose from multiple training packages with distinct features.
  - Take updated DMV practice exams and receive feedback on progress.

- Staff will be able to:
  - Manage student appointments, including rescheduling and cancellations.
  - Track each student's progress, generate reports, and communicate feedback.
  - Manage user accounts and have the ability to reset or block access to accounts as necessary.

- Administrators will be able to:
  - Access a dashboard with key metrics, such as test scores, lesson attendance, and instructor notes.
  - Enable or disable specific training packages to accommodate updates or specific needs.
  - Receive notifications for DMV updates to promptly align DriverPass content with the latest standards.
  - Maintain the security and privacy of all user data, ensuring compliance with relevant data protection regulations.

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?

- System Environment: The system will be web-based, so users can access it from any device with internet, whether it is a desktop, mobile, or tablet.
- System speed: The system should respond quickly–ideally within 2-3 seconds for key actions like booking lessons, viewing progress, or taking exams. This will ensure a smooth and efficient user experience.
- Updates Frequency: The platform should be updated regularly, at least once every quarter, to reflect any changes in DMV rules and test content. Any security updates should be applied immediately to maintain a secure environment.

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?

- Supported Platforms: The system will work across all major operating systems like Windows, macOS, and Linux, as well as on mobile platforms (iOS and Android). Users should be able to interact with the system seamlessly, whether they are using a computer or a mobile device.
- Backend Tools: A relational database, such as MySQL or PostgreSQL, will store user data, appointments, and exam results. We will use cloud hosting (AWS, Google Cloud, or Azure) to ensure scalability, reliability, and data security.

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?

- User Identification: Users will be identified through their login credentials (email and password), with each role (student, staff, admin)having different access permissions.

- Case Sensitivity: Login credentials (username and password) will be case-sensitive for added security. Other fields like names will be treated case insensitively to improve user experience.

- Admin Alerts:
    - Multiple failed login attempts (5 or more)
    - Missing or incomplete data during booking or registration
    - Unauthorized access attempts or unusual login behavior

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 Management: Admins will be able to manage users–whether that is adding, modifying, or deleting accounts–through an easy to use interface, without needing to touch the code.

- Platform Adaptation: The system will be flexible enough to handle changes in the underlying platform, whether that is a new browser version or updates to mobile OS requirements.

- IT Admin Access: IT admins will have full access to system settings, including user management, security features, and system maintenance tasks. They will be able to handle things like resetting passwords, adjusting permissions, and ensuring the system is up to date.

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?

- Login Requirements: Users will need a username (email) and password to log in, and admins will also need two factor authentication for an added layer of security.

- Secure Connection: All communication between users and the system will be encrypted using SSL/TLS, ensuring sensitive data is securely transferred.

- Brute Force Protection: After several failed login attempts, an account will be temporarily locked, and the admin will be notified. This prevents unauthorized access attempts.

- Password Recovery: If a user forgets their password, they can reset it through an email based recovery system. They will also have to confirm their identity (either through security questions or a verification code) before they can reset it.

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 validate user credentials when logging in
- The system shall allow students to register and manage their accounts
- The system shall allow students to schedule, modify, and cancel lessons.
- The system shall offer multiple training packages for students to choose from.
- The system shall allow staff to manage student appointments, track progress, and give feedback.
- The system shall allow admins to access a data dashboard with key metrics like test scores and attendance.
- The system shall notify admins about updates or changes in DMV regulations.
- The system shall ensure compliance with privacy laws by securely handling and storing all user data.

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.)?

- User Types:
  - Students will use mobile or web browsers to manage their profiles, schedule lessons, take practice tests, and track their progress.
  - Staff will access a web dashboard to manage student appointments, track progress, and provide feedback.
  - Administrators will use an admin interface to oversee the system, manage user accounts, and ensure compliance with DMV standards.

- Functional Needs per User:
  - Students will need to log in, register for the service, choose training packages, schedule lessons, and take practice exams.
  - Staff will need the ability to manage appointments, track student data, provide progress reports, and give feedback.
  - Administrators will have full control over the system, including user managements, content updates, and access to reports and system alerts.

- User Interaction: The system will be mobile responsive, ensuring users can interact with it whether they are on computer or a mobile device. Everything should be straightforward and user friendly to make the process as smooth as possible.

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 are expected to have internet access and be able to navigate modern web browsers or mobile apps.

- The staff at DriverPass is assumed to have the necessary technical skills to manage the system and perform administrative duties.

- Students will need a basic understanding of how to use an online platform, including signing up and managing their appointments and training materials.

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?

- Time and Budget Constraints: Given the limited time and budget, some features, like a fully customizable lesson package system, may need to be added later on or might not be in the initial release.

- Resource Limitations: Due to time constraints, there may be limited testing and quality assurance before launch, so we might need to refine features after the system goes live.

- Scalability: The initial version may not be fully scalable for a sudden surge of users. Future updates may be needed to accommodate a larger user base or high traffic loads.

Southern New Hampshire University

Gantt Chart

Scheduling Gantt Chart