

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 develop a robust system for DriverPass that addresses the problem of insufficient driving test preparation.
- DriverPass aims to help students improve their chances of passing DMV driving tests by providing online practice exams, on-the-road training, and educational materials.
- This system looks to simplify the scheduling process, improve user accessibility, and ensure seamless tracking of lesson progress and reservations.

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 has identified a significant gap in the market for accessible and effective driver training solutions.
- Their solution is a system that integrates online learning, practice exams, and driving lesson scheduling, tailored to student needs.
- The system requires several components:
 - User Accounts: For students, administrators, IT officers, and secretaries, with role-based access.
 - Scheduling Module: To book, modify, and track driving lessons.
 - Practice Exam Portal: To provide DMV-aligned test materials and track student progress.
 - Activity Reports: To monitor system activity, including reservation changes and user actions.
 - Security Features: To protect user data and restrict unauthorized access.
 - Device Accessibility: Allow users to access the system from computers, tablets, and mobile devices, with limited offline functionality for certain tasks like report viewing.

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?

- Create a user-friendly interface for students to access online lessons, practice tests, and training materials.
- Develop a flexible scheduling system that allows students to book, reschedule, or cancel lessons online or through a secretary.
- Implement a robust tracking system to log all reservations, changes, and user activities, with detailed reports for administrative review.
- Ensure the system supports multiple user roles, each with appropriate access permissions:
 - Administrator: Full system access, including user management and report generation.
 - IT Officer: System maintenance, account resets, and security oversight.
 - Secretary: Appointment scheduling and basic user support.
- Maintain system security and ensure compliance with DMV updates, integrating notifications for rule changes and new requirements.
- Guarantee system scalability to accommodate future updates, such as new driving packages or enhanced learning modules.

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 shall be web-based, accessible via standard browsers on desktops, tablets, and smartphones.
- The system shall process login, scheduling, and test submission requests within 3 seconds under normal conditions.
- The system shall support at least 500 concurrent users without performance degradation.
- System updates shall be deployed monthly, with critical security patches applied immediately as needed.

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 shall be hosted on a cloud-based infrastructure to ensure scalability and reliability.
- The web application shall be compatible with Windows, macOS, iOS, and Android devices.

- The back-end system shall utilize a relational database (e.g., MySQL or PostgreSQL) to store user data, exam results, and scheduling information.
- The system shall be built using standard web technologies, including HTML, CSS, JavaScript (React/Angular), and a back-end framework (Node.js, Python, or Java).

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?

- The system shall accurately differentiate between students, secretaries, driving instructors, administrators, and IT officers through role-based access control.
- Input fields such as name and email shall be case-insensitive, while passwords shall be case-sensitive.
- The system shall lock an account after five consecutive failed login attempts and notify the administrator of potential unauthorized access.
- Test results shall be stored with two decimal precision to ensure grading accuracy.

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?

- The system shall allow administrators to add, remove, or modify user accounts and driving packages without modifying the system's source code.
- The system shall be compatible with third-party DMV APIs to integrate updated driving test regulations seamlessly.
- IT administrators shall have access to a configuration panel to adjust system settings, enable/disable features, and update pricing for lessons.
- The system shall allow for new training modules to be added dynamically without requiring downtime.

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?

- User Authentication:
 - Users shall log in using a username and password, with an option for two-factor authentication (2FA) for added security.
 - Passwords shall be stored hashed and encrypted using industry-standard security protocols (e.g., bcrypt).
- Data Protection:
 - The system shall use SSL encryption to secure data exchanges between users and the central server.
 - Sensitive data such as payment information shall be tokenized and stored in compliance with PCI DSS standards.
- Account Recovery:

- Users shall be able to reset their password using a registered email address and a secure verification process.
- Hacking Prevention:
 - If an account experiences a brute force attempt, the system shall temporarily lock the account and notify the IT administrator.

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 allow students to create accounts, book lessons, and take online practice exams.
- The system shall enable students to track lesson progress and receive notifications for upcoming appointments.
- The system shall allow secretaries to schedule, modify, and cancel lessons on behalf of students.
- The system shall provide driving instructors with a lesson schedule and a way to record student progress.
- The system shall allow administrators to generate reports on user activity, bookings, and training success rates.
- The system shall support role-based access control, ensuring each user has the appropriate permissions.
- The system shall allow students to purchase training packages through a secure payment gateway.

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 shall be web-based, accessible via browsers on desktops, tablets, and mobile devices.
- The system shall feature a dashboard for students, displaying lessons, test results, and upcoming appointments.
- The secretary's interface shall allow for quick appointment scheduling, user management, and customer support features.
- The instructor's interface shall display a lesson schedule and allow progress tracking for students.
- The administrator's interface shall provide reporting tools, system settings, and user management functions.
- The system shall feature an intuitive, user-friendly UI with clear navigation menus and accessible design elements.

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 internet access when using the system.
- Students will have basic computer skills to navigate the platform.

- Users will be responsible for keeping their login credentials secure.
- The system will only support English language at launch, with potential expansion for multilingual support later.
- Instructors will manually input student performance data after each driving lesson.

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 cannot function offline; internet connectivity is required for all services.
- The system does not provide video driving lessons—training is conducted in person.
- The scheduling system will not support last-minute cancellations; a 24-hour cancellation policy will be enforced.
- Only registered students can use the system—it will not support guest access.
- The system will not offer automatic DMV test scheduling; students will need to book their DMV tests separately.

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.

