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# 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 the DriverPass project is to create an innovative system that revolutionizes the way students prepare for their DMV driving tests. Initiated by Liam, the owner of DriverPass, the goal is to fill a market gap by offering a blend of online and on-the-road driver training programs. This system is envisioned to be a comprehensive solution enabling customers to access online classes, practice tests, and easily book in-person driving lessons. Liam's vision is to enhance the learning experience, making it more accessible and effective for users aiming to pass their driving tests with confidence.

### 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 significant challenge many face with the current state of driver education, particularly the high failure rates at the DMV driving tests. The core issue stems from the lack of a unified, accessible platform that provides all the necessary resources and training in a format that meets the needs of today's learners. To tackle this, the proposed system is designed to encompass several critical components, including an online training platform, a dynamic scheduling system for lessons, a robust database for managing user information and progress, enhanced security features for role-based access control, comprehensive reporting and tracking for accountability, and an integration mechanism to keep the course content up-to-date with the latest DMV requirements and updates.

### 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?*

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## 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 is designed to be a web-based platform, ensuring accessibility through web browsers on a wide range of devices, including desktops and mobile phones. It aims for high responsiveness, with the goal of achieving page load times and transaction processing speeds of no more than 2 seconds under standard operational conditions. The system should undergo regular updates for maintenance, including resolving bugs, adding new features, and refreshing content to stay current with DMV requirements. These updates are planned on a quarterly basis, though more frequent updates may be necessary to address urgent issues or significant changes in DMV policies. Additionally, the infrastructure should be capable of scaling to manage increased traffic during peak usage periods, maintaining optimal performance without any compromise in user experience.

#### 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 should be platform-agnostic on the client side, running efficiently on major operating systems such as Windows, macOS, Linux, iOS, and Android through web browsers. On the backend, a reliable database management system (DBMS), such as PostgreSQL or MySQL, is essential for storing user data, training content, reservations, and progress tracking. The choice of a DBMS should consider factors like scalability, reliability, and support for cloud deployments.

#### 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 will distinguish between different users through a unique username or email address, with the input being case-insensitive to prevent login issues. Admins should be notified of critical issues, such as system errors or security breaches, immediately through automated alerts. Regular reports on user activity and system performance should also be available to admins for review.

#### 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 should allow for the modification of user roles (add/remove/modify) through an admin interface without the need for direct code changes. It must be designed with future-proofing in mind, ensuring easy adaptation to platform updates and new technologies. The IT admin needs full access to the system for maintenance, updates, and user management, including password resets and access revocation as needed.

#### 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 will be required to log in using a combination of a username/email and a strong password, with the option for two-factor authentication (2FA) for enhanced security. All data exchanges between the client and server should be encrypted using SSL/TLS to secure the connection. In the event of a brute force attack, the account in question should be temporarily locked after a predetermined number of failed login attempts, with the user and admin notified. If a user forgets their password, a secure password reset process involving email verification or security questions should be implemented to allow 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.”*

* The system shall validate user credentials during the login process.
* The system shall allow users to register for an account with personal information, including first name, last name, address, phone number, and email.
* The system shall enable users to reset their password through a secure process involving email verification or security questions.
* The system shall offer online classes and practice tests for users to prepare for the DMV driving test.
* The system shall allow users to make, modify, and cancel reservations for driving lessons online.
* The system shall display available driving lesson times and allow users to select preferred slots based on package selection.
* The system shall manage different user roles (student, instructor, admin) with specific permissions and functionalities for each.
* The system shall track and record user activity, including lesson reservations, cancellations, and test scores.
* The system shall generate reports on user activities, performance, and progress for admin review.
* The system shall update content and practice tests based on the latest DMV rules and policies.

### 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 be intuitive, user-friendly, and accessible on various devices, catering to the needs of different users: students, instructors, and admins.
  + Students need to be able to browse courses, take practice tests, schedule driving lessons, and view their progress through a dashboard.
  + Instructors require access to their schedules, student profiles, and the ability to provide feedback or notes after each lesson.
  + Admins need comprehensive control over content management, user account management, reporting tools, and system settings.
* Users will interact with the interface primarily through web browsers on both desktop and mobile devices, ensuring the design is responsive and adaptive to different screen sizes and resolutions.

### 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?*

* The design assumes that all users have access to the internet and possess a minimum level of technological literacy to navigate web based platforms. It is presumed that the majority of users will access the system on mobile devices, necessitating a mobile-first design approach. Additionally, it's assumed that the system's backend infrastructure is cloud-based, leveraging scalable and secure cloud services to handle data storage, processing, and security.

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### 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?*

One limitation in the system design could be its reliance on internet connectivity, potentially excluding users in areas with poor internet service. Resource-wise, the project is constrained by a predetermined budget, timeframe, and the availability of skilled personnel, which may limit the scope of initial features or the sophistication of the interface design. Technologically, the system might be limited by the capabilities of the selected cloud platform or the database management system, impacting scalability, data processing speed, or integration capabilities with third-party services such as DMV databases for real-time updates.

### 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.*

