# CS 255 Business Requirements Document - Project One (Henly)

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 create a comprehensive system for DriverPass, a company aiming to improve driving test success rates. The client, DriverPass, wants a system that facilitates online and on-the-road training for driving students. This system should support various functionalities including user management, data access, online reservations for driving lessons, and tracking of lesson schedules and progress.

### 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 desires a comprehensive system that supports online and practical driving education. They want the system to manage user data, facilitate online class enrollment, provide practice tests, schedule driving lessons, and track user progress and lesson outcomes.
* The primary issue DriverPass aims to address is the high failure rate among individuals taking the DMV driving tests. This problem is attributed to insufficient preparation and lack of accessible, quality educational resources for aspiring drivers.
* System Components:
  + **User Interface Framework**: This component is designed for managing distinct user categories such as learners, educators, and system overseers, incorporating features for profile creation, sign-in procedures, and access permissions tailored to each role.
  + **Educational Content Distribution**: A mechanism for delivering instructional content, online tutorials, and simulated examinations relevant to driving regulations and practices.
  + **Appointment Coordination Mechanism**: Enables learners to arrange, modify, or cancel their practical driving sessions via an online platform, while allowing educators to update their session availabilities.
  + **Progress Monitoring and Evaluation**: Tools for assessing learner advancements, session completions, and quiz outcomes. This element should also facilitate administrative insights and data evaluation.
  + **Learning Plan Administration**: Allows system administrators to construct, adjust, and oversee various educational offerings and programs available to users.
  + **Protection and Regulatory Adherence**: Ensures user data safeguarding, authenticated access, and system reliability, while maintaining instructional materials in alignment with current driving laws and guidelines.
  + **Support and Interaction Interface**: A service for users to seek help, submit evaluations, and interact with DriverPass representatives or educators.

### 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?*

* **Role-Based Access Framework**: The platform must facilitate distinct access levels and capabilities tailored to user categories such as management personnel, educators, and learners. It should encompass functionalities for establishing user profiles, managing passwords, and assigning specific permissions based on user roles.
* **Data Reachability and Protection**: Guarantee secure and user-friendly data retrieval for verified users. Incorporate mechanisms for data preservation, restoration, and safeguarded access both online and offline.
* **Appointment Coordination Functionality**: Empower learners to organize, alter, or cancel their practical driving sessions through a digital interface. The platform should transparently display available slots, instructor schedules, and educational packages.
* **Progress Surveillance and Analysis**: Deploy mechanisms for monitoring educational advancement, user engagement, and service usage. Provide detailed analytical tools for management to oversee operational aspects and learner achievements.
* **Educational Bundle Administration**: Enable management to formulate, adjust, or deactivate instructional bundles. The architecture should be adaptable to allow for future enhancements and diversification of educational services.
* **Regulatory Alignment and Refreshes**: Ensure the instructional content and practice examinations remain aligned with current driving regulations. The system should be equipped to seamlessly integrate updates from regulatory bodies.
* **Interface Design and User Experience**: Craft an intuitive and appealing user interface suitable for various user groups. Assure cross-platform compatibility to enable seamless access across different devices and web browsers.

## 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 be accessible both as a web-based platform and on mobile devices to ensure maximum accessibility for users. It should offer real-time data updates when online to avoid data redundancy and ensure accurate scheduling and tracking of driving lessons. The system should be designed for high performance, with pages loading in under two seconds under normal conditions. Updates to the system should be performed quarterly, with patches for critical issues deployed 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?*

* For seamless functionality, the architecture must be compatible across predominant operating systems, including Windows, macOS, and Unix/Linux for desktop scenarios, as well as iOS and Android for smartphones. The foundational data storage, encompassing details of users, timelines for driving lessons, specifics of various packages, and other imperative information, should be orchestrated through a relational database management system (RDBMS). Incorporation of cloud-based frameworks is vital to fortify scalability, bolster reliability, and enhance security protocols.

#### 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?*

* Users will be distinguished through a unique username or email and a secure password. Input fields should not be case-sensitive except for passwords. The system will alert the admin for multiple failed login attempts, data inconsistencies, and system errors that could impact user experience or data integrity.

#### 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?*

* Admin users should be able to add, remove, or modify user accounts without direct code changes, through a dedicated admin panel. The system must be designed to easily accommodate platform updates and new features. IT admins will require full access to user accounts for maintenance, 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?*

* Access security will necessitate either a username or email alongside a password. The transfer of data between the client and the server must be safeguarded through encryption via SSL/TLS protocols. Following several unsuccessful attempts to log in, the system should implement a temporary lockdown of the account to thwart brute force intrusion efforts. Password resetting by users ought to be facilitated through a protected, multi-phase procedure that includes the verification of email.

### 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 platform will enable users to sign up for driving lesson packages either online or via direct communication methods such as telephone or in-person visits. It will feature a versatile appointment system that allows users to schedule, cancel, or alter their driving lesson bookings. The platform will monitor user actions, encompassing reservations, cancellations, and adjustments, and furnish comprehensive reports on these activities. It will grant administrators and IT personnel varying degrees of system access and oversight, covering the management of user accounts and the updating of information. Furthermore, the system will provide practice exams and instructional content for driving lessons online, keeping tabs on each user's progress and results from tests.

### 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 should be straightforward and easy to navigate, designed to accommodate various user roles including administrators, IT staff, secretaries, and clients. Clients must find it simple to schedule, cancel, or change their appointments and to utilize online quizzes and resources. Administrative and IT personnel require access to a control panel that aids in managing users, analyzing data, and implementing system upgrades. The system must be accessible via both mobile platforms and web browsers, emphasizing a sleek and approachable layout to ensure all features are easily usable by everyone.

### 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?*

* It's assumed that users have access to reliable internet for online functionalities. The system assumes the availability of modern web browsers on user devices. It is also assumed that users will have basic digital literacy to interact with the web or mobile interface.

### 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's design may be limited by budget constraints, affecting the choice of technologies and the extent of custom features. Time constraints may limit the initial release to essential features, with more complex functionalities like customizable packages being rolled out in future updates. The reliance on third-party services for cloud hosting and database management may introduce dependencies on external providers' reliability and security measures.

### 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.*

[**View Chart**](https://drive.google.com/file/d/1SLRT1YPLQc7eDeGPe0nufB_mf9cgMXdb/view?usp=sharing)