

CS 255 Business Requirements Document

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, a company that provides driver training services to help students better prepare for DMV driving tests.
- DriverPass wants a centralized, cloud-based system that allows students to access online practice exams, schedule on-the-road driving lessons, and track their progress.
- The system should support multiple user roles, including students, instructors, administrative staff, and IT administrators.
- The goal of the system is to improve driver test pass rates by combining online learning, practice testing, and in-person training into a single, accessible platform.

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 identified a widespread problem where many individuals fail their DMV driving exams due to inadequate preparation.
- The company's solution is to offer structured driver training through a combination of:
 - Online practice exams and instructional content
 - In-person, on-the-road driving lessons
- The system must allow students to:
 - Register for accounts
 - Purchase training packages
 - Schedule, adjust, and cancel driving lesson appointments
- Administrative users, such as secretaries, must be able to manage student information and schedule lessons on behalf of customers.
- IT administrators must have full system access to manage user accounts, reset passwords, control permissions, and maintain system security.
- The system will be web-based and hosted in the cloud to ensure accessibility from multiple devices and locations.
- The system must integrate updates from the DMV so that practice tests and instructional materials remain current.

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 system will allow students to create and manage personal accounts securely.
- The system will allow students to schedule, modify, and cancel driving lesson appointments online.

- The system will track and display student progress on online practice exams, including test status, scores, and completion history.
- The system will allow administrative staff to schedule lessons, manage student records, and assign drivers and vehicles.
- The system will support multiple training packages and allow administrators to enable or disable packages as needed.
- The system will log and track user activity, including appointment creation, modification, and cancellation.
- The system will provide IT administrators with tools to manage user access, reset passwords, and enforce security controls.
- The system will ensure instructional content and practice tests remain aligned with current DMV rules and regulations through update notifications.

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 and accessible through standard web browsers.
- The system shall be hosted in a cloud environment to ensure high availability and scalability.
- The system shall respond to user actions (such as login, scheduling, and progress viewing) within a reasonable time under normal usage conditions.
- The system shall support concurrent access by multiple users without performance degradation.
- The system shall allow instructional content and practice tests to be updated when DMV changes occur.

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 operate on modern web browsers across desktop and mobile devices.
- The system shall be compatible with common operating systems, including Windows, macOS, iOS, and Android.
- The system shall use a backend database meaningfully to store user accounts, appointments, packages, and progress data.
- The system shall rely on cloud-based infrastructure for hosting, data storage, and backups.

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 uniquely identify users through secure login credentials.
- The system shall accurately store and retrieve appointment dates, times, assigned drivers, and vehicles.
- The system shall maintain precise tracking of practice test scores, completion status, and time taken.
- The system shall record and display the most recent modification to system records.
- The system shall notify administrative users when errors or conflicts occur, such as scheduling overlaps.

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 IT administrators to add, remove, or disable user accounts without modifying system code.
- The system shall allow administrators to enable or disable training packages as business needs change.
- The system shall support future expansion, such as additional training packages or system modules.
- The system shall adapt to updates from the DMV without requiring major system redesign.
- The system shall allow IT administrators full access to system configuration and maintenance settings.

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?

- The system shall require authenticated user credentials to access accounts.
- The system shall support secure password reset functionality for users who forget their credentials.
- The system shall enforce role-based access control to restrict features based on user roles.
- The system shall lock user accounts after a defined number of failed login attempts.
- The system shall encrypt sensitive data during transmission between the client and server.
- The system shall log user activity to support auditing and security monitoring.

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 and manage personal user accounts.
- The system shall validate user credentials during login.
- The system shall allow students to schedule, modify, and cancel driving lesson appointments online.

- The system shall allow administrative staff to schedule appointments on behalf of customers.
- The system shall assign drivers and vehicles to scheduled lessons.
- The system shall allow students to purchase and view available training packages.
- The system shall allow administrators to enable or disable training packages.
- The system shall track and display student progress on online practice exams.
- The system shall record and display lesson notes entered by instructors.
- The system shall log all appointment creation, modification, and cancellation activity.
- The system shall allow IT administrators to reset passwords and manage user access.

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 system shall provide a web-based user interface accessible via desktop and mobile browsers.
- The student interface shall allow users to view progress, schedule lessons, and manage account information.
- The administrative interface shall allow secretaries to manage student records and appointments.
- The IT administrator interface shall allow full control over user accounts, permissions, and system security.
- The interface shall display practice test status, scores, and completion history.
- The interface shall display driver notes, lesson times, and related instructional information.
- The interface shall include forms for entering and updating student information.

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 access to a reliable internet connection.
- Users will possess basic computer or mobile device literacy.
- The DMV will provide updates electronically in a format usable by the system.
- The cloud hosting provider will manage system backups and infrastructure security.
- Training packages are predefined and managed by administrators rather than end users.

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 will not allow nontechnical users to create or modify training packages beyond enabling or disabling them.
- The system depends on external DMV updates, which may be delayed or unavailable at times.
- The initial system release focuses on core functionality rather than advanced customization.
- Development timelines and budget constraints may limit the scope of features in the first version.

- Offline access to modify system data will not be supported.

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.

