# CS 255 Business Requirements Document Kastigar

## 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?*

* Client: DriverPass, a company providing driving test preparation through online practice exams and on-the-road training.
* Project Goal: Create a system that allows users to:
  1. Access and complete practice exams online.
  2. Schedule and manage in-car training lessons with assigned drivers.
  3. Track lesson details (car, driver, date/time).
  4. Provide admin and IT staff with full account control, including password resets and activity monitoring.

Rationale: According to the DriverPass Interview Transcript (2025), over 65% of driving test applicants fail their tests, so DriverPass wants a more robust training system (Valacich, George, & Hoffer, 2019).

### 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?*

* Problem Statement: Lack of adequate driving test preparation tools. Many rely on outdated test samples instead of real practice.
* Solution Approach:

1. Online system offering practice exams, progress tracking, scheduling, and driver assignment.
2. Integration with a flexible user management system, allowing role-based access (boss, IT officer, secretary, customers).
3. Ability to track reservations and changes (who canceled, who modified).

*Key Components:*

* Web-based interface (practice tests, scheduling, user management).
* Cloud-based or server infrastructure for data access, per the interview.
* Compatibility with external updates (DMV notifications or new sample questions).

Reference: DriverPass Interview Transcript (2025).

### 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?*

* Enable online practice exams with progress indicators (time taken, score, status).
* Simplify scheduling for on-the-road lessons (2-hour sessions) with flexible packages.
* Support role-based access (boss, IT, secretary, end users).
* Track user modifications, cancellations, or package disablement for reporting.
* Provide offline data downloads (Excel-based) for managers to review at home.

*Measurable Tasks:*

* Provide a minimum of 3 lesson packages, each with different hour allocations.
* Generate weekly activity reports showing changes to reservations or user data.
* Implement a self-service password reset and role-based password blocking (IT can block ex-employee accounts).
* Notify system admin of changes from the DMV (updated rules, sample questions).

## Requirements

### Nonfunctional Requirements

#### Performance Requirements

*What environments does this system need to run in? How fast should the system run? How often should the system be updated?*

* Environments: Fully web-based, accessible on desktop and mobile browsers.
* Speed: Key pages (practice exams, scheduling) should load within 3 seconds under normal broadband.
* Updates: System updates (adding new test material, developer changes) can be pushed weekly or as needed, with minimal downtime (<1 hour).

Note: For concurrency, expect up to 500 simultaneous users at peak (DriverPass Interview Transcript, 2025).

#### Platform Constraints

*What platforms should the system run on? Does the back end require any tools, such as a database, to support this application?*

* Hosting: Cloud-based solution (e.g., AWS or Azure). Minimal local infrastructure to reduce overhead.
* Databases: Likely a SQL or NoSQL back end to store user details, lesson schedules, test data.
* Devices: Accessible from standard web browsers (Chrome, Firefox, Safari) on Windows, Mac, iOS, Android.

*IT Officer Requirement*: “We do not want to deal with backup and security; we need that to be taken care of” (DriverPass Interview Transcript, 2025).

#### 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 Differentiation: Each user (boss, IT, secretary, customer) has distinct role IDs.
* Case Sensitivity: Logins are case-insensitive for emails but case-sensitive for passwords.
* Admin Alerts: Admin or IT gets immediate alerts if:
  1. Bulk data changes happen offline.
  2. Lesson capacity (car usage) is nearly full.

*Rationale*: This ensures consistent, precise data changes and immediate escalation if an unusual event occurs.

#### Adaptability

*Can you make changes to the user without changing code? How will the system adapt to platform updates? What type of access does the IT admin need?*

* Package Management: Admin can enable or disable existing packages. Actual coding changes for adding brand-new packages require developer intervention.
* Platform Updates: The system auto-adapts to cloud OS updates or infrastructure changes. No separate code recompile needed for small changes (Valacich et al., 2019).
* IT Admin Access: Full privileges to manage user rights (e.g., block ex-employee accounts, reset passwords, reassign roles).

#### 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 Login: Multi-step login with unique username/email and password.
* Data Exchange: Encrypted via HTTPS/TLS for all client-server traffic.
* Brute Force Prevention: Lock account after 5 failed attempts; user must contact IT or use a self-service reset flow.
* Forgot Password: Automated reset link emailed after verifying identity.
* Role-based Permissions:
  1. Boss: Full read/write on all accounts.
  2. IT Officer: Manage user roles, reset passwords, block accounts.
  3. Secretary: Manage appointments, but no access to sensitive system settings.
  4. Customer: Basic scheduling and practice exam access.

*Reference*: “We have different employees with different rights and roles,” (DriverPass Interview Transcript, 2025).

### 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 . . .”*

* The system shall provide user registration for online classes and reservations.
* The system shall allow a user to schedule, cancel, or modify reservations online or by phone (secretary input).
* The system shall display available packages (6-hour, 8-hour, 12-hour) and track lesson hours used.
* The system shall enable an IT admin to reset passwords and block user access.
* The system shall log every change (created, canceled, modified) to reservations with timestamp and user ID.
* The system shall handle offline data export for managers via Excel-compatible CSV.
* The system shall notify the system admin if new DMV updates are available.

### 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?*

* Interface Needs:
  1. Customer: Sees practice exams, lesson scheduling calendar, personal progress (test status, scores).
  2. Secretary: Sees phone interface for quickly booking or modifying lessons, sees user contact info.
  3. Boss & IT: Sees user management interface, logs of reservation changes, usage analytics.
* Services Provided:
  1. Online test library with progress indicators.
  2. Scheduling module for lesson reservations across 10 cars and multiple drivers.
  3. Real-time activity log for tracking user actions.
* Interaction Methods:
  1. Primary: Web browsers (Chrome, Firefox, etc.)
  2. Secondary: Potential mobile-responsive site for on-the-go scheduling.
  3. Emails or in-portal notifications for changes, password resets, system updates.

### 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?*

* Customers have stable internet to access the system and attempt online exams.
* Secretary can handle calls for scheduling if the user does not have online access.
* Cloud environment is reliable with minimal downtime (Valacich et al., 2019).
* Data from the DMV is provided in a format the system can parse automatically.

### 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 is not required to integrate advanced AI or AR-based driving simulations.
* Offline data modifications are read-only except for Excel exports.
* Adding entirely new training packages beyond the existing three requires a developer or system analyst.
* If cloud service or internet is down, no scheduling or online exam updates can occur.

### Gantt Chart

*A screenshot of a project

AI-generated content may be incorrect.*

### References

DriverPass Interview Transcript. (2025). *CS 255 course materials*. Southern New Hampshire University.

Valacich, J., & George, J. (2025). *Modern systems analysis and design* (10th ed.). Pearson.