# CS 255 Business Requirements Document

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## System Components and Design

### Purpose

* DriverPass needs to build an online system to manage their information needs.
* There is a need they are trying to fulfill with helping driving students to pass their driver’s tests, and they want to fill those needs by offering online practice exams and real-world driving tests.
* This project will help students to be prepared for their driver’s test.

### System Background

* DriverPass is a budding business trying to fulfill a need in the driver’s education sector
* DriverPass would like an information system in place that will be able to help them communicate between driving students and their instructors, as well as the secretary who helps to organize driving appointments for the students to practice.
* The system should handle appointments, keep practice exam scores and notes by their instructor for the student to review to help them to understand what they need to improve on as well as what they are doing well.
* Appointments should be scheduled via phone calls, in-person, or online.
* A mobile interface should be created to make the information system accessible both from a PC/Mac or from a mobile device to be able to view and edit information regarding appointments and notes for the benefit of the students by instructors, secretaries
* The students should be able to add/modify their driving schedules from their part of the interface.
* DriverPass wants a system in place that will help organize information in an online format so as to better handle requests by their students and manage appointments.
* We will need to build a user interface for administation
* A system should be put in place for secretarial work of changing, adding, and deleting appointments along with a user interface for secretaries
* A user interface should be built for driving instructors as well as online test instructors to be able to input notes about the students’ successes and failures in order to help them with their practice
* A user interface for the driver students that lets them access appointments and information added by their instructors
* 3 different packages are available for customers to purchase, these must be listed in the registration form
* Needed is a database and backend system that allows us to access the database from anywhere online via the software driving the user interface.
* This should handle authorization based on need to access various parts of the information system (for example a secretary should not have access privilege to change grades)

### Objectives and Goals

The information system should allow:

* A clean user interface (Mobile & PC):
* Access to a shared database
* Clear user access separation
* Internet availability for users of the information system
* Built-in software that avoids double-scheduling
* Access to hours of availability by staff at work, and no scheduling of driving practice during hours off by staff members
* Purchase of 1 of 3 packages during registration

Measurable tasks:

* Design front end interface for PC/Mac
* Design front end interface for mobile devices (Phone & Tablets)
* Build platform independent code (maybe Java?) to interface between end-user device and database
* Build database interface on server-side (in the cloud)
* Build interface to a calendar where server-side can check for time-clashes
* Incorporate support for exporting reports to Excel
* Connect to DMV for updates to rules
* Input validation
* Authentication

## Requirements

### Nonfunctional Requirements

#### Performance Requirements

Environments

* Web server-side code (in the cloud)
* Mobile App (Phone/Tablet)
* PC Application

* Low Speed is okay
* Database needs to avoid collision
* System should be updated for bug-fixes

#### Platform Constraints

Platforms

* Web
* Mobile
* Linux (server-side, cloud)

Platform-independent code

* Java

Server software

* Apache / Nginx
* Mysql / MariaDB
* PHP

#### Accuracy and Precision

User types

* Administrator
* Instructor
* Secretary
* Client
* Owner

Input

* case-sensitive login username
* hashed passwords

Administrator e-mail

* Update required
* User-initiated problem report

#### Adaptability

User changes (add/remove/modify)

* Administrator has access to user database
* Secretary has access to user database

DMV updates

* The system will connect to the DMV in order to create changes on the platform in accordance with new rules

#### Security

Login & Registration

* HTTPS (redirect HTTP to HTTPS)
* Do not display plaintext passwords
* Enforce secure password generation
* 2FA if possible via mobile phone text or e-mail
* Encourage unique passwords during registration

Wrong Password

* Enforce time-lapse if number of wrong passwords
* Inform administrator

Password reset

* Use e-mail / mobile number for password reset

### Functional Requirements

* The system shall validate user credentials using a secure hash function when logging in
* The system shall modify the driving schedule when requested
* The system shall add/delete/modify user profile information
* The system shall retrieve pickup/dropoff location
* The system shall store/retrieve practice exam scores
* The system shall update database resources as needed
* The system shall assign cars to driver instructors
* The system shall update software at an opportune time, presumably mid-night
* The system shall communicate between server and various clients
* The system shall record who was responsible for database changes
* The system shall make reservations for one of 10 cars
* The system shall remove or add a package available during registration
* The system shall connect to the DMV for rules updates

### User Interface

* Web & mobile application
* Users: administrator, secretary, instructors, clients, owner

Admin:

* upgrade software
* add/remove/modify user information
* access server-side software from a low/high level, directly or through UI
* view logs

Secretary:

* add/remove/modify user information
* schedule driving dates and pickup/dropoff locations
* contact driving instructors

Instructors:

* update grades
* access calendar for driving schedules
* add/edit notes about driving practice

Clients:

* register for 1 of 3 packages
* login
* update user information
* schedule driving test, input pickup/dropoff
* view grades / test progress
* view notes
* request deletion
* registration information would include their first name, last name, address, phone number, state, and their credit card number, expiration date, and security code

Owner:

* login
* access relevant information about the company
* access information about who made changes
* full access over user accounts
* download reports in Excel

### Assumptions

* Users have access to the Internet
* Driver instructors will strictly adhere to their scheduled
* Pickup/dropoff information was entered correctly
* e-mail is valid
* 10 cars are available
* Pcs/mobile devices are compatible with Java architecture

### Limitations

* May be vulnerable to malicious users / spam
* does not include ability to change how many vehicles are in ownership
* Few developers
* Not developed in an Agile framework
* Not scalable to the needs of a growing corporation

### Gantt Chart