# CS 255 Business Requirements Document

## System Components and Design

### Purpose

The client is DriverPass, and they want a system to provide online classes and practice tests for better driver training. The system should allow a range of functions including:

* customers to make reservations for driving lessons, either online or through their office secretary.
* be able to match a driver with a customer and track which user is matched up with a certain driver, time, and car.
* accessible online and offline
* provide security measures with different employees having different rights and roles. (The different users of the system include the company owner, IT officer, secretary, and customers.)
* be able to track changes made to records in the system.
* be flexible and allow the customization of different packages.

### System Background

DriverPass wants to develop a system that can automate and streamline the driver qualification process for trucking companies. The problem they want to fix is the time-consuming and often paper-based process of verifying driver qualifications, such as licenses, driving history, and safety records.

The different components needed for this system may include:

* User Interface: A user-friendly interface for drivers and trucking companies to manage driver information and track the status of driver qualifications.
* Database: A database to store driver information, including licenses, driving history, and safety records.
* Verification and Background Checks: A module for verifying and performing background checks on driver qualifications and records.
* Reporting and Analytics: A module for generating reports and analytics on driver qualifications and records.
* Integrations: Integration with other systems, such as state DMVs, to automatically retrieve driver information and records.

### Objectives and Goals

When the system is completed, it should be able to accomplish the following tasks:

* Manage driver information: The system should be able to manage driver information such as driver licenses, contact information, driving history, and training records.
* Schedule and track training: The system should allow for the scheduling of training sessions and track driver training progress. This will help ensure that drivers have the necessary skills and knowledge to perform their jobs safely and effectively.
* Monitor compliance: The system should monitor driver compliance with company policies and regulations, such as hours of service and vehicle inspection requirements.
* Generate reports: The system should be able to generate reports on driver performance, training progress, compliance, and other key metrics. These reports will provide insights into the overall effectiveness of the driver training and compliance program.

To achieve these tasks, the following measurable tasks need to be included in the system design:

* Driver information management: Develop a database to store driver information, such as driver licenses, contact information, driving history, and training records.
* Training scheduling and tracking: Develop a scheduling and tracking module that allows administrators to schedule training sessions and track driver training progress.
* Compliance monitoring: Develop a compliance monitoring module that can track driver compliance with company policies and regulations.
* Reporting: Develop a reporting module that can generate reports on driver performance, training progress, compliance, and other key metrics.

## Requirements

### Nonfunctional Requirements

1. The system should provide security measures with different employees having different rights and roles, ensuring that sensitive driver information is protected from unauthorized access.
2. The system should be easily scalable to accommodate future growth, ensuring that it can handle an increasing number of drivers and trucking companies.

#### Performance Requirements

The DriverPass system should be run on a web-based environment, accessible to any device with internet access; also, since it is 2023, there should be a mobile app that can be downloaded on both iOS and Android. The system should be fast enough to provide speedy responses to user requests, the response time should be < 5 seconds; facilitating this speed demand, will allows users to complete their tasks more efficiently. The system should be updated regularly to ensure that the most recent security threats have been mitigated. The update frequency may depend; however general rule of rhumbs I at least once a quarter.

#### Platform Constraints

I believe that the specific system is not important, as DriverPass will be a web-based application. Regarding the back-end tools to support the system, it will vary on specific functionalities and features. Typically, a database is required to store and manage data related to users, i.e., license, test results, and other sensitive data, which will be required by DriverPass.

#### Accuracy and Precision

Within the DriverPass application utilizing unique usernames and passwords will be an easy way to keep track of multiple users, also enabling a secondary verification such as SSN or DOB, will ensure that only one user account exists. Regarding the input being case-sensitive, it will depend on the requirements of the business. The system should inform the admin of a problem as soon as possible, ideally immediately after the problem is detected. This can be achieved through multiple methods, such as email notifications, text alerts, or push notifications.

#### Adaptability

Yes, it's possible to make changes to the user (add/remove/modify) without changing the code by creating an interface within the system that allows for managing user accounts. This interface can be used by authorized personnel such as IT admins or customer support representatives to manage user accounts.

To ensure that the system adapts to platform updates, it's important to follow best practices for software development, such as modular programming, version control, and unit testing. These practices make it easier to update the codebase and ensure that the system continues to function correctly.

The IT admin needs access to the backend of the system, which includes access to the database, server, and other technical components of the system. This access enables the IT admin to manage the system's technical infrastructure and address any issues that may arise. However, it's important to limit access to only authorized personnel and to implement security measures to prevent unauthorized access or data breaches.

#### Security

The user's login credentials are normally required to log in, and the server will authenticate them to make sure the user is allowed access to the system. To increase security, the user could also be required to supply more information, like a security question or two-factor authentication code.

To secure the connection or the data exchange between the client and the server, several measures can be implemented, such as using encryption protocols like SSL/TLS or HTTPS, implementing firewalls and intrusion detection systems, using secure authentication methods, and implementing access controls and permissions.

The system can be set up to recognize and respond to "brute force" hacking attempts, where an attacker tries numerous login attempts using various username and password combinations. After a predetermined number of failed attempts, the user account can be temporarily locked. This can shield the user's account and assist prevent illegal access.

### Functional Requirements

The system should allow customers to make reservations for driving lessons, either online or through their office secretary.

The system should match a driver with a customer and track which user is matched up with a certain driver, time, and car.

### User Interface

The interface for the DriverPass system needs to be user-friendly, intuitive, and responsive. The different users for this interface are the customers and the DriverPass administrator.

The customers will need to be able to log in to the system, select and modify their driving package, view and modify their profile information, and download reports. The interface should also allow customers to reset their password in case they forget it.

The DriverPass administrator will need to be able to log in to the system, view and modify the database history log, view and modify customer profile information, create, modify, and delete packages, and view reports.

The interface should be accessible through different devices such as mobile phones, tablets, and desktop browsers, to cater to different user preferences. The interface should also be designed to adapt to different screen sizes and resolutions for a seamless user experience.

To ensure accessibility, the interface should be designed with accessibility guidelines in mind, making it easy to use for people with disabilities. It should also be optimized for speed, taking into consideration that customers may be using the interface on slow or unreliable internet connections.

### Assumptions

There are several things that were not specifically addressed in the design above, including:

1. Data storage and backup: The design does not detail where and how data is stored, nor does it include a backup plan in case of data loss.
2. Performance optimization: The design does not address performance optimization techniques such as caching, compression, or minification.

Assumptions made in the design include:

1. Users have basic computer literacy skills and are familiar with using a web interface.
2. Users have access to a device with internet connectivity.
3. The system will be hosted on a reliable and secure hosting platform with adequate resources to handle the expected traffic.

### Limitations

As with any system design, there are limitations that may impact its effectiveness and efficiency. Some of the limitations that I see in the DriverPass system design include:

1. Scalability: The system may face scalability issues as the number of users and transactions increase over time. It will require additional resources and optimization to handle a larger user base and transaction volume.
2. Integration with existing systems: If the system needs to integrate with existing systems, it may require additional resources, time, and effort to ensure seamless integration.
3. Security: Although security measures have been put in place to ensure the security of the system, there is no guarantee that it is 100% secure. The system will require continuous monitoring and updates to keep up with the latest security threats.

### Gantt Chart

Graphical user interface, application

Description automatically generated