# CS 255 Business Requirements Document Template

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## 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 the project is to design a cloud-based web application for DriverPass to schedule students for three different driver learning experiences. The client is the owner of the company, Liam. He would like the application to assist in scheduling the students, offer practice testing to the students, track the vehicles, and log the instructors’ comments. This would allow for a software system that would give greater control over the numerous tasks that the company expects during normal business operation.

### 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 would like the application to be able to offer practice exam questions and on-the-road training along with the instructor. The system should be able to accept user registration and have a login module for students, instructors and administrators.
* It will be necessary to design a robust user interface for students to view and interact with the web application or mobile app. The application will need to provide a way for students to track their progress and receive feedback on their performance, such as through a progress tracker or personal dashboard.
* The developers will also need to add a payment processing system since DriverPass plans to charge a fee for access to the application.
* The app needs to implement a user interface, a way to store the data in a cloud-based database, a payment portal, an interface for the users to gain access to the various aspects of the program and the application needs a secure server that is encrypted.

### Objectives and Goals

**What are the objectives and goals of the application?**

* The application should allow students to register for an account and log in to the system. It should also allow students with access to a database of practice exam questions and driving manuals.
* The application should allow the processing of payments from the user and track the students’ progress.

## Requirements

### Nonfunctional Requirements

#### 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?**

* For the system to perform well, it is crucial that the user experience work as smoothly as possible. That means providing quick access to all the training materials, online classes, and practice tests, regardless of the device or internet connection. The owner wants to make sure that the users can access everything they need without any frustrating delays or glitches.
* The application should run in both a web-based application as well as on Android and iPhone devices.
* As for system updates, it is necessary that the system be updated continuously. The development team needs to keep improving the system by working out any bugs, enhancing the application's performance, and adding new features when necessary. Of course, it is also very important to avoid disrupting the stability of the system and thereby causing the system to fail. The frequency of updates will depend on the number of changes and how much they impact the user experience. The developers will need to find a balance between making the necessary improvements and ensuring that the system continues to meet the needs of the users.

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

* The platform should run on Windows, Apple, Linux as well as Android and iPhone.
* The back end of the system will require several tools and technologies to support the application, including a database. The system will need to store and manage large amounts of data related to the training materials, online classes, practice tests, student progress, and other relevant information. A database provides a structured and organized way to store, manage, and retrieve this data efficiently.
* The additional tools that will be required for the back end of the system would include a cloud web server, an API, and cloud-based computing space. The development team needs to carefully consider the requirements of the application and select the proper tools for the best functionality and highest performance. The choice of technologies will also depend on factors such as scalability and the expected cost.

#### 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 authentication system will involve the use of login credentials, such as a username and password, or other forms of identification, such as a fingerprint or facial recognition.
* The system may also have various levels of access depending on the user's role, such as a student versus a teacher or an administrator. If a user enters "password" when the correct input is "Password", a case-sensitive system would not recognize this as a valid input.
* The development team will need to determine whether case sensitivity is necessary for the specific application and implement input validation accordingly. If the system does require case-sensitive input, the user should be informed of this requirement through on-screen messaging or via email.
* An administrator will receive a notification when a user’s account is locked out due to a maximum of 5 login attempts. The system will send a message to the student or instructor to reset the password.
* The system will inform the administrator of any problems that occur, such as errors or system failures. The administrator should be notified as soon as possible so that they can take appropriate action to resolve the issue and minimize any negative impact on the user experience or system security.
* Depending on the severity of the problem, the administrator may need to take immediate action or implement a more comprehensive solution to prevent similar issues from happening in the future.

#### Adaptability

**How will the system adapt to platform updates? What type of access does the IT admin need?**

* Updating the user (add/remove/modify) should require the system should have an administrative interface that allows authorized personnel to manage user accounts without requiring changes to the underlying code. This interface should be easy to use and secure.
* The IT administrator will need the highest level of access to the application.
* The development team should also stay up to date with the latest platform updates and evaluate the system thoroughly after each update to ensure that it continues to function correctly.

#### 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 user should need a password to login to their account.
* If a user forgets their password, the system should provide a mechanism for resetting it. This could involve sending a password reset link to the user's email address or using a security question or two-factor authentication to verify the user's identity before resetting the password. The system should also be designed to prevent unauthorized access to the user's account during the password reset process.
* The development team should add a “maximum number of attempts” for login, which should minimize brute force hacks.
* User accounts could either be locked for a certain amount of time, or an admin would need to unlock the account.

### 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 provide real-time feedback on users' progress and performance.
* The system shall store and manage user data, including progress, test scores, and other relevant information in a secure cloud based database.
* The system shall notify the administrator of any issues, such as system failures, errors, or security breaches.
* The system shall be scalable to accommodate a growing number of users and data.
* The system shall ensure the security of the connection and data exchange between the client and the server, using encryption or other security protocols.
* The system shall allow the administrator to add, remove, or modify user accounts.
* The system shall provide access controls and permissions for the administrator to manage user accounts and system resources.
* The system shall be designed to manage updates to the platform and adapt to changes in technology and user needs.
* The system shall provide a user-friendly interface that is easy to navigate and operate.
* The system shall provide technical support and assistance to users who encounter issues or problems while using the system.

### 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?**

* Students will need to be able to log in, access training materials, attend online classes, and take practice tests. They will also need to view their progress and performance charts.
* Instructors should be able to create and manage training materials, conduct online classes, review student progress and performance, and provide feedback to students.
* Administrators will need to be able to manage user accounts, oversee technical issues, generate reports on user performance and engagement, and oversee the overall operation of the system.
* Administrators and development team will need to troubleshoot and resolve technical issues for users.
* The interface should be designed to be intuitive and user-friendly, regardless of the device or platform being used.

### Assumptions

**What assumptions are you making in your design about the users or the technology they have?**

* Users will have a basic understanding of how to use a computer and navigate a web-based application.
* Users will have access to a stable internet connection.
* The system will be designed to support multiple languages and accessibility features.
* The development team will have access to the necessary resources and expertise to implement the system.

### 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?**

* User Experience: The design assumes that users will be comfortable with technology and have familiarity with online learning systems. Some users may struggle with the interface or require additional support.
* Budget and Time Constraints: Depending on the resources available, it may be difficult to implement all the desired features within a given budget and timeline.
* Technical Limitations: The system may be limited by the available technology, such as internet speed or device compatibility.

### Gantt Chart

