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CS-255: System Analysis and Design  
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# CS 255 Business Requirements Document Template

Complete this template by replacing the bracketed text with the relevant information.

This template lays out all the different sections that you need to complete for Project One. Each section has guiding questions to prompt your thinking. These questions are meant to guide your initial responses to each area. You are encouraged to go beyond these questions using what you have learned in your readings. You will need to continually reference the interview transcript as you work to make sure that you are addressing your client’s needs. There is no required length for the final document. Instead, the goal is to complete each section based on your client’s needs.

**Tip:** You should respond in a bulleted list for each section. This will make your thoughts easier to reference when you move into the design phase for Project Two. One starter bullet has been provided for you in each section, but you will need to add more.

## 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 client is DriverPass.
* The purpose of this project is to design and create a system that helps students prepare for their driver’s license exams. The goal is to reduce failure rates and provide more effective, interactive training.
* DriverPass wants the system to:
  + Students:
    - Create accounts
    - Select from a variety of training packages
    - Take online courses and practice exams
    - Schedule driving lessons with live instructors
    - Track learning progress
  + Administrators:
    - Manage customer accounts
    - Assign drivers and schedule lessons
    - Manage reports
    - View customer data and history
  + IT Staff:
    - Manage system and users
    - Block and reset accounts
    - Implement DMV updates

### 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 wants the system to:
  + Prepare students to take and pass their DMV driving tests through online courses, tests, and in person training
  + Allow selection of 3 different packages
    - 6 hour in person driving training
    - 8 hours in person driving training and lesson on current DMV rules
    - 12 hours in person driving training, lesson on current DMV rules, and access to online classes, plus all content and material
  + Support scheduling and appointments including cancellation and rescheduling
  + Track user performance, scores, and activity
  + Provide role-based access
  + Provide security and accessibility
  + Integrate with the DMV
  + Work both on and offline and on a multitude of devices
  + Work as a cloud based system to prevent too much focus on security and backup
* The problem DriverPass wants to fix:
  + The high failure rate of students taking their DMV driving test
  + Current students rely on old test materials
* Needed Components:
  + User management system
  + Scheduling and appointment module
  + Training packages module
  + Online learning and exam system
  + Reporting and logging system
  + DMV integration
  + User interface
  + Database and storage
  + Security features

### 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?*

* System should:
  + Administrator
    - Access to employee information
    - Access to customer and reservation information
    - Print our activity reports (measurable)
    - Ability to block accounts and reset passwords
  + Students
    - Access online DMV style practice tests
    - Create account and add personal information such as credit cards, and pick up and drop off locations
    - Make appointments with drivers through scheduling, modification, and cancellation (measurable)
    - Ability to choose one of 3 training packages (measurable)
    - Track scores and progress (measurable)
    - Allow for account and password changes
    - Ensure integration with DMV updates and compliance changes

## 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?*

* Environments
  + Web-based cloud
  + Offline access but it is limited to specific information
* Speed
  + System should load any page in less than 2 seconds under normal load
* Update frequency
  + As often as adjustments are needed, whether that is updates in security, functionality, or DMV regulations

#### 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?*

* Platforms
  + Web-based cloud system
  + Must work on multiple devices (desktop, tablet, and mobile)
  + Must work on all web browsers (Chrome, Firefox, Safari, Edge)
* Application support
  + A database is needed for customer information, driver information, and administrative information
  + A server is needed for a cloud system to function

#### 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 distinguishing
  + All users, administrators, IT, secretaries, and students, will have individual login and password information allowing for authentication at login
  + Making information case-sensitive adds and extra layer of security to accounts
* Problem informing
  + Administrators should be notified as soon as a problem arises
    - Allows for quick action for problem resolution

#### 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?*

* Changes
  + All user information will be stored in some type of listing database system allowing for adding, removal, and modification of user accounts without changes in code
* System adaptation
  + With properly written code, the system will be modular and easily updated with little to no effect to functionality
* IT admin access
  + All user information
  + Cloud server
  + Scheduling

#### 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?*

* Login requirements
  + A case-sensitive password and username or email address
* Secure connection
  + Add a layer of security by adding 2 factor authentication
    - Sends email, text, or automated call to user as a secondary authentication
* Hacking attempt
  + Limit the amount of attempts a user can attempt to input their correct log in information.
    - After a predetermined amount of attempts, the user must reset password through a link emailed to them
    - Or, user must call help desk
* Forgotten password
  + Provide a link where user can have a reset link emailed to them to create a new password

### 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 customers to register, log in, and edit accounts
* The system shall allow for selection of training packages
* The system shall allow for scheduling, cancellation, or modification of driving lessons
* The system shall provide practice tests and allow for viewing of progress
* The system shall allow for resetting a forgotten password
* The system shall allow for viewing and printing of activity reports
* The system shall integrate DMV content and updates
* The system shall show upcoming reservations
* The system shall show student progression
* The system shall allow for selection of the 3 different training packages

### 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.)?*

* Interface needs
  + Customers must be able to schedule reservations
  + Customers must be able to take online classes and practice tests
  + Needs to be able to be accessed from various devices
* Interface users
  + Customers looking to improve their driving
  + Administrators assisting in customer needs
* Users’ needs
  + Customers must be able to schedule, modify, or cancel reservations
  + Customers must be able to choose between 3 training packages
  + Customers must be able to take online tests and classes
  + Customers must be able to see their progress
  + Admins must have access to customer personal and progress information
  + Admins must be able to see and print reports
  + Admins must have access to the scheduling system
* User interaction
  + Interactions will all be through electronic devices whether online through a browser or offline through downloaded 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?*

* Not specifically addressed
  + Design. Aside from the given sketch, there is no mention of how the program should look for the user interface
* Assumptions
  + Customer will have internet access
  + All users can use system without training
  + DMV will provide feeds for policy updates

### 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?*

* System cannot create new packages dynamically (can only be turned off and on)
* Users cannot modify data offline
* Only a select amount of drivers, cars, and availability for scheduling
* Internet connection could cause issues if not connected strongly
* Only about 4 months to complete project
* Budget is solely dependent on DriverPass

### 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.*

