Systems - Module 1
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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 goal of this project is to create an extensive system for DriverPass, a business that provides students with access to online practice tests and on-the-road instruction in order to improve their readiness for driving examinations. DriverPass hopes to build this system in order to efficiently provide these services and satisfactorily meet the needs of its intended customers.

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?

- Inadequate preparation for driving tests is a problem acknowledged by DriverPass, as many learners struggle to gain the necessary skills and knowledge for safe and effective driving. DriverPass has developed a solution to this issue that combines online practice tests and on-the-road instruction. By making these thorough resources available, DriverPass hopes to provide students the knowledge and assurance they need to not only pass their driving tests but also develop safe driving practices. DriverPass seeks to improve road safety by closing the readiness gap and enabling people to become capable and responsible drivers. Client DriverPass is aware of the pervasive problem of inadequate exam preparation in society. They aim to create a strong system that can offer students online practice examinations and on-the-go training in order to fight this issue. The ultimate objective is to empower these pupils by giving them the skills and assurance they'll need to drive safely and responsibly. The suggested method will work as a thorough platform that will allow students to improve their driving skills and broaden their understanding of safe and effective driving techniques.

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?

- The main goal of this project is to create an intuitive and user-friendly online DriverPass platform that will make it simple for students to access practice exams. To enable full preparation, the system will come with a large library of practice exam questions that

span a variety of driving scenarios and themes. Students' performance on practice tests will be evaluated using a scoring system, which will give useful feedback on areas that need development. The technology will also allow students to monitor their development and evaluate their performance history, encouraging self-evaluation and promoting a sense of accomplishment. The system will include both an online practice component and on-the-road training sessions led by qualified driving instructors. The system's effective scheduling and management of these driving sessions, taking into consideration the availability of both instructors and pupils, will be a key component. The system will keep an extensive database of driving instructors, including their credentials and availability, to expedite the process and make it easier to pair instructors with students. Additionally, the system will produce reports on students' performance and advancement, allowing teachers and management to efficiently track and assess students' growth over time. The system will give the safety of users' private information top priority, underscoring the significance of security and data privacy.

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?

- The environment needs a magnitude of systems to run in, but the best one would be a web based application preferred over the cloud. A web-based platform would provide for adaptability, accessibility, and a broad user base. In terms of system performance, the system ought to ideally function effectively to guarantee a positive user experience. To avoid any interruptions during practice tests or on-the-go training sessions, it would be ideal to have quick response times and low latency. System updates would depend on elements like the implementation of new driving laws, modifications to the format of the driving test, or the provision of new practice exam questions. The system may benefit from frequent updates to maintain its usefulness and efficiency. Through customer input, industry norms, and the rate of development in the driving test sector, an ideal update frequency may be identified.

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?

- The system should run over the web but its not specified on either windows or unix, but from my experience windows would be more beneficial. The transcript also mentions “a platform-agnostic approach” which is why I believe windows would be a better choice.The backend's needed tools and technologies are not specifically mentioned in the transcript. Although it is logical to anticipate that a database would be needed to serve the application given the nature of the system and the requirement to manage data and access it from anywhere. A variety of data, including client information, reservation details, driver data, and progress monitoring, would be stored in the database. The transcript makes no mention of a specific database technology, therefore

the selection of a database would be based on the technical specifications of the system and the preferences of the development team.

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 system must include user identification and differentiation in order to distinguish between various users with accuracy and precision. Although the mechanism of user identification is not specifically mentioned in the transcript, it is implied that user accounts or profiles will be created, perhaps requiring special credentials like usernames or email addresses. Regarding case sensitivity, the transcript doesn't say if the input is case-sensitive or not, thus more explanation from the client would be needed to ascertain the desired action. The system must also have measures in place to alert the administrator to any issues.

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?

- In terms of flexibility, the system ought to ideally provide user management actions, such creating, deleting, and changing user accounts, without needing modifications to the underlying code. This would allow for flexible user management and offer flexibility to meet evolving user demands. The transcript makes no mention of the system's particular method for adjusting to platform changes in relation to platform updates. However, it is essential that the system be created in a modular and adaptable way, enabling easy connection with other platforms and making changes possible when necessary. The transcript explains that the IT administrator needs complete access to manage user accounts, including password resets and access control. Consequently, the IT administrator has to have administrative and privileged access permissions.

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 system should need user authentication—which often entails entering a username and password—in order to allow users access. The system should use encryption protocols like SSL/TLS to maintain data confidentiality and integrity in order to safeguard the connection and data flow between the client and server. The system should have safeguards in place to identify and counteract "brute force" hacking efforts, such as temporarily locking or suspending the account after a certain number of unsuccessful login attempts. To allow a user to regain access to their account while guaranteeing appropriate authentication, the system should offer a password recovery method in the event that they forget their password. This mechanism might take the form of providing a password reset link or asking them security questions.

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.”

- functional requirements: When a user logs in, the system must verify their credentials.
- Users will be able to access their data through the system from any location, both online and offline.
- Users of the system will be able to download reports and data for offline use, such as exporting information to Excel.
- The system must support various user roles and permissions, giving the IT administrator complete control over every account for management needs.
- For accountability and troubleshooting, the system must track and record user activity, such as reservations, changes, and cancellations.
- The system must have a simple user interface that enables customers to select the preferred day, time, and driver when booking driving lessons.
- Multiple package choices for driving lessons, including various lengths and extra training materials, must be handled by the system.
- When a user registers, the system must record and save information about them, including their name, address, phone number, state, and payment information.
- Users will be able to make appointments online with the system, which will also include a password reset feature in case they forget their credentials.
- The system must keep examinations, study guides, and rules up to date in order to guarantee compliance with DMV standards.
- The system must be web-based, ideally over the cloud, which guarantees fewer technical problems and does away with the need for backup and security management.
- The system must have an easy-to-use interface that is aesthetically appealing and displays test results, completed lessons, and driver remarks along with clear status and timeline indicators.

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.)?

- The interface must be simple to use, logical, and visually appealing. The proprietor of DriverPass, the IT administrator, the secretary, and the users are among the several users of this interface. Access to system management and administrative features, such as updating user accounts and managing bookings, will be needed by the owner and IT administrator. The interface will be used by the secretary to handle scheduling, take calls, and set up appointments. Customers will use the interface to schedule driving lessons, alter or cancel appointments, check the status of their tests, examine driver notes, and get in touch with customer service. Users should be able to smoothly engage with the system on their preferred devices thanks to the interface's accessibility across both web browsers and mobile devices.

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?

- Some specifics, such as the precise technological stack to be utilized, the system hosting platform, and the precise implementation of some elements, including the online course and practice exams, were not included in the design above. Additionally,

presumptions were made regarding the consumers' availability to internet-connected devices, basic computer literacy, and familiarity with online booking platforms. Additionally, it is assumed that the technological foundation would enable safe data storage, dependable networking, and interface with external systems like the DMV for notifications and updates. These presumptions influence the general design and execution strategy, although more research and improvement may be needed to take into account certain technological and user-related factors.

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?

- There are numerous restrictions to take into account in the system design. One restriction is the need for internet connectivity for data access and modification, therefore offline functionality may be restricted or nonexistent. Another drawback is the reliance on outside systems, like the DMV, for notifications and updates, which creates a possible point of failure if the integration is unreliable. The system design also presupposes a particular amount of performance and scalability, although real performance may vary based on underlying technology and resource availability. There may be restrictions in terms of resources, time, money, and technology because of shortages of development knowledge, funds for implementation and maintenance, and time for development and deployment.

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.