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# Part C: Design and Critique - Practical System Design and Evaluation (30%)

This section requires you to apply your knowledge to design or analyse a system based on a provided scenario. It focuses on practical application through system design and critical analysis, it’s effective to present a scenario that challenges you to utilise your knowledge in creating or evaluating a system design. Here’s a comprehensive scenario that can be adapted for various tasks within Part C:

## Scenario: Community Health Tracking System

This scenario encourages you to apply your understanding of systems analysis and design principles to a practical, real-world problem. It tests your ability to think critically about system requirements, data management, user interaction, and privacy considerations. Through this exercise, you can demonstrate your ability to conceptualise a complex system by integrating theoretical knowledge with practical design skills.

**Background:** A local public health department seeks to improve its ability to track and manage community health issues, particularly in response to the recent increase in lifestylerelated illnesses. The department wants to develop a Community Health Tracking System (CHTS) that not only monitors health trends but also facilitates intervention programs, public awareness campaigns, and provides resources for healthier lifestyle choices.

**Requirements:**

* The system must be able to collect, store, and analyse health data from various sources, including hospitals, clinics, and public health surveys.
* It should provide a portal for health professionals to access and input data, analyse trends, and plan interventions.
* The system must include a public-facing component that allows community members to access health information, resources, and tips for improving your lifestyle.
* It should have the capability to send alerts and updates to both health professionals and the public regarding health trends, outbreaks, or health improvement programs.
* The CHTS needs to ensure data privacy and security, complying with health information regulations.

**Your Task:** Design a preliminary system for the CHTS. Focus on the following:

1. **System Architecture Diagram:** Create a high-level architecture diagram showing the main components of the CHTS, including data sources, processing, storage, and user interfaces.
2. **Data Flow Diagram (DFD):** Draft a simple DFD to illustrate how data moves through the system, from collection to the delivery of information to health professionals and the public.
3. **User Interface Sketches:** Provide basic sketches or wireframes for two interfaces: one for health professionals and one for the public. Highlight key functionalities accessible through each interface.
4. **Security Considerations:** Briefly describe the strategies you would implement to ensure data privacy and security within the CHTS.
5. **Brief Explanation:** Accompany your designs with a brief explanation of your design choices, how they meet the system requirements, and any considerations you took into account regarding usability, security, and scalability.

## Scenario: Online Booking System for a Small Hotel

For the critical analysis portion of Part C, you are asked to evaluate an online booking system for a small hotel. This task will require you to identify potential issues, suggest improvements, and consider alternative approaches based on systems analysis principles.

**Background:** A small hotel has recently implemented an online booking system to improve its reservation process. The system allows guests to book rooms, select room preferences, and make payments online. However, since its launch, the hotel has encountered several problems: customers have reported a confusing booking process, there have been instances of double-booked rooms, and the system does not always update room availability in real time. Additionally, the system lacks the functionality to handle special requests or modifications to bookings without calling the hotel directly.

**Existing System Components:**

* User Interface (UI) for customers to make bookings.
* Database that stores information on room availability, customer bookings, and payments.
* Backend logic to process bookings, update the database, and handle payments.
* Manual input interface for hotel staff to update room availability and manage reservations.

**User Interface Description**

**Hotel Booking Form Description**

**Overview:** The hotel booking form is designed to allow guests to book your stays online. It encompasses several fields necessary for capturing reservation details, including guest information, stay dates, room preferences, and payment information.

**Features:**

* **Guest Information:** Users are prompted to enter your full name, email, and contact number.
* **Stay Dates:** A pair of text fields requests the check-in and check-out dates from the user. Guests type in your dates manually.
* **Room Preferences:** Options for selecting room types are available, including standard, deluxe, and suite. Guests can also indicate your smoking preference with available checkboxes.
* **Payment Information:** Credit card information is entered through a secure form, including card number, expiration date, and CVV.
* **Submission:** At the top of the form, a submit button labeled “Complete Booking” finalises the reservation.

**Layout and Design:** The form is comprehensive, aiming to collect all necessary details in one page. Room preference options are compactly arranged, and the overall color scheme matches the hotel’s branding.

**Search Results Page Description**

**Overview:** Following a search query, this page displays a list of available rooms matching the guest’s criteria, including stay dates and room preferences.

**Features:**

* **Results Listing:** Each room listing provides basic details such as room type, price per night, and a brief description. An icon indicates the current availability status.
* **Filtering Options:** At the bottom of the page, users can find filters to refine your search based on room type, price range, and amenities.
* **Navigation:** Links to more detailed room descriptions and booking options are included under each listing.
* **Amenities Icons:** Small icons next to each room listing visually represent the amenities offered, such as Wi-Fi, air conditioning, and breakfast included.

**Layout and Design:** The search results are presented in a linear list format, aiming to provide a straightforward overview of options. The page utilises a minimalist design with a focus on readability.

**Manual Input Interface Description**

Here’s a detailed description of the ’Manual input interface for hotel staff to update room availability and manage reservations. This description can serve as a basis for analysing the system’s limitations and proposing improvements.

**Overview:** The interface is designed for hotel staff to manually update room availability, manage bookings, and handle special requests. It consists of several sections, including a dashboard, a reservation management area, a room availability updater, and a section for handling special requests and modifications.

**Dashboard:**

* Displays an overview of current bookings, available rooms, and pending special requests.
* Lacks real-time updates; staff must manually refresh the page to see new bookings or changes.

**Reservation Management Area:**

* Allows staff to view and edit existing reservations.
* Editing capabilities are limited to changing the reservation dates and cancelling bookings; there’s no option to modify the type of room booked or add special requests directly.
* The interface to search for reservations is clunky, requiring exact matches for customer names or reservation numbers, making it difficult to quickly locate bookings.

**Room Availability Updater:**

* Staff must manually input changes in room availability, such as marking rooms as cleaned and ready or out of service for maintenance.
* The process is time-consuming and prone to human error, as it relies on staff to remember to update the system after rooms are cleaned or maintenance is completed.

**Special Requests and Modifications Section:**

* Special requests (e.g., extra pillows, early check-in) can be added by staff, but only after the guest has made the booking, requiring the guest to call the hotel directly.
* There is no integration with the online booking system, meaning guests cannot input special requests at the time of booking.
* Modifications to bookings, such as adding additional nights or upgrading room types, require staff intervention and cannot be done by guests online.

**Your Task:** Conduct a critical analysis of the hotel’s online booking system based on the provided background. Address the following aspects: This scenario challenges you to apply your analytical skills to identify weaknesses in an existing system and propose well-considered improvements. It encourages a holistic view of system design, encompassing user experience, data management, functionality, and operational efficiency. Through this exercise, you demonstrate your ability to critique and improve system designs, a crucial skill in systems analysis.

1. **Usability Issues:** Identify the usability flaws in the customer UI that could lead to confusion during the booking process. Suggest specific improvements to enhance the user experience.
2. **Data Integrity and Synchronisation:** Analyse the problems related to double booking and real-time updates of room availability. Recommend strategies to ensure data integrity and synchronise room availability accurately across the system.
3. **Functionality Gaps:** Highlight the system’s shortcomings in handling special requests or booking modifications online. Propose additions or changes to the system’s functionality to address these gaps.
4. **Staff Interface and Operations:** Evaluate the effectiveness of the manual input interface used by hotel staff. Discuss how the process could be optimised to reduce errors and improve efficiency.
5. **Overall System Evaluation:** Provide a general assessment of the system’s architecture and workflow. Suggest any overarching changes or technologies that could improve the system’s performance, reliability, and customer satisfaction.
6. **Conclusion and Recommendations:** Summarise the key issues identified in your analysis and compile a list of prioritised recommendations for the hotel to consider in order to enhance its online booking system.

# English Language Proficiency Assessment (ELPA)

This is an English Language Proficiency Assessment (ELPA) designated unit. ELPA is part of the Faculty of Business and Law’s commitment to developing the academic English language proficiency (ELP) of all students.

Students will receive ELPA feedback on this assessment in the unit based on the ELPA rubric. If the marker determines that a student requires support to help develop their academic language and writing skills (ELPA-3), the student is required to complete the Advanced SUCCESS program.

# Expectations

You’ve been introduced to a broad array of foundational topics essential for this assessment. By now, you should possess a comprehensive understanding of the concepts required to complete the assignment effectively. However, it’s important to recognise that the expectation for this task is not to produce a consultant-level report, but rather to demonstrate a high-level understanding of the course material, while potentially missing some of the granular details necessary for implementation. Given our progress through the curriculum, some aspects of the assessment may require you to make reasonable assumptions to proceed with your analysis or proposals. Please ensure that any assumptions made are clearly stated within your submission. This will enable us to fully evaluate the thought process behind your conclusions and ensure that your reasoning aligns with the principles of systems analysis as covered in the course so far. Remember, the goal of this assessment is to showcase your grasp of the subject matter and your ability to apply it in practical scenarios, acknowledging the limitations of our current stage in the learning journey.

**Submission Instructions:**

* Complete all sections of the assessment.
* Answers for Part A, Part B and Part C should be typed and submitted in a PDF document.
* Diagrams for Part C can be drawn by hand and scanned, or created using software tools, and should be clearly labeled and included in your submission.
* Submit your completed assessment via the designated upload links by Sunday 14 April

23:59.

* For ELPA, please submit your completed assessment via the designated ELPA upload link by Sunday 14 April 23:59.

**Assessment Criteria:**

This assessment is designed to be comprehensive yet accessible for students new to Systems

Analysis, ensuring a balance between theoretical knowledge and practical application. Each part will be assessed based on the following rubric:

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| Criteria Fail (0-49%) | Pass (50-64%) | Credit (65-74%) | Distinction (75-84%) | High  Distinction  (85-100%) |
| **Understanding**Limited  **of Con-** understanding **cepts** of key  concepts. Numerous  inaccuracies. | Basic understanding of concepts  with some inaccuracies. | Good  understanding  with minor inaccuracies. Accurately uses terminology. | Very good understanding. Clear and accurate explanation of concepts. | Excellent understanding. Insightful and thorough explanation of concepts with advanced knowledge. |
| **Application**Struggles to  **of** apply  **Knowl-** concepts to **edge** scenarios.  Many errors in application. | Can apply concepts to given scenarios with some errors. | Good  application of knowledge to scenarios.  Demonstrates practical understanding. | Very good  application  with minimal errors. Shows creativity in application. | Excellent and accurate application of knowledge. Innovatively applies concepts to scenarios. |

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| --- | --- | --- | --- | --- | --- |
| Criteria Fail (0-49%) | | Pass (50-64%) | Credit (65-74%) | Distinction (75-84%) | High  Distinction  (85-100%) |
| **Analysis and**  **Critical**  **Thinking** | Analysis is  superficial  with  significant misunderstandings. | Basic analysis demonstrated but lacks depth. Some  critical thinking evident. | Good analysis and demon-  stration of critical thinking. Identifies key issues and suggests solutions. | Very good analysis and  critical thinking. Detailed examination  of issues with well-justified solutions. | Exceptional analysis and  critical thinking. Insightful,  comprehensive exploration of issues with innovative solutions. |
| **Clarity and Organisation** | Work is  disorganised and unclear. Major issues with structure and coherence. | Work is somewhat organised; some issues  with clarity and structure. | Work is  well-organised  and mostly clear. Good structure and flow of ideas. | Work is very  well-organised  and clear. Very good structure, logically presented. | Work is  exceptionally organised and clear.  Excellent structure with logical, coherent flow of ideas. |
| **Technical**Numerous **Accu-** technical **racy** errors and  **and** poor  **Pre-** presentation. **senta-** Lack of **tion** adherence to  submission instructions. | | Some  technical errors and issues with presentation quality.  Generally adheres to submission instructions. | Mostly accurate with minor  technical errors. Good presentation and adherence to submission instructions. | Very few technical errors. Very good presentation and strict adherence to submission instructions. | No technical errors.  Exceptional presentation quality and complete adherence to submission instructions. |