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# ASSIGNMENT 1 – SAND6221

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Tebogo SL Sebola – ST10070599 (04/05/2024)



## QUESTION 1

## Improving Customer Relations: An Approach to Airport CRM System through Systems Analysis and Design.

Information systems are analyzed, defined, and conceptualized using a methodical process called Systems Analysis and Design (SAND). It includes determining the end-users' needs, assessing current systems (if any), and coming up with fixes for problems or demands that have been found. System Analysis and Design forms the basis for creating efficient information systems and includes stages including requirements collecting, feasibility analysis, system design, implementation, and maintenance (Kumari, 2021).

### 1. The importance of conducting Systems Analysis and Design properly for the Airport Customer Relations Management System:

It is essential to effectively conduct Systems Analysis and Design (SAND) for the Airport Customer Relations Management System (ACRMS) for a number of reasons. To begin with, it makes complex structures that are part of airport operations easier to understand and navigate, which helps the ACRMS perform its duties more efficiently. Second, an appropriate Systems Analysis and Design enables better handling of any modifications to the business, guaranteeing that the ACRMS is flexible and sensitive to changing requirements and conditions. Moreover, the ACRMS will successfully support the airport's overall goals and strengthen its competitive position if it is aligned with its surroundings and strategic aspirations. Additionally, appropriate Systems Analysis and Design simplifies system maintenance and operation, enhancing efficiency and resource allocation by decreasing IT difficulties and lowering the workload of IT staff members. Moreover, it maximizes total performance by cutting expenses in specific areas, saving the company money and resources that may be used in other departments. Furthermore, Systems Analysis and Design assists in proactively minimizing risks by seeing possible risks and threats to processes before they materialize, guaranteeing the efficient operation of the ACRMS. Additionally, raising the system's general quality and usability boosts output and customer happiness, which eventually helps the airport's customer relations management initiatives succeed (Jocelyne Gafner, 2023).

### 2. The activities that will be conducted as part of Systems Analysis in relation to the development of the Airport Customer Relations Management System

**Elicitation of Requirements:** This entails compiling and recording the needs of multiple parties, such as travelers, employees, and airport management. To ascertain their requirements and expectations with reference to the ACRMS, methods including surveys, workshops, and interviews may be employed.

**Feasibility Study:** To evaluate the ACRMS's technical, operational, and financial viability, a feasibility study will be carried out. This entails assessing elements such the availability of resources, the state of technology, cost-benefit analysis, and any hazards.

**System modeling:** To gain a better understanding of the structure and behavior of the ACRMS, system modeling entails developing visual representations of the system. The components and interactions of the system can be shown using methods like entity-relationship diagrams, use case diagrams, and data flow diagrams.

**Prototyping:** In order to showcase important features and get input from stakeholders, a rudimentary version of the ACRMS is created. Prototypes aid in requirement validation,

system design refinement, and guaranteeing that the finished product lives up to user expectations.

Risk Assessment: To identify any risks and threats to the ACRMS's successful implementation, a risk assessment is carried out. Technology, security, financial, and regulatory compliance risks are assessed, and mitigation plans are created to deal with them (Chai, 2024).

3. The activities that will be conducted as part of Systems Design in relation to the development of the Airport Customer Relations Management System

In order to construct the Airport Customer Relations Management System (ACRMS), a number of important tasks will be carried out as part of the Systems Design process. First, a system architecture will be created, detailing the ACRMS's general composition and arrangement, including all of its parts, modules, and interfaces. Each component's functionality, data structures, and algorithms will then be specified in comprehensive design specifications. With features like clear navigation routes and interactive elements, user interface design will play a big role in making sure that the ACRMS is simple to use and intuitive for both airport employees and travelers. Additionally, integration planning will be carried out to guarantee smooth communication and compatibility between various modules and external systems, like emergency services and flight information databases. Furthermore, security protocols will be created and put into place to safeguard confidential information and guarantee adherence to legal mandates. ACRMS deployment and future maintenance will be guided by comprehensive documentation that is kept up to date during the Systems Design phase. A well-organized, functional, and user-centered airport customer relations management system is the overall goal of systems design activities, which translate the requirements acquired during systems analysis (Santeralli, 2021).

4. Motivation for the use of an iterative approach to the development of the Airport Customer Relations Management System

The Airport Customer Relations Management System (ACRMS) was developed using an iterative process due to a number of important criteria. First off, by using an iterative method, the system may be continuously improved and refined depending on input from many stakeholders, such as passengers, employees, and airport management. The team can more quickly adjust to shifting requirements and solve new demands by segmenting the development process into smaller, more manageable iterations. This approach produces a system that is more in line with the dynamic environment of the airport industry. Iterative approaches also promote teamwork and communication, which makes the development process more adaptable and responsive. Additionally, iterative development lowers the chance of project failure by facilitating the early detection and resolution of possible problems, guaranteeing that the ACRMS successfully satisfies its goals. The development team can produce an excellent and user-centric ACRMS that improves customer happiness and streamlines airport operations by adopting an iterative approach (House, 2023).

To conclude, this study outlines the painstaking approach required for the creation of the Airport Customer Relations Management System (ACRMS), which includes rigorous Systems Analysis and Design. We guarantee the effective deployment of a system that improves customer satisfaction, streamlines operations, and aligns with strategic objectives by comprehending the significance of these phases and their application to the particular requirements of the airport environment. We are the best choice to create the new system for the airport because of our dedication to facilitating understanding of

complex structures, coordinating the organization with its surroundings and strategic priorities, and reducing risks while maximizing quality and usefulness. Our commitment to continual improvement and client satisfaction, together with our track record of delivering creative and customized solutions, make us the ideal partner for this important project. Selecting us to create the ACRMS guarantees not only the delivery of a highly effective and functioning system but also a cooperative alliance aimed at realizing the airport's long-term prosperity and augmenting the experience of travelers.

# QUESTION 2

## 1. Travelers and Passengers:

Role: The main users of airport amenities are travelers. Their suggestions and requirements are essential for creating a system that is easy to use.

Contribution: Travelers can share information about their expectations, preferences, and pain areas. They can aid in the definition of features pertaining to facilities, services, and flight information.

## 2. Employees & Staff at Airports:

Role: Employees at airports who deal directly with passengers include ground crew, security guards, and customer service agents.

Contribution: They can offer first-hand knowledge, point out obstacles, and make recommendations for enhancements. Their advice is helpful for improving customer service and expediting procedures.

## 3. Ground crews and airlines:

Airlines play an important part in the airport ecology. Carriers of baggage oversee check-in and other functions.

Contribution: Information about boarding processes, delays, and flight schedules can be obtained from airlines. Ground crews can provide information on passenger flow and baggage handling (Vasundhara, 2015).

## 4. Executives and Airport Management:

Position: Airport management is in charge of overall operations, financial planning, and strategic choices.

Contribution: They established the CRM system's goals. Their feedback directs system requirements concerning long-term planning, budget allocation, and scalability (Hamouda, 2023).

## 5. Providers of Emergency Services:

Function: Emergency medical services (EMS) are essential in managing medical crises at airports.

Contribution: They are able to specify the conditions for the immediate access to medical treatments. This entails supplying emergency help in real time and integrating with EMS communication networks (Devrakhyani, 2020).

# QUESTION 3

Q.3.1.

1. Notification of Flight Delay:

Event: Bad weather, technical difficulties, or other unanticipated events cause a flight delay.

Use Case: Inform Affected Travelers (Burd, 2019).

Synopsis: The impacted passengers receive automated notifications from the system explaining the reason for the delay as well as any pertinent updates about the status of their trip. During the delay, passengers are given information on available airport facilities, help with rebooking, and alternate travel alternatives (Stoduco, 2024).

2. Lost Baggage Report Event:

Event: When a traveler arrives at the airport, they report losing their bags.

Use Case: Handle Misplaced Baggage Report (Burd, 2019).

Synopsis: The system keeps track of the specifics of the reported lost luggage, such as traveler details, flight information, and item descriptions. It starts a search within the airport's baggage handling system and creates a unique reference number for tracking reasons. A confirmation of the report and guidelines for further correspondence about the whereabouts of their misplaced bags are given to the passenger (Stoduco, 2024).

3. Emergency Medical Assistance Event:

Event: There is a reported medical emergency at the airport that needs to be attended to right away.

Use Case: Activate Emergency Response (Burd, 2019).

Synopsis: The system instantly notifies airport medical staff and first responders in the event of a medical emergency alert. In order to expedite aid delivery, it offers up-to-date emergency location details. For documentation and analytical purposes, the system records information about the occurrence, such as the type of emergency, the actions performed, and the results (Famuyide, 2018).

4. Customer Feedback Submission:

Event: A passenger submits feedback or a complaint regarding their airport experience.

Use Case: Capture Customer Feedback (Burd, 2019).

Synopsis: The system captures and categorizes incoming feedback and complaints from passengers, including their suggestions, compliments, or concerns. It assigns a unique reference number to each submission for tracking and response purposes. The feedback is routed to the appropriate airport personnel for review and resolution, and the passenger receives acknowledgment of their submission along with updates on the resolution process (Stoduco, 2024).

Q.3.2.

### **Use Case: Notify Passengers of Flight Delays**

#### **Description:**

The **Notify Passengers of Flight Delays** use case ensures that passengers receive timely and accurate notifications when their flights are delayed. This feature enhances passenger experience, minimizes inconvenience, and allows travelers to adjust their plans accordingly.

#### **Actors:**

- **Passenger:** The end-user who is booked on a flight.
- **Flight Operations Staff:** Responsible for managing flight schedules and updates.

#### **Preconditions:**

- The passenger has a valid flight reservation.
- The airport CRM system is operational.

#### **Main Flow:**

1. **Passenger Books a Flight:**
  - The passenger reserves a seat on a specific flight.
  - The system records the passenger's contact information (e.g., email, phone number).
2. **Flight Delay Detected:**
  - The system continuously monitors flight status.
  - If a delay occurs due to weather, technical issues, or other reasons, the system detects it.
3. **Notification Triggered:**
  - The system sends an automated notification to the affected passenger(s).
  - The notification includes:
    - New departure time.
    - Gate information.
    - Reason for the delay (if available).
4. **Passenger Receives Notification:**
  - The passenger receives the notification via:
    - Email.
    - SMS.
    - Mobile app push notification.
  - The system ensures that the message is clear, concise, and easy to understand.



#### **5. Passenger Adjusts Plans:**

- Upon receiving the notification, the passenger can:
  - Arrive at the airport later (if the delay is minor).
  - Rebook on an alternative flight (if available).
  - Make necessary arrangements (e.g., inform family, adjust ground transportation).

#### **6. Flight Operations Staff Updates Information:**

- The staff updates the system with real-time information:
  - Any further changes to departure time.
  - Gate changes.
  - Estimated duration of delay.

#### **7. Passenger Acknowledges Notification:**

- The passenger acknowledges receipt of the notification:
  - By confirming the update.
  - By opting for alternative options (if needed).

#### **Postconditions:**

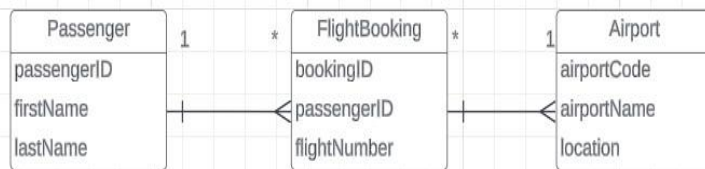
- Passengers are informed promptly about flight delays.
- Passengers can make informed decisions based on the updated information.

#### **Alternative Flows:**

- **No Contact Information Available:**
  - If the passenger's contact information is missing or invalid, the system alerts airport staff to manually assist the passenger (Statzinger, et al., 2022).

# QUESTION 4

Q.4.1.



(Luicid charts)

(Statzinger, et al., 2022)

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