**Part A**

**1) Describe a software development process (e.g. Agile) in detail that you would choose for the development for the above description. Your answer must provide at least three rationales for the choice you make.**

The Agile approach has been chosen as the best framework for the development project for Apache Airlines' seat booking software. The Agile method is known for being able to change to new needs, which is very important in the aviation business, which is always changing. With its iterative development processes, agile provides an organized way to regularly review and change project goals. This engaging makes sure that the software being made meets or exceeds the client's needs by allowing for constant feedback and small changes over time.

**2) As a systems analyst, study the description provided by the Apache airlines and produce a formal Functional Requirements Specification document to capture the requirements of the prospective software system of Apache airlines. At least five requirements must be identified in the Functional Requirements Specification document.**

1. Introduction

1.1 Purpose

This paper describes Apache Airlines Seat Booking System functional and non-functional requirements. This technology simplifies airline seat booking by letting users check availability, reserve seats, and maintain their bookings online. The document guides the development team to ensure that all system components match Apache Airlines' operational demands.

2. Functional Requirements

2.1 Requirement 1: Seat Availability Inquiry

Description: The system must allow customers to verify seat availability on flights by selecting row and column. It should appropriately show if a seat is "Free" (F), reserved (R), or unavailable (as "Aisle" or "Storage").

2.2 Requirement 2: Seat Reservation

Description: The system must allow customers to reserve available seats. During the reservation process, customers must provide personal information, including their passport number and full name. Upon successfully reserving a seat, the system will generate a unique booking reference and update the seat's status to "Reserved" in the system.

2.3 Requirement 3: Reservation Cancellation

Description: Customers must have the option to cancel their reservations. The system should allow users to enter their booking reference to cancel a reservation, subsequently freeing up the seat and making it available for booking by other customers.

2.4 Requirement 4: Display Current Booking Status

Description: The system must provide a feature that displays the current booking status of all seats for a particular flight. This includes showing seats as "Free," "Reserved," or "Unavailable," and providing a visual layout of the seating arrangement to users.

2.5 Requirement 5: Exiting the Program

Description: The system must provide a mechanism for users to exit the program easily. Upon initiating the exit process, the system should verify that all transaction and operation data is preserved and that no processes are unfinished.

3. Non-functional Requirements

3.1 Performance

The system should be capable of handling multiple user requests simultaneously without significant delays. The response time for seat availability checks and reservation requests should not exceed 3 seconds under normal operating conditions.

3.2 Usability

The user interface of the system must be easy to navigate, even for users with limited technical proficiency. The system should also be accessible to individuals with disabilities such as color blindness so text colors that can be difficult to view (i.e Purple) would be exempt from terminal usage.

3.3 Security

The system must secure critical client data with strong security. This includes data encryption in transit and at rest, user authentication, and tight access limits to protect personal and booking data.

4. Assumptions and Constraints

4.1 Assumptions

When it comes to the system database, it is presumed that Apache Airlines is responsible for providing correct and timely updates to the information on flights and seating.

4.2 Constraints

The development of the system is constrained by limited time and a strict deadline of 1 week of my holiday for completion.