Functional Requirements Specification

# 1. Introduction

1.1 Purpose

The purpose of this document is to define the functional requirements for the Apache Airlines seat booking software. The system aims to provide seat reservation functionality to support the expansion of Apache Airlines' operations. Users will be able to check seat availability, book seats, free seats, and view the overall booking status.

# 2. Functional Requirements

2.1 Requirement 1: **Check Seat Availability**

Description:

* Users can check whether a specific seat is available.
* The system must display the seat status (Available "F", Reserved "R", or Unavailable "X/S").

2.2 Requirement 2: **Book a Seat**

Description:

* Users can select an available seat to book.
* The system must verify whether the selected seat is available.
* Upon successful booking, the seat status changes to "R".

2.3 Requirement 3**: Cancel a Seat**

Description:

* Users can cancel a reserved seat.
* Upon freeing a seat, the system must update its status to "F".

2.4 Requirement 4**: Display Seat Booking Status**

Description:

* Users can view the seating arrangement of the flight.
* The system should display seat status in a grid format.

2.5 Requirement 5**: Generate Booking Reference**

Description:

* Each successful seat booking must generate a unique **eight-character alphanumeric** booking reference.
* The reference must be stored to avoid duplication.

***[Add more requirements as needed]***

# 3. Non-functional Requirements

3.1 Performance

* The system should respond to user queries within **1 second**.
* The system should support **100 concurrent users**.

3.2 Usability

* The booking interface should be simple and intuitive, with menu options.
* Users should be able to operate the system without training.

3.3 Security

* Only authorized users can make and modify seat bookings.
* Booking data must be stored securely with encryption to prevent leaks.

***[Add more non-functional requirements as needed]***

# 4. Assumptions and Constraints

4.1 Assumptions

* All seats initially have a status of "F" or an unavailable status ("X/S").
* The booking system is designed specifically for the Burak757 model but may be expanded in the future.

4.2 Constraints

* The system is intended for internal use within Apache Airlines and is not open to the public.
* Database storage capacity is limited, and outdated booking records must be periodically removed.