**Functional Requirements Specification**

**Project Title: Apache Airlines Seat Booking System**

**Functional Requirements:**

**1. Seat Availability Check**

* The system must allow users to check the availability of specific seats.
* Available seats must be clearly indicated by the letter “F”.
* Booked seats must be clearly indicated by the letter “R”.

**2. Seat Booking**

* The system should allow booking of a seat only if the seat is currently marked as free (“F”).
* When a seat is successfully booked, the seat status must update from “F” to “R”.

**3. Seat Cancellation**

* The system should allow cancellation (freeing) of a previously booked seat.
* Once a seat is freed, its status must change back from “R” to “F”.

**4. Display Booking Status**

* The system must display the current booking status of all seats upon user request.
* Seats should be clearly marked with “F” for free, “R” for reserved, “X” for aisles, and “S” for storage areas.

**5. Random Unique Booking Reference Generation (Part B extension)**

* Each new booking must generate a unique 8-character alphanumeric booking reference.
* Booking references must be stored securely and associated with traveller details including passport number, first name, last name, seat row, and seat column.

**Additional Functional Requirement (Extra):**

**6. View All Available Seats**

* The system must provide an additional functionality to view all currently available seats separately for enhanced usability.
* The system should present available seats clearly, excluding aisles (“X”) and storage areas (“S”).