AIRLINE PROJECT

**Objective :**

We need to build a backend system that can support different features for an airline company. Our end user is going to be someone who wants to book flights and query about flights so we need a robust system to actually help them to give the best experience possible. This design doc is solely going to focus on the backend part of the system. We want to prepare the whole backend keeping the fact in mind that the codebase should be as maintainable as possible.

## **Functional Requirements :**

* A user should be able to search for flights from one place to another.
* A user should be able to put source, destination, flight date, round trip, class of journey, number of seats etc.
* A user should be able to book a flight considering the user is registered on the platform.
* Based on the above data we should list down the flights.
* Users should be able to filter flight according to duration of flight, price of flight, departure time and more custom filters.
* We need to support pagination so that we can list a chunk of flights at one point of time.
* Tracking flight prices should be possible, the user should be notified about any price drops on any other things like delays etc.
* For payment purposes we use a dummy payment service.
* Users should be able to download boarding passes if they done online check-in.
* Online check mechanisms should be supported.
* Notification via email for completing online check-in before 3 hours of departure.
* Notification to the user about any flight delay.
* Users should be able to review a flight journey if they have booked that flight.
* Users should be able to authenticate in the system via email and password.
* User should cancel the booking and initiate a dummy refund process.
* Support ticketing, where user can make their queries.
* Listing FAQs.
* While making a booking a person can book more than one seats.

## **Non Functional Requirements:**

* We can expect that we are going to have more number of flight searches than flight bookings.
* The system needs to be accurate in terms of booking.
* Expect that we will be having approx 10,00,00 users, 5,00,000 bookings might come up in one quarter..
* Consider that one day we can expect 10,000 bookings.
* System should be capable of scaling up to at least 3 times the current traffic.
* The system should handle real time updates to flight prices before user makes the final booking.
* Concurrency should be handled, using RDBMS should be good solution.

## **Capacity Estimation:**

* **Storage estimation** - for upcoming 5 years 80,00,000 bookings, 20,00,000 users, considering all the user records and booking records take 10 MB of data then overall we need 10 TB of memory should be fine for our pilot run.
* **Traffic estimates** - if we consider 30:1 as the search:booking ratio then at max we expect 1,50,000 search queries a day. Ie 2 query per second.

