**Airline booking system**

**Objective**

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

# Requirements:

* A user should be able to search a flight from one place to another

- User should able to mention the source and destination location

- User can able to select the date of journey

- [v2] User should be able to sear ch for return flight and multi city flights.

- User should able to select the class of flight. [Non mandatory]

- User should be able to select the no of seats thet want to book [Non mandatory]

- Now based on the above data, we will list down the flights.(min.time and cheaper)

- We should show our user the best available flights based on price and time.

-Support pagination feature so we can list chunk of flight at one point of time.

- We should support filter of flights based on price,departure time,duration,airline stops.

- [V2] WE can add support for more filter

* A user should be able to book a flight considering that user register on the platform.

- User should able to cancel a booking and then based on some criteria we can initiate a refund for them.

- User should be able to request and book excess luggage for every flight.

* Tracking fights price should be possible,the user should be notify about any price down.
* For making a booking , the user has to make a payment [dummy](razorpay).
* User should be able to list their previous and upcoming flights.
* User should able to download boarding pass if they have done online check in.
* Online check in mechanism should be supported.
* Notification via email for completing online check in before 3 hours of departure.
* Notification to users about any flight delay.
* User should able to review the flight journey if and only if they have booked a flight .

- Review mechanism should involve star rating along

with a comment

- While listing any flight we should always display the review of fight

* User should be able to authenticate to our system using email and password.

- [V2] Support ticketing ,where user can raise their queries.

- Listing FAQ which will be static data.

- Coupons for discount and offers.

- [V2] Coupons for discounts and offers.

- While making a booking a person can reserve more than one seats with one login id .

# Non functional Requirements:

* We can expect that we are going to have more flights searches than flight booking.
* The system needs to be accurate in terms of booking.
* Expect that we will having appox 1,00,000 total users,2,00,000 booking might come up in one quarter.
* So in one day we can 5000 booking.
* System should be capable of scaling up to atleast 3x the current estimated traffic.
* The system should handle real time updates to fight prices,before user make the final booking.
* Concurrency should be handle using RDBMS should be good solution

# Capacity Estimation

Storage estimates -

* For upcoming 5 years , 40,00,000 booking ,2,00,000 users. Considering all the users records and booking records take 10 MB of data ,the overall 10 TB of memory should be fine for initial pilot run.

Traffic estimates - If we consider 30 :1 as the search booking ratio ,then at max we expect 30000 search queries a day query/sec