

# **Software Engineering**

**Topic:** Airline Seat Selection, Boarding Pass Issuance And Aircraft Boarding

**Group:** 8

**Dept-Sec:** CSE-C

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## **About the project**

- We will be creating an Airline Booking System which will help the customers to book a flight ticket. The customers can modify and cancel the ticket.
- Given that the passenger hasn't already registered, will allow creating an account
- The boarding pass will contain the passenger details, scannable QR code of their PNR number, seat number.
- The airport agent can enter the flight ID and grab the passenger list.
- The airport agent can enter the PNR and grab the passenger details.
- The main purpose of this software is to reduce the manual errors involved in the airline reservation process and makes it convenient for the customers to book the flights when they require so that they can utilize this software to make reservations, modify reservations or cancel a particular reservation.

## **Stakeholders**

- a. Employees
- b. Passengers
- c. Government Authorities
- d. Airline Clients

## Modules

- Login Module
- Booking Module
- Search Module
- Check Availability Module
- Boarding Pass Issual Module
- Payment Module
- Purchase Module
- Exit Module

## Table(Master/Transaction)

**Primary key — Master table (Flight Info Table)**

**Foreign key — Transaction table**

1. **Ticket Price Table**-price,flight boarding point,flight destination,flight name,flight-ID.
2. **Ticket Cancellation Status Table**-price,flight boarding point,flight destination,flight name,flight-ID(change if any requirements)
3. **Flight Schedule Table**-flight-ID,flight\_name,date,time,flight\_boarding point,flight\_destination\_point,path\_taken.
4. **Login Details Table**-name,username,user\_id,address,aadhaar\_number,passport\_number,phone\_number,date\_of\_birth,password.
5. **Flight Info Table**-flight\_name,airline\_name,no\_of\_tickets\_available,\_cost\_of\_ticket,flight\_destination,travel\_date,time,seat\_vacancy,passenger\_id
6. **Flight Route Table**-flight\_name,flight\_id,flight\_destination,flight\_starting\_from,path\_taken,date,time
7. **Airport Staff Table**-staff\_id,staff\_name,staff\_shift\_hour,aadhar\_no,date\_of\_birth
8. **Passenger Table**-passenger\_id,passenger\_name,passenger\_mobile,passenger\_username,passenger\_password,passenger\_address,aadhar\_no,date\_of\_birth
9. **Transaction Table**-Transaction\_ID,price,payment\_method.  
  
User\_id, payment\_id,

## Reports

**Name: Airline Booking**

**Purpose: For booking Flight tickets using our product**

This report is to convey all the modules that we are using in this project along with the tables. This project consists of tables that include the details of Flight, passengers, and different modules which will help the user to freely interact with the application.

**Suppliers:** They are interested in gaining more profits. However, they will be affected if the tickets are sold less which means less purchase of the flight tickets will lead to less profit.

**Competitors:** They will charge less price for the same traveling journey to attract more customers, and they will keep eye on each other to do better and get more sales.

### Assumptions:

- Mobile and web Platform
- When the Ticket is canceled by the user, only some percent of the user ticket amount will be re-sent .(Ticket Cancellation Charges).
- Admin will be able to search booking enquiry and has permission to edit , add and delete any booking enquiry
- Passenger will be able to generate a report of airline ticket booking
- Admin can update the price of the Flight Ticket.

### Requirements:

#### User

##### a) Passenger :

- Login
- KYC Details and Update
- Search Ticket
- Book Ticket
- Payment
- After payment receives receipt and schedule
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**b) Government Authorities:**

- Login
- KYC Details and Update
- PNR Searching
- Ticket cancellations module

**c) Admin(Airline reservation system)**

- Display list of vacant schedules
- Display reservation info and payment
- Receives the payment and transaction
- Generates reservation form and release receipt

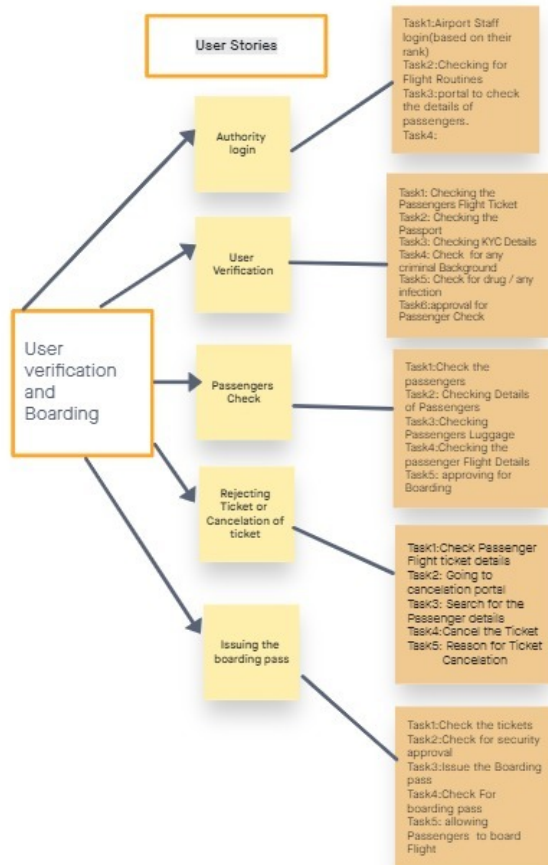
**d) Airline Clients**

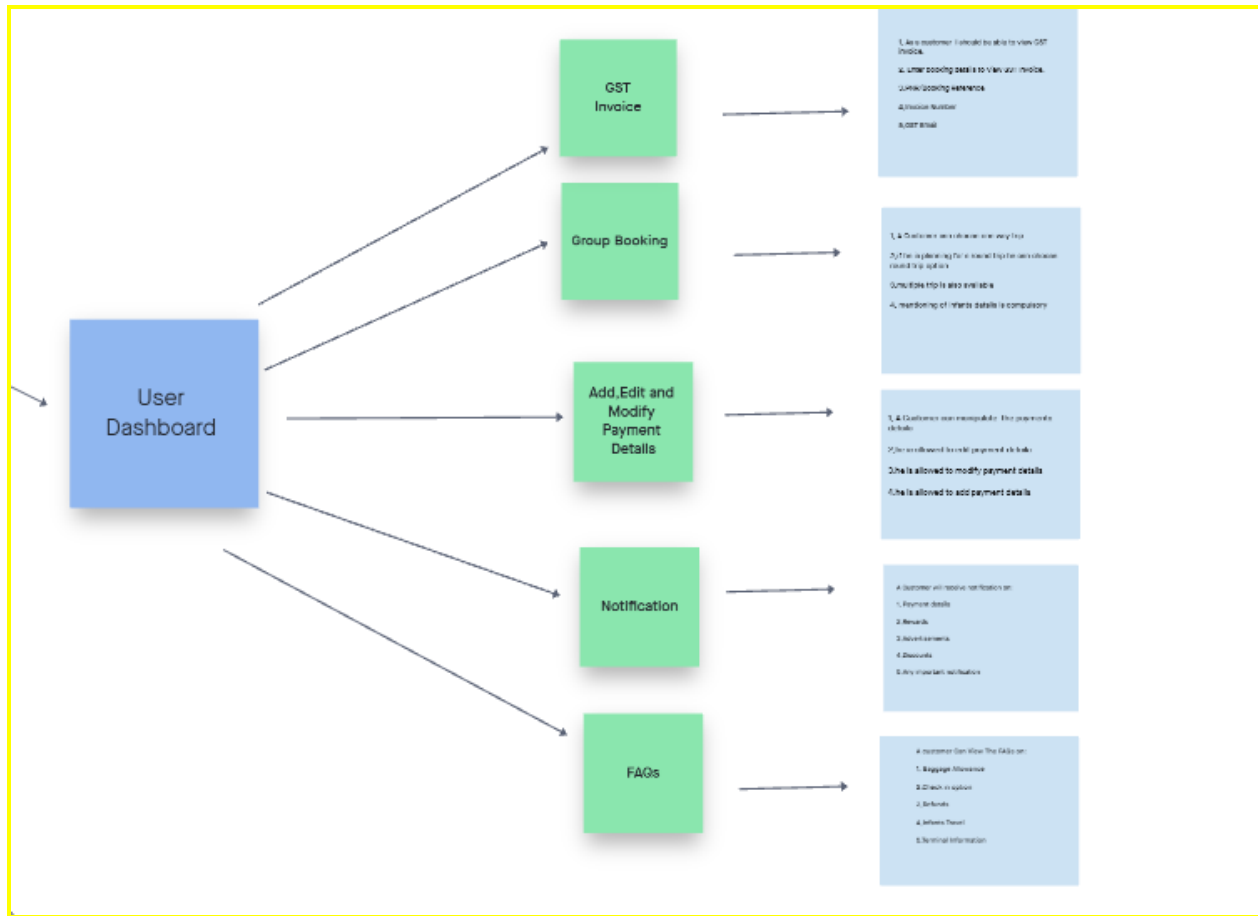
- Login
- Price updation portal

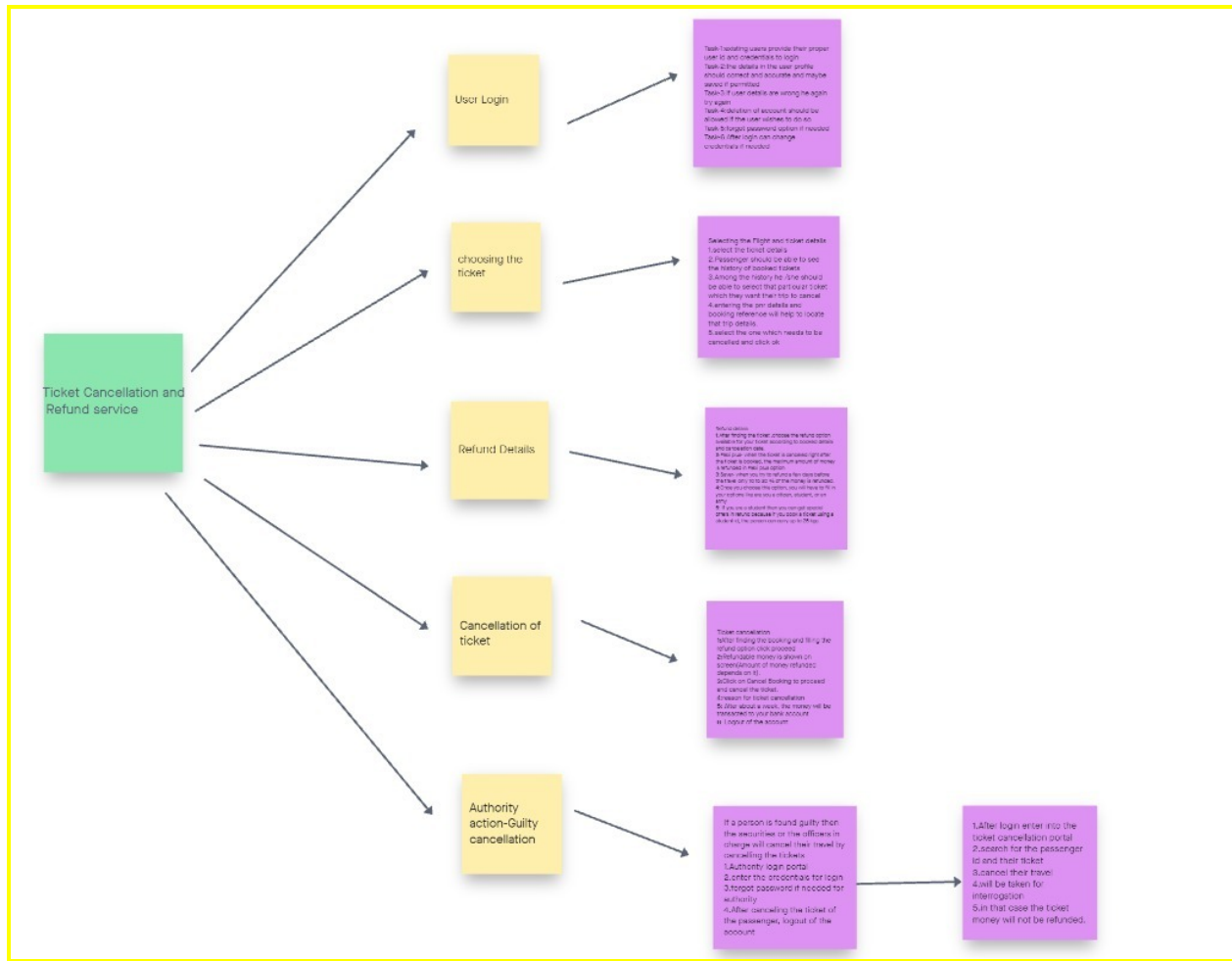
**e) Air Staff**

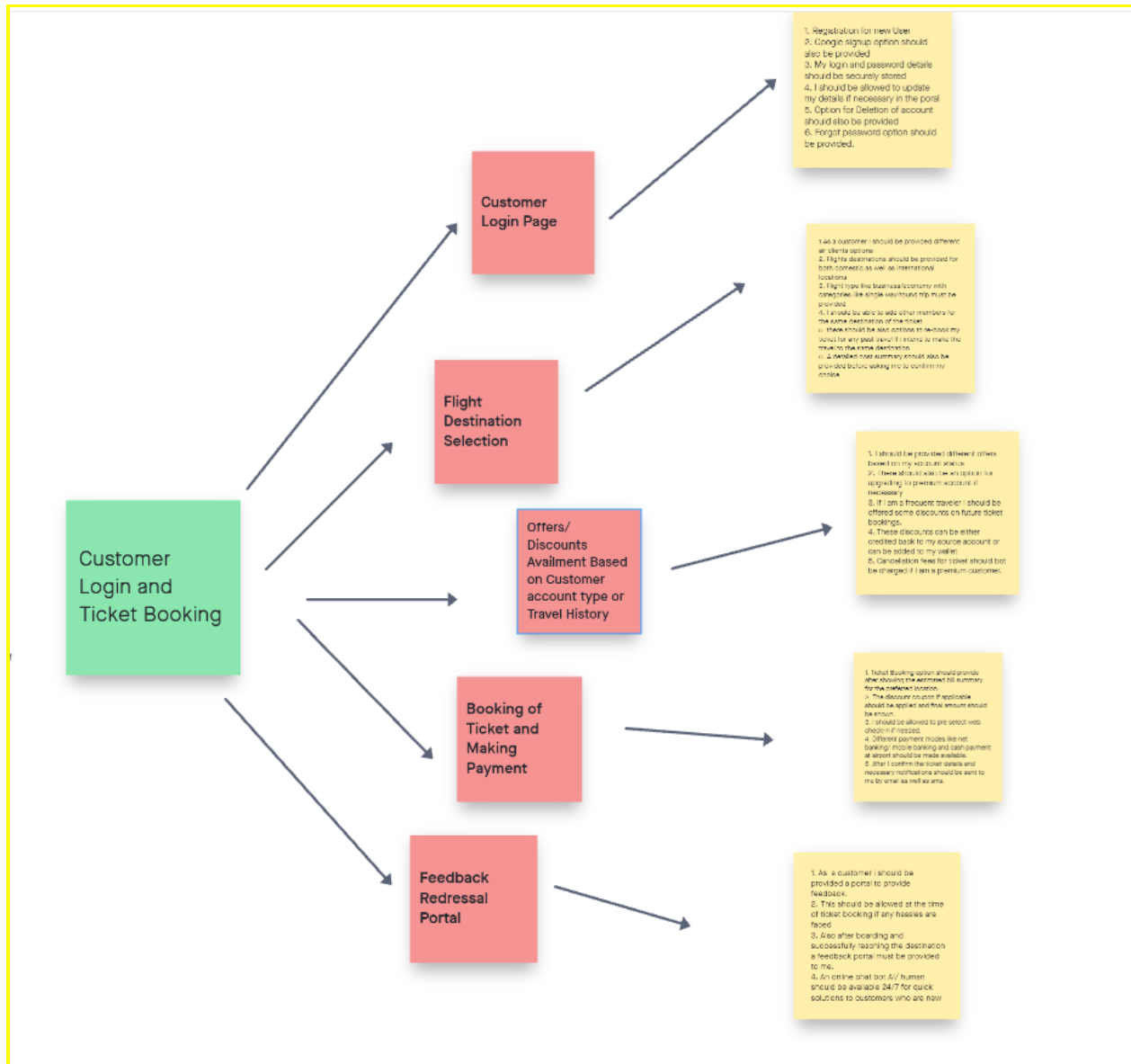
- Login
- Attendance/Leave Management
- Salary Payment

**Epics and User Stories**

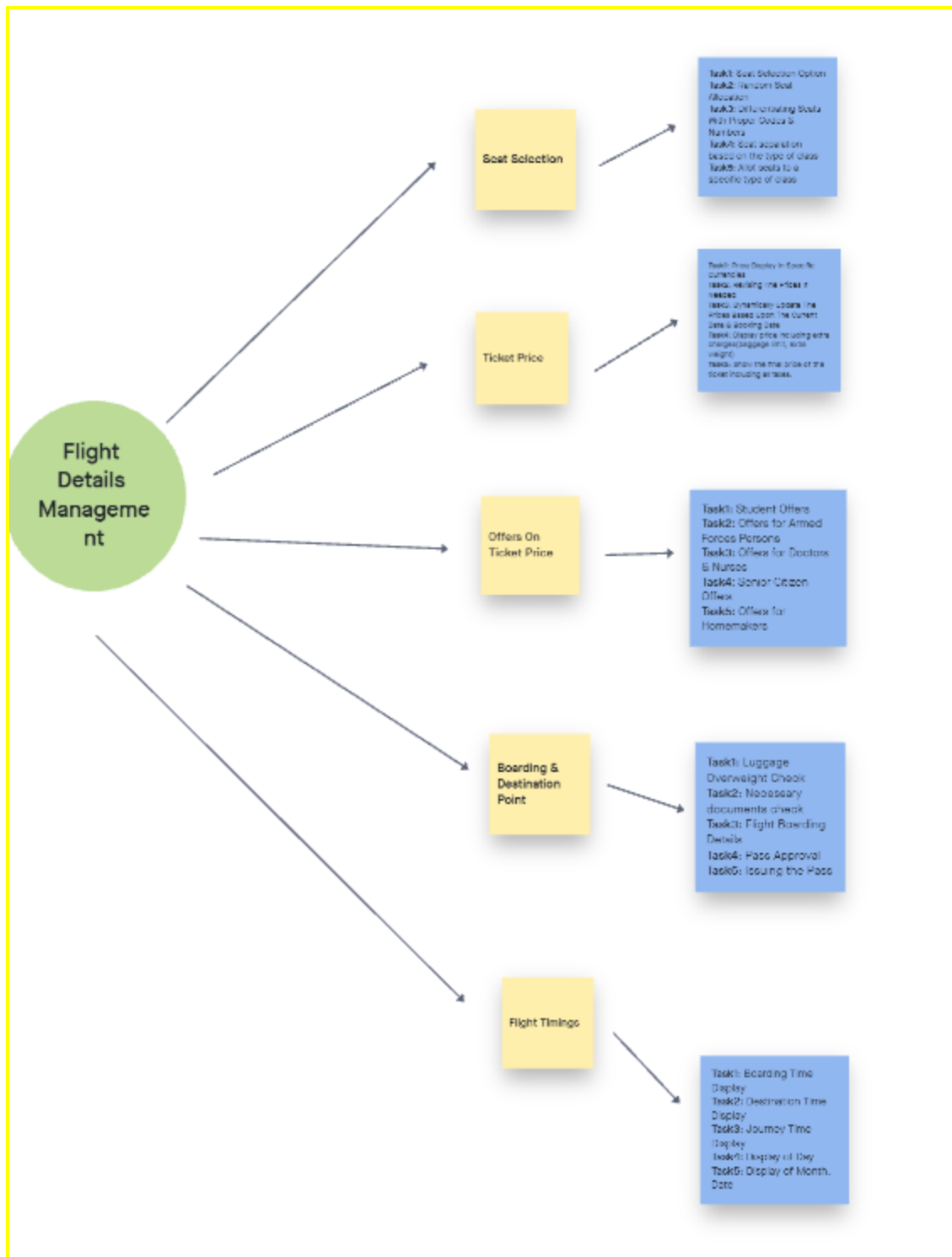


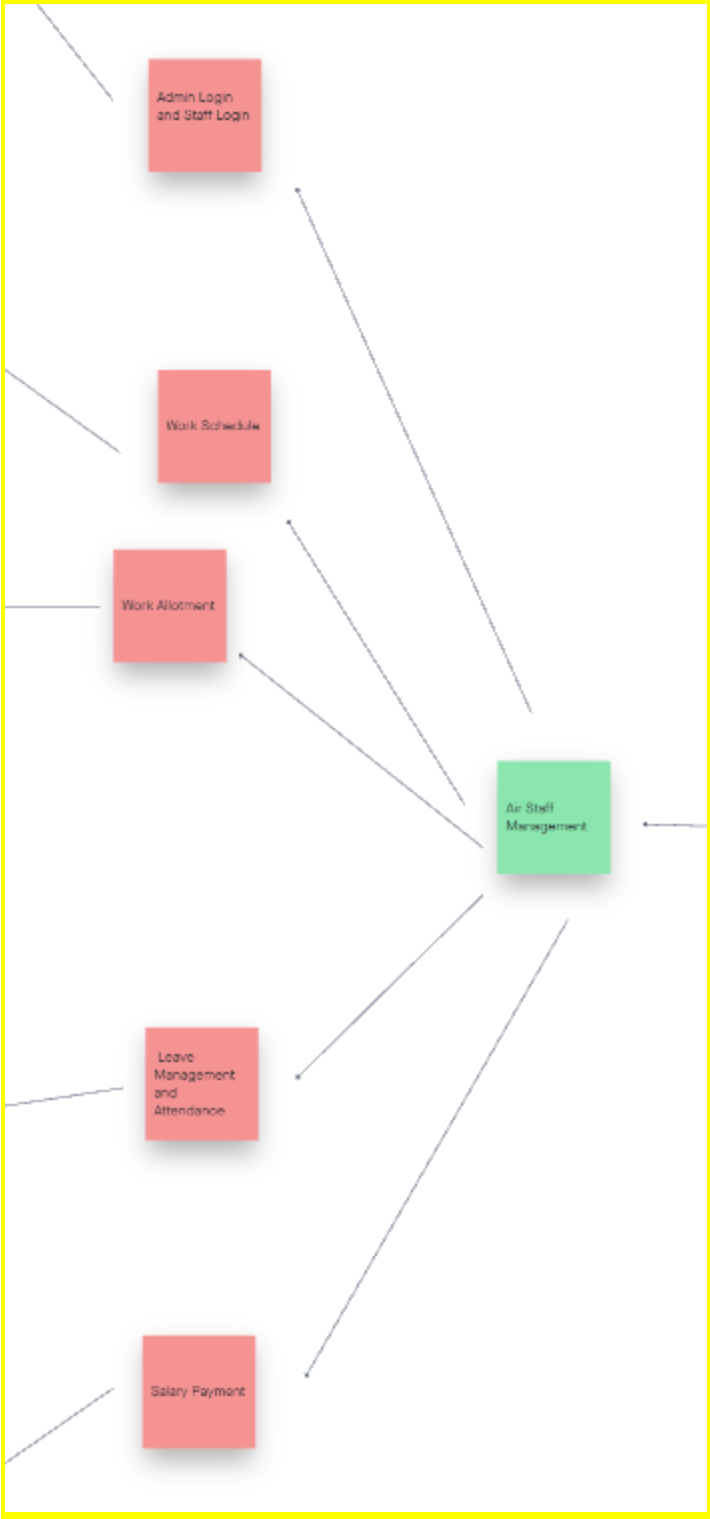












Epic	Efforts in Hours
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Epic 1	4
Epic 2	4
Epic 3	3
Epic 4	3.5
Epic 5	4.5
Epic 6	3

**Description:** Every Person who is boarding a Flight should be checked and verified by the security of the airport and there will be some stages where the details of passengers are verified and the luggage which is carried by them is checked. The security has a right to cancel the ticket if they find any suspicious thing about the passenger. And if there is a cancellation the reason for canceling the ticket needs to be mentioned. If everything goes well the boarding pass will be issued and the passenger is allowed to board the Flight.

**Time Taken: 4 hrs**

## 1. Epic: User verification and Boarding Pass Issual

### Authority login

Task1:Airport Staff login(based on their rank)

Task2:Checking for Flight Routines

Task3:portal to check the details of passengers.

Task4: Portal to update the passenger's Details

### User Story2: User Verification

Task1: Checking the Passengers Flight Ticket

Task2: Checking the Passport

Task3: Checking KYC Details

Task4: Check for any criminal Background

Task5: Check for drug / any infection

Task6:approval for Passenger Check or Canceling Ticket

### **User Story3: Passengers Check**

Task1:Check the passengers

Task2: Checking Details of Passengers

Task3:Checking Passengers Luggage

Task4:Checking the passenger Flight Details

Task5: approving for Boarding

### **User Story 4: Rejecting Ticket or Cancelation of ticket**

Task1:Check Passenger Flight ticket details

Task2: Going to cancelation portal

Task3: Search for the Passenger details

Task4:Cancel the Ticket

Task5: Reason for Ticket Cancelation

### **User Story5: Issuing the boarding pass**

Task1:Check the tickets

Task2:Check for security approval

Task3:Issue the Boarding pass

Task4:Check For boarding pass

Sub-Task:

VIP Check and approval of VIP entry. Or Normal Check Approval.

Task5: allowing Passengers to board Flight

## **2. Epic: Flight Details Management**

### **User Story 1: Flight Timings**

**Task1:** Boarding Time Display

**Task2:** Destination Time Display

**Task3:** Journey Time Display

**Task4:** Display of Day

**Task5:** Display of Month, Date

### **User Story 2: Boarding & Destination Point**

**Task1:** Luggage Overweight Check

**Task2:** Necessary documents check

**Task3:** Flight Boarding Details

**Task4:** Pass Approval

**Task5:** Issuing the Pass

### **User Story 3: Offers On Ticket Price**

**Task1:** Student Offers

**Task2:** Offers for Armed Forces Persons

**Task3:** Offers for Doctors & Nurses

**Task4:** Senior Citizen Offers

**Task5:** Offers for Homemakers

### **User Story 4: Ticket Price**

**Task1:** Price Display In Specific Currencies

**Task2:** Revising The Prices If Needed

**Task3:** Dynamically Update The Prices Based Upon The Current Date & Booking Date

**Task4:** Display price including extra charges(baggage limit, extra weight)

**Task5:** Show the final price of the ticket including all taxes.

### **User Story 5: Seat Selection**

**Task1:** Seat Selection Option

**Task2:** Random Seat Allocation

**Task3:** Differentiating Seats With Proper Codes & Numbers

**Task4:** Seat separation based on the type of class

**Task5:** Allot seats to a specific type of class

## **3. Epic: Customer Login and Ticket Booking**

This epic is for customer Login for existing user or signup for a new user, selection of flight type and destination, viewing and selecting offers on the ticket confirming the destination and making the payment for the corresponding user selection of the travel destination.

### **User Story 1   Customer Login Page**

#### **Tasks:**

1. Registration for new User

#### **SubTask:**

1. Google/Facebook signup
2. Guest/Anonymous user signup

3. My login and password details should be securely stored

**SubTask:**

1. 2FA Authentication should be made available if required by the consumer.

4. I should be allowed to update my details if necessary in the portal

5. Option for Deletion of account should also be provided

**SubTask:**

1. Account Recovery Option should be added for a certain period of time before permanent de-activation

6. Forgot password option should be provided.

## **User Story 2    Flight Destination Selection**

**Tasks:**

1. As a customer I should be provided different air clients options.

2. Flights destinations should be provided for both domestic as well as international locations

3. Flight type selections should be provided.

**Sub Tasks:**

1. Business/economy with categories like single way/round trip must be provided.

2. Application for carrying of extra baggage should be made available subject to extra charges.

3. Selection of other value added services like on flight meals, extra leg room, added OTT entertainment on-flight should be made available subject to extra charges.

4. I should be able to add other members for the same destination of the ticket

5. There should be also options to re-book my ticket for any past travel If I intend to make the travel to the same destination

6. A detailed cost summary should also be provided before asking me to confirm my choice.

### **User Story 3    Offers/ Discounts Availment Based on Customer account type or Travel History**

Tasks:

1. I should be provided different offers based on my account status (Premium/economy)
2. There should also be an option for upgrading to a premium account if necessary
3. If I am a frequent traveler I should be offered some discounts on future ticket bookings.
4. These discounts can be either credited back to my source account or can be added to my wallet
5. Cancellation fees for tickets should not be charged if I am a premium customer.

### **User Story 4    Booking of Ticket and Making Payment**

Tasks:

1. Ticket Booking option should provide after showing the estimated bill summary for the preferred location.
2. The discount coupon if applicable should be applied and the final amount should be shown.
3. I should be allowed to pre-select web check-in if needed.
4. Different payment modes like net banking/ mobile banking and cash payment at the airport should be made available.
5. After I confirm the ticket details and necessary notifications should be sent to me by email as well as SMS.
6. Appropriate alerts before my travel journey date due should be made available via SMS, email and any other changes in schedule should be notified earlier.

### **User Story 5    Feedback Redressal Portal**

Tasks:

1. As a customer I should be provided a portal to provide feedback.
2. This should be allowed at the time of ticket booking if any hassles are faced
3. Also after boarding and successfully reaching the destination a feedback portal must be provided to me.



4. An online chatbot AI/ human should be available 24/7 for quick solutions to customers who are new to the portal
5. Appropriate notification systems should be provided after the feedback has been addressed to me as a customer.

#### **4. Epic: Ticket Cancellation and Refund**

This epic is for customer who wishes to cancel their travel by canceling their flight ticket. This is where they would be able to see their history of travel, tickets bought and do their cancellation with the refund option available in certain cases.

##### **User story -1: Login**

**Task-1:** Existing users provide their proper user id and credentials to login

**Task-2:** The details in the user profile should be correct and accurate and maybe saved if permitted

**Task-3:** If user details are wrong he again tries again

**Task-4:** Deletion of account should be allowed if the user wishes to do so

**Task-5:** Forgot password option if needed

**Task-6:** After login can change credentials if needed

##### **User story -2: Selecting the Flight and ticket details**

**Task-1:** 1. select the ticket details

**Task-2:** Passenger should be able to see the history of booked tickets

**Task-3:**Among the history he /she should be able to select that particular ticket which they want their trip to cancel

**Task-4:**Entering the PNR details and booking reference will help to locate that trip details.

**Task-5:**select the one which needs to be canceled and click ok

### **User story -3: Refund details**

**Task-1:**After finding the ticket ,choose the refund option available for your ticket according to booked details and cancelation date.

**Task-2:**Flexi plus- when the ticket is canceled right after the ticket is booked, the maximum amount of money is refunded in Flexi plus option

**Task-3:**Saver- when you try to refund a few days before the travel only 10 to 20 % of the money is refunded.

**Task-4:**Once you choose this option, you will have to fill in your options like are you a citizen, student, or an army

**Task-5:** If you are a student then you can get special offers in refund because if you book a ticket using a student id, the person can carry up to 25 kgs.

### **User story -4: Ticket cancellation**

**Task -1:**After finding the booking and filling the refund option click proceed

**Task-2:**Refundable money is shown on screen(Amount of money refunded depends on it).

**Task-3:**Click on Cancel Booking to proceed and cancel the ticket.

**Task-4:**reason for ticket cancellation

**Task-5:** After about a week, the money will be transacted to your bank account

**Task-6:** Logout of the account

### **User story -5:Guilty penalties**

If a person is found guilty then the securities or the officers in charge will cancel their travel by canceling the tickets

**Task-1:** Authority login portal

**Task-2:** Enter the credentials for login

**Task-3:** Forgot password if needed for authority

**Sub-Task-1:** After login enter into the ticket cancellation portal

**Sub-Task-2:** search for the passenger id and their ticket

**Sub-Task-3:** cancel their travel

**Sub-Task-4:** will be taken for interrogation

**Sub-Task-5:** in that case the ticket money will not be refunded.

**Task-4:** After canceling the ticket of the passenger, logout of the account

## **5. Epic: User Dashboard**

### **User story -1: GST Invoice**

#### **Tasks**

1, As a customer I should be able to view GST invoices.

2, Enter booking details to View GST Invoice.

3, PNR/Booking Reference

4, Invoice Number

5, GST Email

### **User story -2: Group Booking**

#### **Tasks**

1, A Customer can choose a one-way trip

2, if he is planning for a round trip he can choose a round trip option

3, multiple trips are also available

4, mentioning of infants details is compulsory

## **User story -3:Add, Edit and Modify Payment Details**

### **Tasks**

- 1, A Customer can manipulate the details of the payment
- 2, he is allowed to edit payment details
- 3, he is allowed to modify payment details
- 4, he is allowed to add payment details

## **User story -4:Notification**

### **Tasks**

A Customer will receive notification on:

- 1, Payment details
- 2, Rewards
- 3, Advertisements
- 4, Discounts
- 5, Any important notification

## **User story -5:FAQs**

### **Tasks**

A customer Can View The FAQs on:

- 1, Baggage Allowance
- 2, Check-in option
- 3, Refunds
- 4, Infants Travel
- 5, Terminal Information

## **6. Epic: Air Staff Management**

### **User Story 1: Admin Login and Staff Login**

#### **Tasks**

1. An admin Should be able to add and remove employees( Ground Staff as well as Air Staff)
2. Separate Login Portal for Airport employees, Air Flight Client Employees
2. New registration for staff after getting admin approval and feature to modify details
3. Login and Google/faceBook signUP for employees
4. Deletion of Staff if they are no longer working in the airline company.
5. Account Recovery for deleted account within a specified span of time.

### **User Story 2: Work Schedule**

#### **Tasks**

Task1:Flight Details and time of departure

Task2:Schedulig work slots

Task3:If slot canceled (or) person on leave.

Task4:Searching tab for Free slot workers

Task5: Reschedule work slots

### **User Story 3: Work Management**

#### **Tasks**

1. Make a list of Ground Staff and Airline Staff
2. Allotment of work for Airline employees based upon the routes and experience
3. Allotment of the work to the Ground staff
4. Preparing a list of work hours for Ground Staff
5. Preparing a list of work hours for Airline Staff

### **User Story 4: Leave management, replacement, and attendance**

#### **Task-1:**

After the login select the leave management portal

#### **Task-2:**

See the history of working days to get the details and check for number of available holidays

#### **Task-3:**

Take a leave if he/ she has holiday available or check for other modes of taking leave

**Sub-task-1:**Check the modes of leave available such as earn leave, casual leave, religious holiday, loss of pay, medical leave

**Sub-task-2:**can check the no of leave in cl for casual leave

**Sub-task-3:**festival time-can take rl

**Sub-task-4:**any medical emergency -take ml and provide the medical certificate from the doctor

**Sub-task-5:**The person can also take Earn leave whenever needed and at end of year they can surrender it if there are more and get their salary credited for it

**Sub-task-6:**can take loss of pay leave which leads to 50% loss of pay initially and if it continues it leads to full loss of pay

#### **Task-4:**

After selecting the type of leave taken click ok to proceed and give the details of dates and no of days to be taken off

**Task-5:**click confirm take leave and complete the procedure

**Task-6:**logout of account after the work

