

A PROJECT REPORT ON FLIGHT TICKET BOOKING SYSTEM

SKA Flight Ticket Booking System Documentation

Overview

The SKA Flight Ticket Booking System is a comprehensive, web-based airline management application developed using Flask (Python). It delivers a robust platform supporting airline administration, user bookings, and guest interactions. The system is modularized into three main segments for Admin, User, and Guest roles, ensuring scalability, maintainability, and clear separation of concerns.

DECLARATION

I hereby declare that the project report titled “SKA FLIGHT TICKET BOOKING SYSTEM” is original work done by Adepu Sai Kiran during the period June 2024 to August 2025  , to the best of my knowledge and belief.

Abstract

The SKA Flight Ticket Booking System is a web-based application designed to manage flight bookings and passenger journey histories. This project demonstrates the core functionalities of an airline reservation system, aiming to simplify and streamline ticket booking processes for users. The system is developed using technologies such as Flask (Python), HTML, CSS, JavaScript, and MySQL for database management.  

It delivers efficient flight scheduling, fare management, ticketing, and user feedback functionalities. The system replaces traditional manual booking methods, saving time  and increasing operational efficiency  . Proper requirements analysis and system design ensure the platform meets customer needs while maintaining compliance and scalability.  

SKA FLIGHT BOOKING SYSTEM INDEX CONTENT PAGE

1. Introduction 
2. AIM of The Project 
3. The Application Main Purpose 
4. THE PROJECT ARCHITECTURE  / PROJECT HIERACY 
5. The Index Page of SKA Flight Ticket Booking System 
6. Application Modules 
7. Flight Admin Management Module  
8. Registered User Module  
9. New User Registration Module  
10. Guest User Module 
11. SYSTEM REQUIREMENTS  
12. SYSTEM DESIGN 
13. SKA FLIGHT BOOKING SYSTEM ARCHITECTURE DIAGRAM 
14. Flight Reservation Booking Terms  
15. Flight Types / Terms  
16. Flight Seats Layout System  
17. Customer's Obligations   
18. THE SKA FLIGHT TICKET BOOKING SYSTEM HIERARCHY / PROCESS  
19. PROJECT SCHEDULING  
20. Benefits of Online Flight Ticket Booking  
21. SKA FLIGHT TICKET BOOKING SYSTEM APPLICATION DATABASE/TABLES 
22. THE SKA FLIGHT BOOKING SYSTEM APPLICATION CALLS/FLOW 
23. THE SKA FLIGHT BOOKING SYSTEM ENTIRE APPLICATION ENVIRONMENT 
24. THE SKA FLIGHT BOOKING SYSTEM VERSIONS 
25. Issues Encountered and Resolutions  
26. Conclusion  
27. Future Look of SKA Flight Ticket Booking System  
28. Author's Note 
29. Contact Information 
30. Acknowledgements 

Introduction

The SKA Flight Ticket Booking System project is a model internet-based flight ticket reservation platform. This system enables customers/users to book flight tickets conveniently from their office or home using a PC or laptop. The system provides users the ability to create an account, search and book flights, and view reports of their entire travel history. Customers can log in to their accounts to manage bookings and access detailed flight information according to their preferences.

With internet booking, the traditional flight booking structure transforms into an online booking model, giving the concept of virtual booking a real shape. Today's booking is no longer limited to physical airline counters or offices. E-booking facilitates flight reservations by customers 24/7 globally. Anyone who registers as a user can become a member of the SKA Flight Booking System by providing personal details through a simple registration form.

To maintain customer trust and satisfaction, there is a vital need for seamless management of flight reservations that operates with ease and comfort. Efficient management positively impacts both customers and staff, empowering the management committee to make informed decisions for future enhancements. Managing flight bookings manually can be tedious and time-consuming, which makes this software essential for improving efficiency and speed in booking processes.

All transactions are securely conducted online, allowing for quick and hassle-free payment processing. This software aims to eliminate the drawbacks of manual booking systems by offering a fast, reliable, and user-friendly platform.  

Synopsis

The SKA Flight Ticket Booking System maintains a comprehensive daily record as a complete airline booking solution. It manages user account registrations, flight bookings, feedback submissions, mobile number updates, and password changes. This system is designed to streamline flight booking operations and enhance user experience with secure and efficient transaction handling.   

AIM of The Project

The main aim of designing and developing this Flight Ticket Booking System using Flask (Python) and MySQL is to provide secure and efficient online booking facilities to airline customers over the internet. The application runs on a web server and allows customers to log in through a secured webpage using their user ID, username, and password. Users can access all essential features such as booking flights, viewing journey history, and submitting feedback, ensuring a seamless travel booking experience.   

The Main Purpose

Traditionally, maintaining user details and booking flights required users to visit airline counters physically, which could be inconvenient and time-consuming for both passengers and airline administrators. This project aims to automate the entire flight booking process online, providing real-life simulation of an airline reservation system and the activities performed by various roles.

The SKA Flight Booking System captures and manages booking activities, passenger details, payment processing, and administrative tasks, all through an intuitive internet-based platform. This automation enhances the efficiency and accuracy of flight reservation management while reducing manual workload and improving customer satisfaction.  

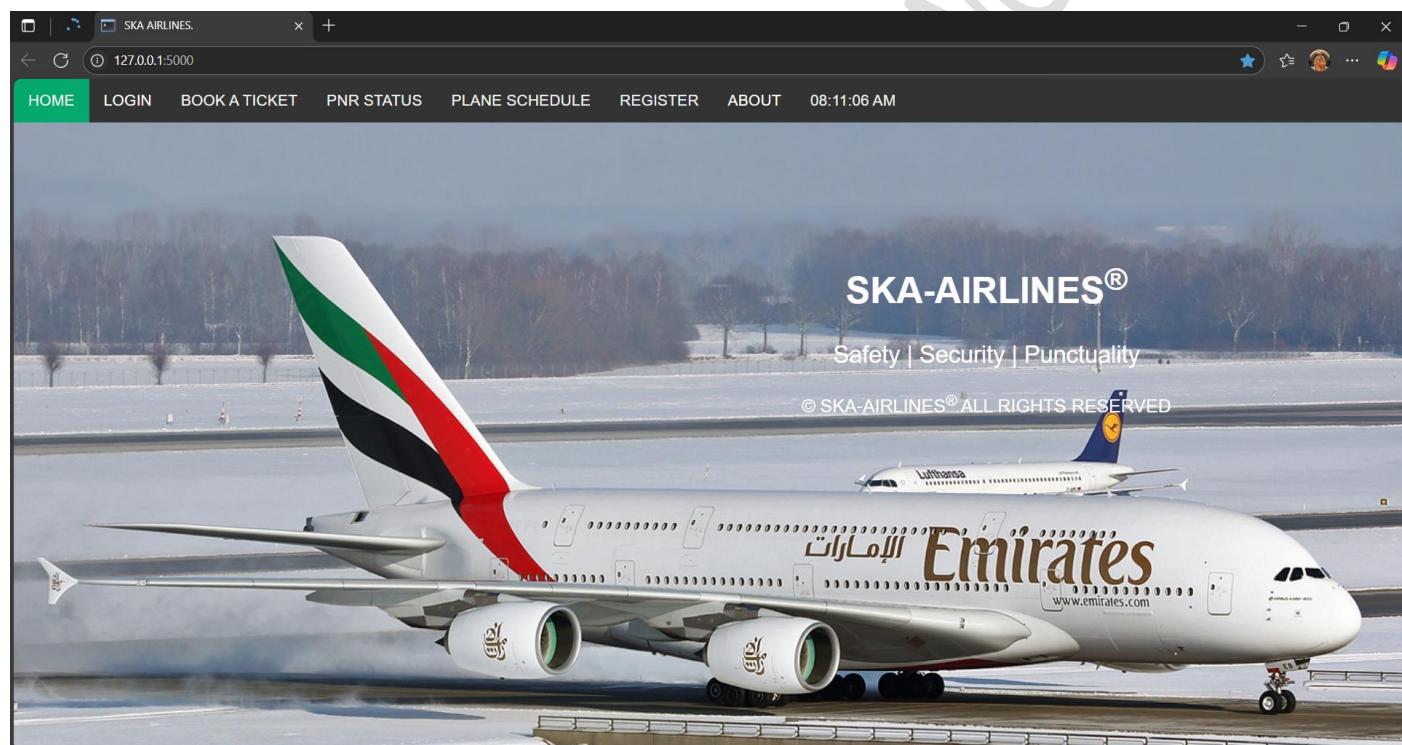
THE PROJECT ARCHITECTURE / PROJECT HIERACHY



The Index Page of SKA Flight Ticket Booking System

The Index Page of the SKA Flight Ticket Booking System serves as the main entry point for users visiting the website. It provides easy navigation and access to key features such as user login, guest access, and flight search. The page is designed to be user-friendly, allowing registered users to quickly log in and manage bookings, while guests can explore available flights, schedules, and register for new accounts.

The index page also offers essential information and links to support pages like help, feedback, and contact details, creating a smooth and intuitive experience for all users. Its clean layout and responsive design ensure accessibility across various devices.



Main Modules of SKA Flight Ticket Booking System



The system is primarily divided into four main modules, each serving different user roles and functionalities:

1. Flight Admin Module

Responsible for managing all airline operations including flight scheduling, fare management, ticket administration, and handling feedback. Admins have secure access to control and monitor the entire system.

2. Registered User Module

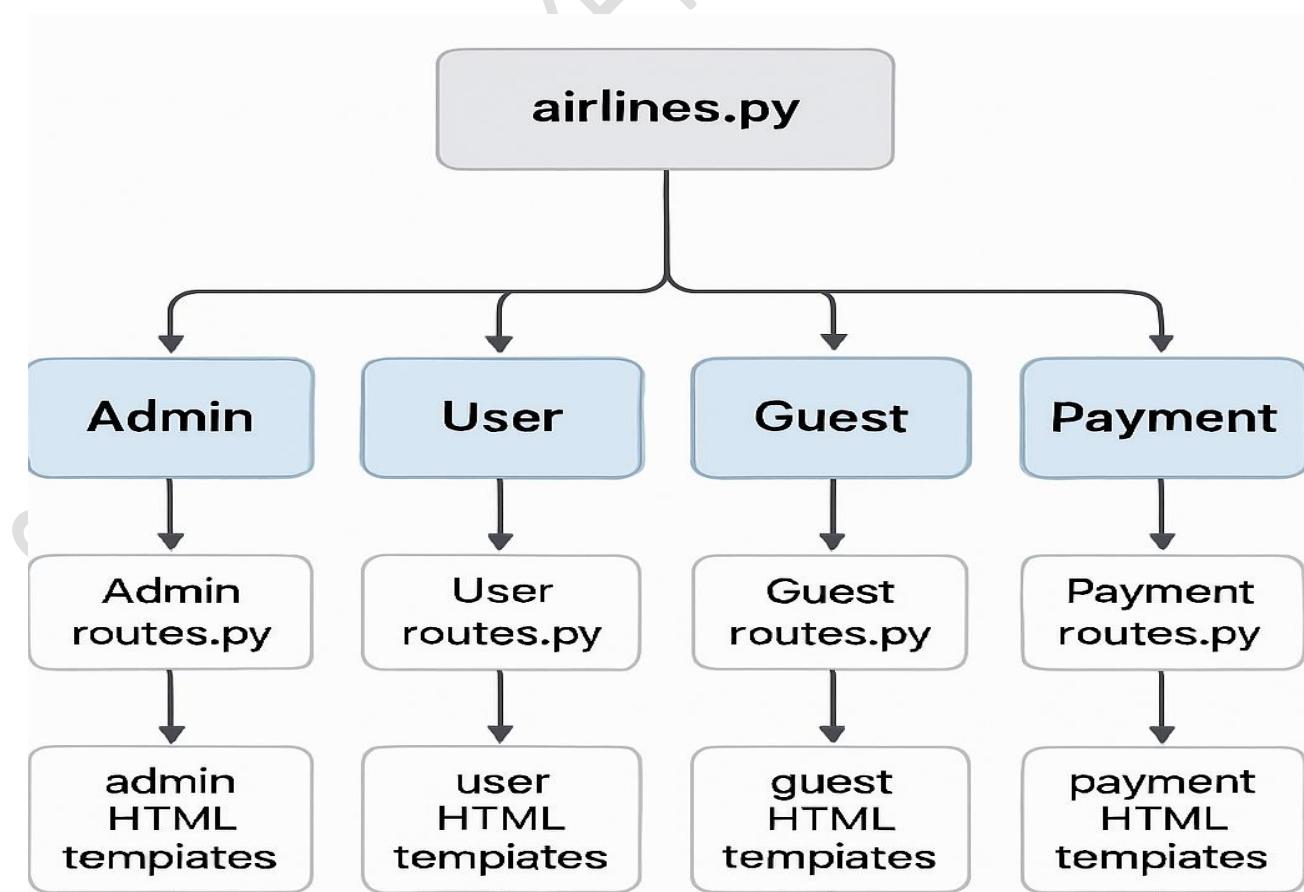
Allows registered customers to log in, book flights, view journey history, manage their profiles, make payments, and provide feedback.

3. New User Registration Module

Handles the onboarding of new users by enabling account creation with secure authentication, allowing effortless access to flight booking services.

4. Guest User Module

Caters to non-registered users by offering flight schedule browsing, PNR status checking, and access to general information without the need for logging in.



What to Expect / Modules of SKA Flight Ticket Booking System

The system is designed with multiple modules, each packed with features tailored to different user roles. Below is a detailed overview of the key modules and functionalities you can expect in this platform:

1. Flight Admin Module

The Flight Admin is the primary user responsible for managing airline operations. Admins log in securely with their username and password, which are validated against the flight booking database. After successful authentication, the admin can perform a wide range of critical tasks to ensure the smooth operation of the airline's booking system.

Main Features & Submodules for Flight Admin:

Flight Management: Add and schedule new flights, assign aircraft to routes, and update flight details.

Airport Management: Add new airports and maintain existing airport information.

Fare Management: Define, update, and modify fare structures for various flights and routes.

Ticketing: Administer ticket issuance, cancellations, and downloads.

PNR Enquiries & E-ticket Management: Lookup passenger name records and issue/manage electronic tickets.

User Booking History: Access comprehensive user booking records for tracking and support.

Feedback Management: Review and respond to customer feedback efficiently.

Seat Availability Monitoring: Monitor and manage seat inventory in real-time.

Payment Gateway Oversight: Supervise payment processing, including ticket cancellations and refunds, Additional Controls: Manage administrative logins, notifications, and other system settings.

These tasks are organized into submodules powered by Flask Blueprints, such as:

`new_flight_bp` for flight scheduling, `add_airport_bp` for airport data

`add_fare_bp` and `change_fare_bp` for fare control, `ticket_admin_bp` for ticket management

`user_booking_history_bp` for booking tracking ...and many more.

This modular design enhances flexibility, maintainability, and scalability of the admin functionalities. 

2. Registered User Module

Users who register on the platform can log in to:

Search and book flights

Cancel bookings when necessary

Make payments via integrated gateways including QR code options

Update personal information such as mobile numbers and passwords

Submit feedback and view journey history

3. New User Registration Module

New users can easily create accounts by filling out the registration form. Upon successful validation, they gain access to all user functionalities, enabling smooth transitions from guests to registered customers.

4. Guest User Module

Non-registered users or guests can:

Browse flight schedules and availability

Check their PNR (Passenger Name Record) status

View airline news and events

Submit anonymous feedback

This comprehensive modular architecture brings together admins, users, and guests, offering an efficient, secure, and user-friendly flight booking ecosystem.  

1. Flight Admin Management Module

The Flight Admin Management module is the core of the SKA Flight Ticket Booking System's administration. It empowers administrators with full control over airline operations, ensuring smooth scheduling, fare management, and ticketing. Admins securely log in with their credentials maintained in the airline database.   

Key Responsibilities and Functionalities

After successful login, the Flight Admin can perform the following crucial tasks, organized into several submodules:

1. Flight Operations Management

Add New Flights: Create and schedule flights, assigning airplanes to routes (new_flight_bp)



Manage Flight Details: Update, modify, or cancel flights as needed 

View Plane-Airport Mapping: Manage relationships between airplanes and airports (airplane_airports_bp) 

2. Airport Management

Add Airports: Register new airports into the system (add_airport_bp) 

Maintain Airport Details: Update existing airport information 

3. Fare Management

Set New Fares: Define fares for flights and routes (add_fare_bp) 

Modify Existing Fares: Update or change fares based on requirements (change_fare_bp) 

4. Ticket Administration

Ticket Issuance & Management: Handle booking confirmations, issuance, and ticket views (ticket_admin_bp) 

Ticket Downloads: Enable downloading of tickets (ticket_download_admin_bp) 

Ticket Cancellation: Manage cancellation requests and refunds (admin_can_ticket_bp, payment_gateway_tkt_can_admin_bp)  

5. PNR Enquiries

Lookup and manage Passenger Name Records to assist passengers 

6. User Booking History

Access detailed user booking records (user_booking_history_bp) 

7. Feedback Management

Review and respond to customer feedback for service improvement
(admin_view_feedback.py, admin_delete_feedback.py)  

8. Seat Availability Monitoring

Monitor and manage seat inventory in real time (seat_avl_bp) 

9. Payment Gateway Oversight

Oversee payment transactions including ticket purchases and cancellations
(payment_gateway_tkt_can_admin_bp)  

10. Additional Admin Controls

Manage admin login/logout (admin_login_bp, admin_logout_bp) 

Oversee airline funds and finances (airline_fund_bp) 

Configure system notifications and alerts 

Route connection management (admin_routes.py, admin_bp) 

Architecture & Implementation

These functionalities are implemented in a modular fashion using Flask Blueprints, encouraging maintainability and scalability. Some important files include:

new_flight.py, add_airport.py, add_fare.py, change_fare.py, ticket_admin.py,
ticket_download_admin.py, user_booking_history.py, admin_can_ticket.py

payment_gateway_tkt_can_admin.py, airline_fund.py

...and more

Summary

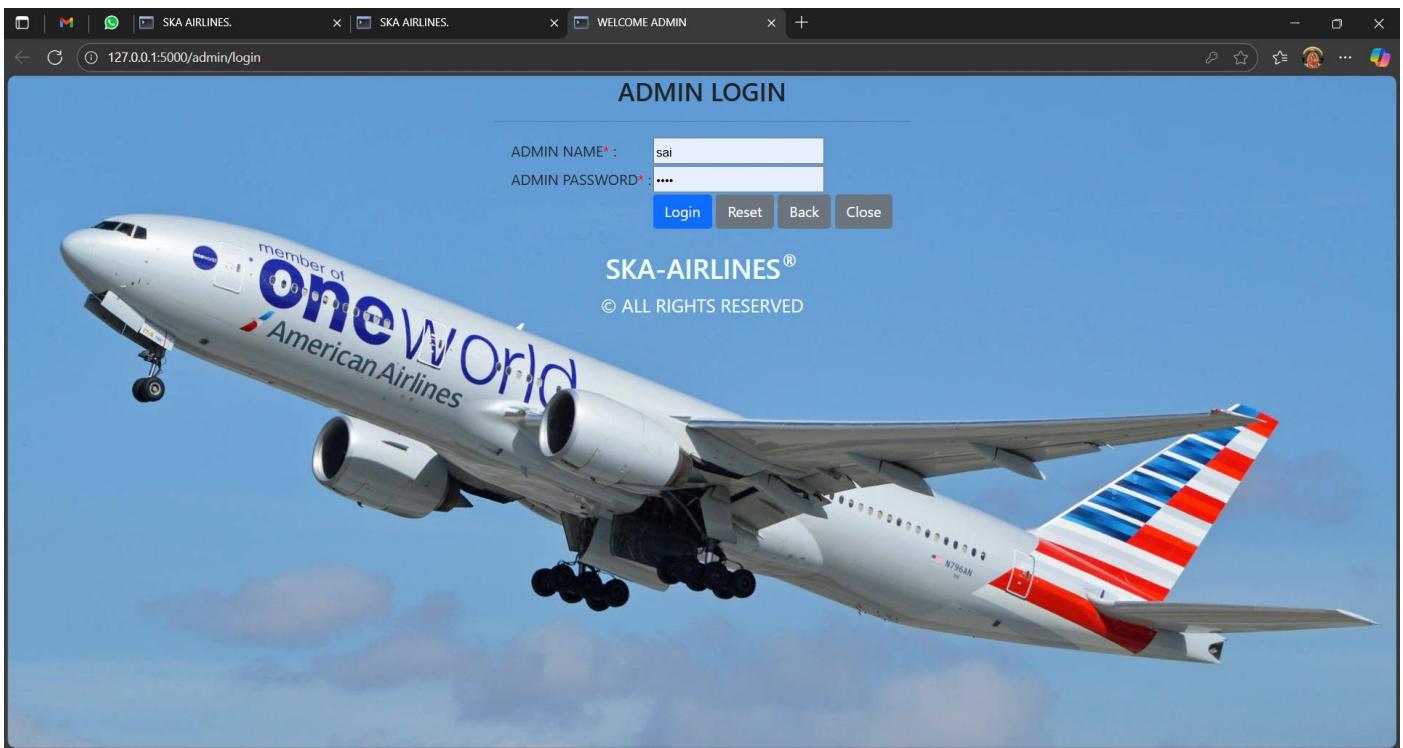
The Flight Admin Management module offers a centralized, secure, and efficient system for airline administrators to handle backend operations, supporting seamless flight management and customer service excellence.   

Flight Admin Module

```
|   └── Admin Section  
|       |   └── admin_login_bp      <-- Login functions  
|       |   └── admin_logout_bp    <-- Logout logic  
|       |   └── admin_dashboard_bp <-- HTML renderings (see below)  
|       └── admin_bp           <-- Route connectors  
  
|  
|  
|   admin_routes.py -----> Imports blueprints and submodules:  
|  
|   |  
|   |   └── new_flight_bp        --> new_flight.html  
|   |   └── add_airport_bp       --> add_airport.html  
|   |   └── add_fare_bp          --> add_fare.html  
|   |   └── change_fare_bp       --> change_fare.html  
|   |   └── ticket_admin_bp     --> ticket_admin.html, ticket_admin1.html, ...  
|   |   └── ticket_download_admin_bp --> ticket_download_admin.html  
|   |   └── user_booking_history_bp --> user_booking_history.html  
|   |   └── airplane_airports_bp  --> airline_airports_su.html  
|   |   └── admin_can_ticket_bp   --> admin_can_ticket.html,  
admin_can_ticket1.html, ...  
|   |   └── payment_gateway_tkt_can_admin_bp  
|   |   └── airline_fund_bp       --> airline_fund_su.html  
|   └── (other submodules...)
```

Flight Admin Screenshots

ADMIN LOGIN PAGE



INDEX PAGE OF FLIGHT ADMIN

WELCOME ADMIN: sai
WELCOME TO SKA AIRLINES

HOME AIRLINE ADMIN ▾ AEROPLANES ▾ FEEDBACK ▾ 08:13:35 AM

ADD NEW PLANE
ADD NEW AIRPORT
ADD AIRLINE FARE
CHANGE AIRLINE FARE
USER BOOKING HISTORY
AIRLINE ADMINS
LIST/VIEW AIRPORTS
INSTRUCTIONS FOR ADMINS
NEWS&EVENTS
CHANGE FLIGHT TIME Pending

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Safety | Security | Punctuality
© ALL RIGHTS RESERVED

SKA AIRLINES. x | SKA AIRLINES. x | WELCOME ADMIN x | 127.0.0.1:5000/admin/add_new_plane +

SKA AIRLINE ADMINS

SAI
SAI KIRAN
VANDANA
RAJITHA
RAMESH
DIVYA
PRATHYUSHA
SRINJA

Instructions to Admin While Adding a new Aeroplane

NEW FLIGHT REGISTER

* Fields Mandatory

FLIGHT NUMBER*: FLIGHT NUMBER

FLIGHT NAME*: FLIGHT NAME

FLIGHT TYPE*:

SELECT AIRPORT: Select an airport

SELECTED AIRPORTS*: SELECTED AIRPORTS

BASE FARE*: Base Fare

FIRST CLASS
 BUSINESS CLASS

SKA AIRLINES. x | WELCOME ADMIN x | Admin Add Airport x | 127.0.0.1:5000/admin/add_airport +

Add Airport

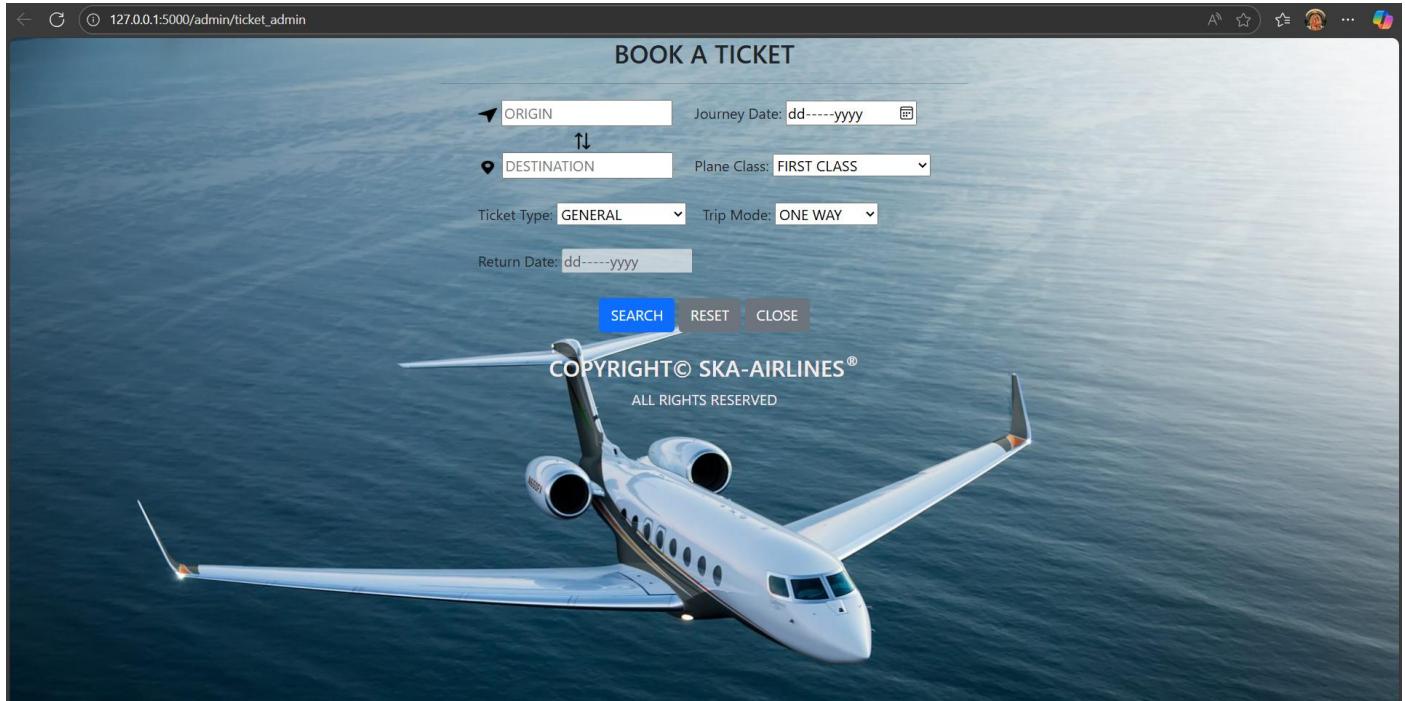
Airport Name*: AIRPORT NAME

Airport Country*: AIRPORT COUNTRY

Instructions

While Adding New Airport See the correct Spelling of the Airport with Airport code like New York-NY And Country With Country Code Ex India-IN

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© ALL RIGHTS RESERVED



Modify Search Results

Flight Number	Flight Name	Origin	Destination	Class	Flight Type	Quota/Ticket Type	Flight Charge	Date	Available Seats
AA12II	RAMESH AIRLINES	HYDERABAD-HYD	CALIFORNIA-CF	FIRST CLASS	AIRBUS A321	GENERAL	1050	29/Aug/2025	<button>Check Seat & Book</button>
AA12JJ	RAJITHA AIRLINES	HYDERABAD-HYD	CALIFORNIA-CF	FIRST CLASS	AIRBUS A321	GENERAL	1400	29/Aug/2025	<button>Check Seat & Book</button>
AA12OO	RAMESH AIR LINES	HYDERABAD-HYD	CALIFORNIA-CF	FIRST CLASS	BOEING 747	GENERAL	1000	29/Aug/2025	<button>Check Seat & Book</button>

Seats Result
Available Seats: 10

Fare Details

Journey Date: (29/Aug/2025), Return Date: (None)
 Base Fare: 125000, Class Charges (FIRST CLASS): 1500, Quota Discount (GENERAL): 0, Trip Mode: (ONE WAY), KM: (14500), Trip Discount: (ONE WAY): 0, Total Fare: 126500

SKA AIRLINES offers over 1% discount on the Round Trip Mode to passengers at the same time of booking.
 Special category passengers need to carry a photo identity card issued by the government for on-board/off-board verification during the journey. This includes quota/ticket types such as Defence, Govt Employee, Senior Citizen, and Student. Don't forget to carry your identity card!

BOOK **BACK** **CLOSE**

AIRLINE RESERVATION NEXT STEPS

While Entering the Passenger Details Those Should need to match with the one of your Government issued ID Card

Origin: HYDERABAD-HYD	Departure: 29/Aug/2025	Return: None	Destination: CALIFORNIA-CF
Airplane Number: AA12II	Airplane Name: RAMESH AIRLINES	Flight Type: AIRBUS A321	Class: FIRST CLASS
Flight Charge: ₹1050.00	Class Charge: ₹1500.00	Quota Discount: ₹0.00	Trip Discount: ₹0.00
		Total Fare: ₹127550.00	

Passenger Details:

Name: Sai Kiran Age: 26 Gender: Male ADULT: 1 CHILD: 0 AVAILABLE SEATS: 10

CONTINUE **BACK**

AIRLINE RESERVATION REVIEW THE DETAILS

Review Journey

Origin: HYDERABAD-HYD	Departure: 29/Aug/2025	Return: None	Destination: CALIFORNIA-CF
Airplane Number: AA12II	Airplane Name: RAMESH AIRLINES	Flight Type: RAMESH AIRLINES	Class: FIRST CLASS
Passenger Details		Trip Type: GENERAL	
Passenger Name SAI KIRAN	Passenger Age 26	Passenger Gender Male	

Fare Summary

Adult: 1 Child: 0 Base Fare: 125000	Class Fare: 1500.00	Quota Discount: 0.00 Trip Mode: ONE WAY	Trip Discount: 0.00 Total Fare: 127550.00 KM: 14500
Plane Booking Admin*: sai	Airline User ID/ Number*: None	User Email*: useremail@host.com	

SKA AIRLINES offers over 1% discount on the Round Trip Mode to passengers at the same time of booking.
Special category passengers need to carry a photo identity card issued by the government for on-board/off-board verification during the journey. This includes quota/ticket types such as Defence, Govt Employee, Senior Citizen, and Student. Don't forget to carry your identity card!

CONTINUE **BACK**

SKA AIRLINES. WELCOME ADMIN Airline Reservation/Boarding Success

Origin HYDERABAD-HYD

Destination CALIFORNIA-CF

Journey Details

PNR Number: 132	Departure: 29/Aug/2025	Return: None	Booking Date: 20/Aug/2025 02:12:45 PM
Airplane Number: AA12II	Airplane Name: RAMESH AIRLINES	Class: FIRST CLASS	Trip Type: GENERAL

Passenger Details

Passenger Name	Age	Gender	Gate	Current Status	Booking Status
SAI KIRAN	26	Male	Check Monitors	CNF/FIRST CLASS/1A	CNF/FIRST CLASS/1A

Fare Summary

Adult: 1	Child: 0	Flight Type: AIRBUS A321	Base Fare: 125000	Flight Fare: 1050.00	Class Fare: 1500.00
Quota Discount: 0.00	Trip Mode: ONE WAY		Trip Discount: 0.00	Total Fare: 127550.00	KM: 14500, Journey Status: IP

Boarding QR Code



Scan at boarding gate

SKA Airlines Ticket Confirmation | PNR 132

flyskaairlines.com@gmail.com to me 2:12PM (0 minutes ago)

SKA Airlines Flight Ticket Booking Confirmation

PNR: 132

Flight: AA12II - RAMESH AIRLINES

Origin: HYDERABAD-HYD

Destination: CALIFORNIA-CF

Passengers: SAI KIRAN | Gender: Male | Age: 26 | Seat: 1A | ACTIVE

Journey Date: 29/Aug/2025

Return Date: None

Flight Type: AIRBUS A321

Class: FIRST CLASS

Quota/Trip Type: GENERAL

Trip Mode: ONE WAY

Total Fare: ₹127550.00

Scan the QR Code to view your ticket and travel details:



2. Registered User Module

The Registered User Module provides customers with a secure and interactive platform to manage their flight bookings, personal profiles, payments, and feedback efficiently. It ensures a seamless and personalized experience tailored to each user's needs. 

Key Features & Functionalities

Secure Authentication

User Registration & Login: Secure sign-up and login with unique credentials (username, password).

Logout: Ensures safe termination of sessions for privacy.

Flight Booking & Management

Flight Search: Quick searches based on destination, dates, and preferences.

Ticket Booking: Easy booking with real-time seat availability and fare display.

Multiple Payment Modes:

Bank Account Payment: Users can pay through their bank account IDs (ACID).

QR Code Payment: Convenient QR-based payment integration for fast processing.

Ticket Cancellation: Ability to cancel bookings online subject to airline policies.

Ticket Status & Notifications

After booking, ticket status and e-ticket details are sent to users via email, keeping them informed throughout the journey.  

Payment Processing

Integrated Payment Gateway: Supports secure transactions via bank accounts and QR code payments (payment_gateway_bp, qr_payment_bp).

Transaction Security: Ensures encrypted and validated payments protecting financial data.

Profile & Account Management

Update Personal Info: Users can update mobile numbers (user_update_mbl_num_bp) and passwords (user_update_password_bp).

Journey History: Detailed access to past and upcoming bookings (user_journey_history_bp).

User Feedback & Support

Users can provide valuable feedback to improve service quality (user_feedback_bp).

Ticket Handling

E-ticket Access: Download, print, or view e-tickets at any time (ticket_user_bp).

Cancellation Requests: Manage cancellations and track status (user_can_ticket_bp).

and e-ticket details are sent to users via email, keeping them informed throughout the journey.  

User Experience & Interface

The module features intuitive HTML templates for login, dashboards, booking, payment, feedback, and profile management pages. The design is fully responsive for desktop and mobile devices, ensuring smooth user experience everywhere.  

Security & Data Integrity

Strong user authentication, encrypted communication, and session management protect privacy and ensure integrity of user data.

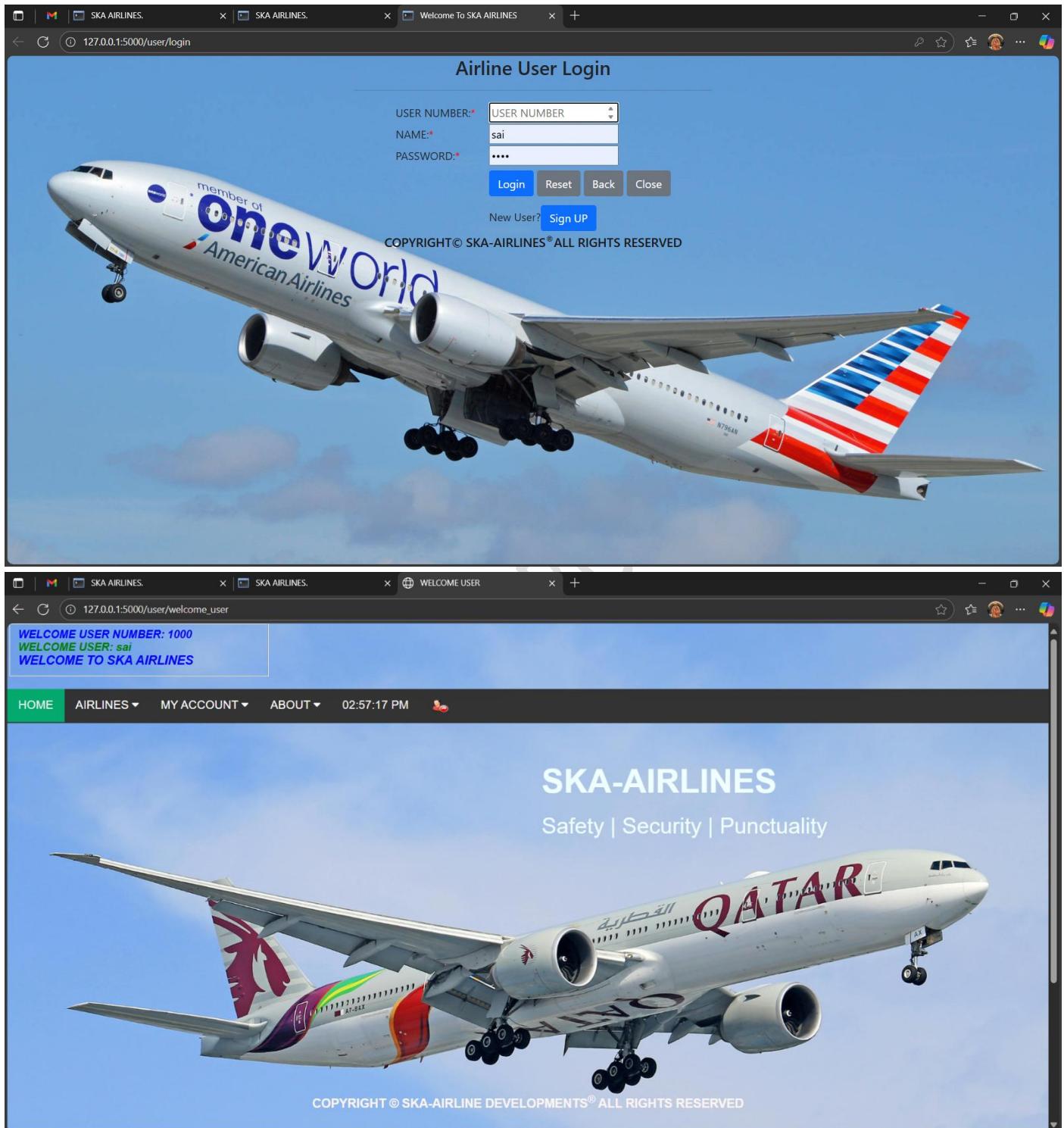
Summary

The Registered User Module offers a secure, flexible, and user-friendly environment with multiple payment options, ticket status email notifications, and comprehensive booking controls. This fosters confidence and satisfaction among air travellers.   

Flight Registered User Module

```
|── User Section
|   ├── user_login_bp
|   ├── user_logout_bp
|   ├── user_dashboard_bp
|   └── user_bp
|
|   user_routes.py -----> Handles:
|
|       ├── ticket_user_bp      --> ticket_user.html, ticket_user1.html, ...
|       ├── payment_gateway_bp    --> payment_gateway_su.html
|       ├── ticket_userdb_bp
|       ├── user_can_ticket_bp    --> user_can_ticket.html,
|       user_can_ticket1.html, ...
|
|           ├── user_journey_history_bp --> user_journey_history_su.html, ...
|           ├── user_feedback_bp        --> user_feedback.html,
|           user_feedback_su.html
|
|           ├── user_update_mbl_num_bp --> user_update_mbl_num.html, ...
|           ├── user_update_password_bp --> user_update_password.html, ...
|           └── qr_payment_bp          --> qr_payment_su.html
```

Flight Registered User Module Screenshots



The image displays two screenshots of a flight registration system interface.

Screenshot 1: Airline User Login

This screenshot shows the login page for "SKA AIRLINES". The page features a background image of a Boeing 777 aircraft in "OneWorld" livery. The form includes fields for "USER NUMBER:" (with a dropdown menu), "NAME:" (containing "sai"), and "PASSWORD:" (containing "****"). Below the form are buttons for "Login", "Reset", "Back", and "Close". A link for "Sign UP" is also present. The footer contains the copyright notice "COPYRIGHT© SKA-AIRLINES® ALL RIGHTS RESERVED".

Screenshot 2: WELCOME USER

This screenshot shows the user welcome page after logging in. The top bar displays the welcome message "WELCOME USER NUMBER: 1000", "WELCOME USER: sai", and "WELCOME TO SKA AIRLINES". The navigation bar includes links for "HOME", "AIRLINES ▾", "MY ACCOUNT ▾", "ABOUT ▾", and the current time "02:57:17 PM". The page features a large image of a Qatar Airways Boeing 777 aircraft in flight. The text "SKA-AIRLINES" and "Safety | Security | Punctuality" is displayed above the aircraft. The footer contains the copyright notice "COPYRIGHT© SKA-AIRLINE DEVELOPMENTS® ALL RIGHTS RESERVED".

SKA AIRLINES. x | SKA AIRLINES. x | WELCOME USER x | Flight Search Results x +

127.0.0.1:5000/user/user/ticket_user

Modify Search Results

HYDERABAD-HYD → WASHINGTON-DC | Plane Class: FIRST CLASS | Journey Date: 30/Aug/2025 dd----yyyy

Ticket Type: GENERAL | Trip Mode: ONE WAY | Return Date: dd----yyyy | MODIFY SEARCH | RESET | CLOSE

Flight Search Results

Flight Number	Flight Name	Origin	Destination	Class	Flight Type	Quota/Ticket Type	Flight Charge	Date	Available Seats
AA12BB	SKA AIRLINES	HYDERABAD-HYD	WASHINGTON-DC	FIRST CLASS	BOEING 777	GENERAL	1000	30/Aug/2025	<button>Check Seat & Book</button>
AA12DD	RAJITHA AIRLINES	HYDERABAD-HYD	WASHINGTON-DC	FIRST CLASS	BOEING 747	GENERAL	1000	30/Aug/2025	<button>Check Seat & Book</button>
AA12II	RAMESH AIRLINES	HYDERABAD-HYD	WASHINGTON-DC	FIRST CLASS	AIRBUS A321	GENERAL	1050	30/Aug/2025	<button>Check Seat & Book</button>
AA12KK	SAI AIRLINES	HYDERABAD-HYD	WASHINGTON-DC	FIRST CLASS	DOMESTIC AIRLINE	GENERAL	600	30/Aug/2025	<button>Check Seat & Book</button>
AA12OO	RAMESH AIR LINES	HYDERABAD-HYD	WASHINGTON-DC	FIRST CLASS	BOEING 747	GENERAL	1000	30/Aug/2025	<button>Check Seat & Book</button>
AA12PP	SAI AIRLINES	HYDERABAD-HYD	WASHINGTON-DC	FIRST CLASS	BOEING 747	GENERAL	1600	30/Aug/2025	<button>Check Seat & Book</button>

Seats Result
Available Seats: 12

Fare Details

Journey Date: (30/Aug/2025), Return Date: (None)
Base Fare: 158952, Class Charges (FIRST CLASS): 1500, Quota Discount (GENERAL): 0, Trip Mode: (ONE WAY), KM: (13246), Trip Discount: (ONE WAY): 0, Total Fare: 160452

SKA AIRLINES. x | SKA AIRLINES. x | WELCOME USER x | AIRLINE RESERVATION NEXT STEP x +

127.0.0.1:5000/user/ticket_user21

AIRLINE RESERVATION NEXT STEPS

While Entering the Passenger Details Those Should need to match with the one of your Government issued ID Card

Origin: HYDERABAD-HYD	Departure: 30/Aug/2025	Return: None	Destination: WASHINGTON-DC
Airplane Number: AA12BB	Airplane Name: SKA AIRLINES	Flight Type: BOEING 777	Class: FIRST CLASS
Quota: GENERAL			
Flight Charge: ₹1000.00	Class Charge: ₹1500.00	Quota Discount: ₹0.00	Trip Discount: ₹0.00
			Total Fare: ₹161452.00

Passenger Details:

Name: Sai Kiran | Age: 26 | Gender: Male | ADULT: 1 | CHILD: 0 | AVAILABLE SEATS: 12

+Add Person | CONTINUE | BACK

SKA AIRLINES. WELCOME USER AIRLINE RESERVATION NEXT STEP

AIRLINE RESERVATION REVIEW THE DETAILS

Review Journey

Origin: HYDERABAD-HYD	Departure: 30/Aug/2025	Return: None	Destination: WASHINGTON-DC
Airplane Number: AA12BB	Airplane Name: SKA AIRLINES	Flight Type: BOEING 777	Class: FIRST CLASS
Trip Type: GENERAL			

Passenger Details

Passenger Name SAI KIRAN	Passenger Age 26	Passenger Gender Male
-----------------------------	---------------------	--------------------------

Fare Summary

Adult: 1 Child: 0 Base Fare: 158952	Flight Charge: 1000.00	Class Fare: 1500.00	Quota Discount: 0.00	Trip Mode: ONE WAY	Trip Discount: 0.00	Total Fare: 161452.00	KM: 13246
Plane User Number: [*] : 1000							

SKA AIRLINES offers over 1% discount on the Round Trip Mode to passengers at the same time of booking.
Special category passengers need to carry a photo identity card issued by the government for on-board/off-board verification during the journey. This includes quota/ticket types such as Defence, Govt Employee, Senior Citizen, and Student. Don't forget to carry your identity card!

PAY BACK

SKA AIRLINES. WELCOME USER SKA Airlines Payment Gateway

SKA AIRLINES PAYMENT GATEWAY

Select Payment Method:

Pay with Bank Login Pay with Account ID Pay with QR Code

Total ₹: 161452.00
Scan QR Code to Pay

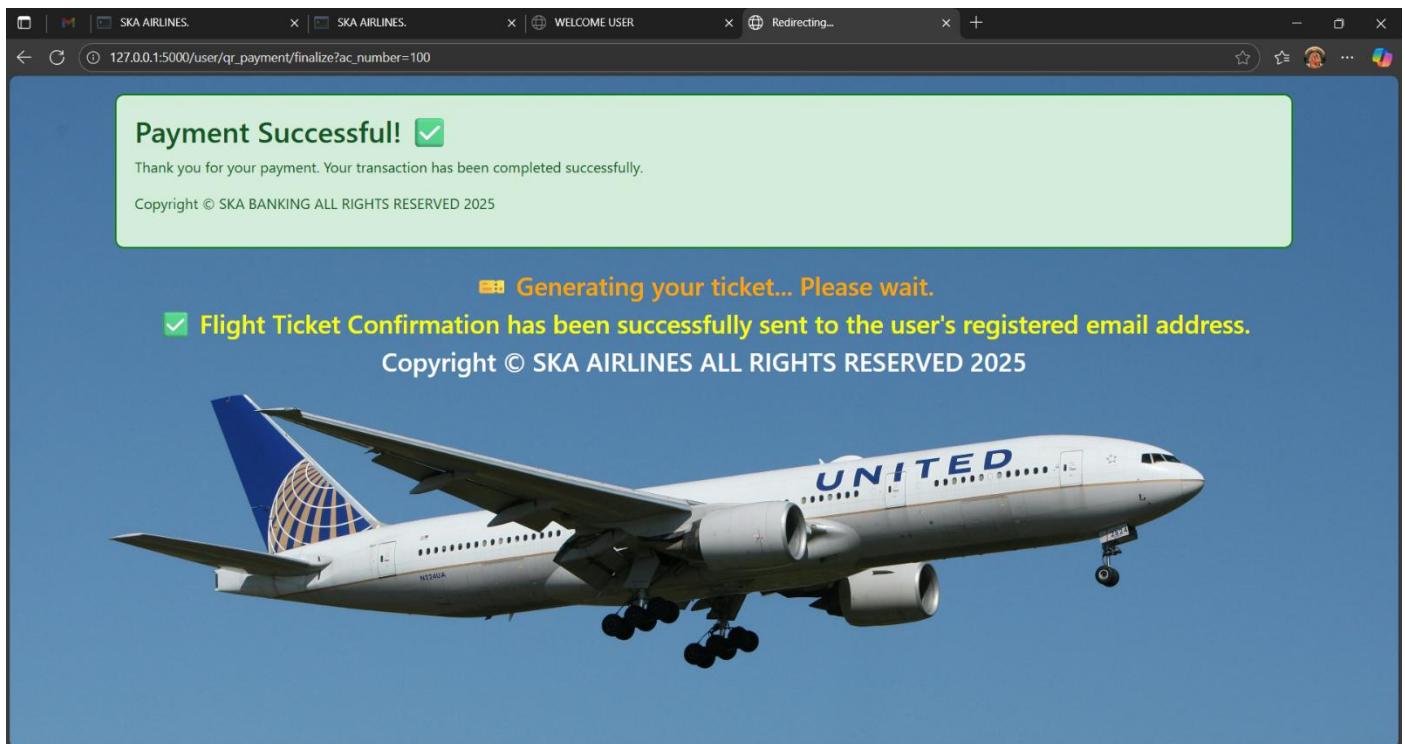
QR Valid for: 4m 0s

Reset Back

POWERED BY SKA BANKING

New User? AC Request! New Bank AC





A screenshot of a web browser showing an airline reservation/boarding success page for SKA AIRLINES. The title bar shows tabs for 'SKA AIRLINES.', 'SKA AIRLINES.', 'WELCOME USER', and 'Airline Reservation/Boarding Success'. The main content includes: 1) 'Journey Details' section with flight info: Origin HYDERABAD-HYD, Destination WASHINGTON-DC. 2) 'Passenger Details' section with a table for SAI KIRAN (Age 26, Male, Check Monitors, Current Status CNF/FIRST CLASS/1A, Booking Status CNF/FIRST CLASS/1A). 3) 'Fare Summary' table showing: Adult: 1, Child: 0, Flight Type BOEING 777, Base Fare: 158952, Flight Charge: 1000.00, Class Fare: 1500.00, Quota Discount: 0.00, Trip Mode: ONE WAY, Trip Discount: 0.00, Total Fare: 161452.00, KM: 13246, Journey Status: IP. 4) A 'Boarding QR Code' section with a QR code and the instruction 'Scan at boarding gate'.

1 of 2,676 < > ⌂ ⌃ ⌄ ⌅ ⌆

SKA Airlines Ticket Confirmation | PNR 133 Inbox

flyskairlines.com@gmail.com to me 3:14 PM (0 minutes ago) ⌂ ⌃ ⌄ ⌅ ⌆

SKA Airlines Flight Ticket Booking Confirmation

PNR: 133

Flight: AA12BB - SKA AIRLINES

Origin: HYDERABAD-HYD

Destination: WASHINGTON-DC

Passengers: SAI KIRAN | Male | Age: 26 | Seat: 1A | ACTIVE

Journey Date: 30/Aug/2025

Return Date: None

Flight Type: BOEING 777

Class: FIRST CLASS

Quota/Trip Type: GENERAL

Trip Mode: ONE WAY

Total Fare: ₹161452.00

Scan the QR Code to view your ticket and travel details:

SKA AIRLINES. x SKA AIRLINES. x WELCOME USER x User's Boarding Pass Cancel x +

127.0.0.1:5000/user/user/user_can_ticket

Your Confirmed Tickets

Select a Flight to Cancel The Boarding Pass

PNR NUMBER	TICKET STATUS	ORIGIN	DESTINATION	FLIGHT NUMBER	FLIGHT NAME	FLIGHT CLASS	DEPARTURE	JOURNEY STATUS	FLIGHT TYPE
133	CNF	HYDERABAD-HYD	WASHINGTON-DC	AA12BB	SKA AIRLINES	FIRST CLASS	30/Aug/2025	IP	BOEING 777
130	CNF	NEW DELHI-NDL	CALIFORNIA-CF	AA12QQ	ELON AIRLINES	FIRST CLASS	01/Aug/2025	IP	BOEING 747
129	CNF	NEW DELHI-NDL	NEW YORK-NY	AA12PP	SAI AIRLINES	FIRST CLASS	05/Aug/2025	IP	BOEING 747
128	CNF	MUMBAI-MBI	CALIFORNIA-CF	AA12OO	RAMESH AIR LINES	FIRST CLASS	06/Aug/2025	IP	BOEING 747
127	CNF	HYDERABAD-HYD	WASHINGTON-DC	AA12II	SKA AIRLINES	FIRST CLASS	09/Aug/2025	IP	AIRBUS A321
126	CNF	NEW DELHI-NDL	WASHINGTON-DC	AA12II	SKA AIRLINES	FIRST CLASS	31/Jul/2025	IP	AIRBUS A321
125	CNF	NEW DELHI-NDL	NEW YORK-NY	AA12AA	SKA AIRLINES	FIRST CLASS	09/Aug/2025	IP	BOEING 777
124	CNF	NEW DELHI-NDL	NEW YORK-NY	AA12II	SKA AIRLINES	FIRST CLASS	02/Aug/2025	IP	AIRBUS A321
122	CNF	NEW DELHI-NDL	NEW YORK-NY	AA12II	SKA AIRLINES	FIRST CLASS	01/Aug/2025	IP	AIRBUS A321
121	CNF	NEW DELHI-NDL	HYDERABAD-HYD	AA12LL	ELON AIRLINES	FIRST CLASS	01/Aug/2025	IP	DOMESTIC AIRLINE
115	CNF	NEW DELHI-NDL	HYDERABAD-HYD	AA12LL	ELON AIRLINES	FIRST CLASS	01/Aug/2025	IP	DOMESTIC AIRLINE
111	CNF	NEW DELHI-NDL	HYDERABAD-HYD	AA12II	SKA AIRLINES	FIRST CLASS	31/Jul/2025	IP	AIRBUS A321
107	CNF	NEW DELHI-NDL	HYDERABAD-HYD	AA12II	SKA AIRLINES	FIRST CLASS	31/Jul/2025	IP	AIRBUS A321
101	CNF	NEW DELHI-NDL	HYDERABAD-HYD	AA12II	SKA AIRLINES	FIRST CLASS	31/Jul/2025	IP	AIRBUS A321

CANCEL BOARDING PASS BACK RESET CLOSE

SKA AIRLINES. x SKA AIRLINES. x WELCOME USER x +

127.0.0.1:5000/user/welcome_user

WELCOME USER NUMBER: 1000
WELCOME USER: sai
WELCOME TO SKA AIRLINES

HOME AIRLINES ▾ MY ACCOUNT ▾ ABOUT ▾ 03:15:36 PM 🔍

MY PROFILE ▾ FORGOT/CHANGE PASSWORD
MY JOURNEY HISTORY ▾ UPDATE MOBILE NUMBER
FEEDBACK ADD/MODIFY MASTER LIST (pending)
DELETE RECENT JOURNEY LIST (pending)

KA-AIRLINES Safety | Security | Punctuality



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SKA AIRLINES. x SKA AIRLINES. x WELCOME USER x +

127.0.0.1:5000/user/welcome_user

WELCOME USER NUMBER: 1000
WELCOME USER: sai
WELCOME TO SKA AIRLINES

HOME AIRLINES ▾ MY ACCOUNT ▾ ABOUT ▾ 03:15:41 PM 🔍

MY PROFILE ▾ PRINT/VIEW CONFIRMED TICKETS
MY JOURNEY HISTORY ▾ PRINT/VIEW CANCELLED TICKETS
FEEDBACK PRINT/VIEW ENTIRE JOURNEY HISTORY ALL

KA-AIRLINES Safety | Security | Punctuality



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3. New User Registration Module

The New User Registration Module provides a simple, secure, and efficient way for new users to join the SKA Flight Ticket Booking System. This module is designed to onboard new customers smoothly, enabling them to become registered users and unlock all the benefits of the platform.  

Key Features & Functionalities

User-Friendly Registration Form: New users fill out a comprehensive yet easy-to-use registration form to create their accounts. The form collects essential personal information necessary for account setup.  

Data Validation & Verification: The entered information undergoes thorough validation checks to ensure accuracy and prevent duplicate accounts. This includes email verification, mobile number checks, and secure password criteria enforcement.  

Secure Account Creation: Upon successful validation, accounts are securely created and users receive confirmation notifications, often via email, to activate their profiles.  

Access to Full User Functionalities: Registered users can immediately access all features such as flight booking, payment options, journey history, and profile management, making their transition from guests seamless and efficient.  

Privacy & Security: Personal data is handled with confidentiality, and secure protocols protect user information during registration.

User Experience & Interface

The registration page is designed with clean, intuitive layouts compatible with desktops and mobile devices alike, ensuring a smooth and hassle-free signup experience. Form validation provides instant feedback to users for a user-friendly onboarding process.  

Summary

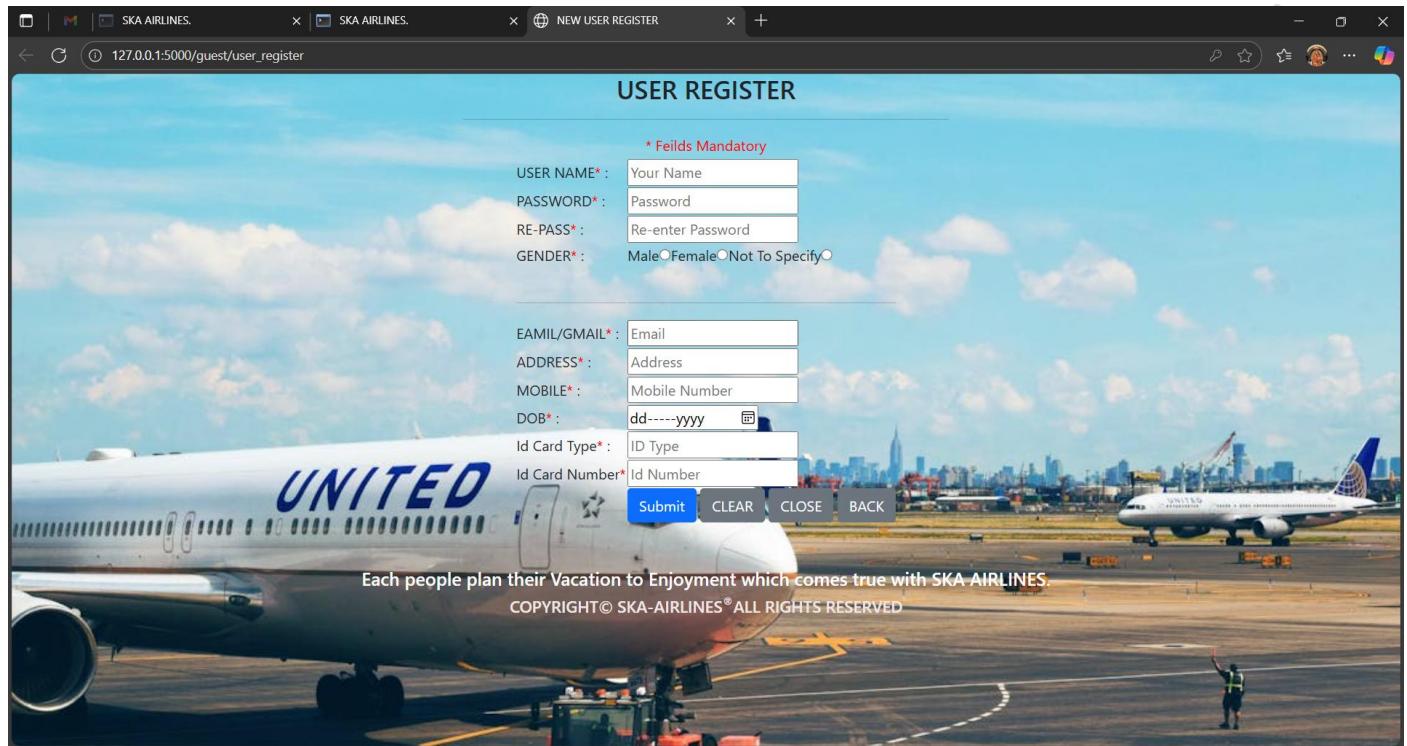
The New User Registration Module is a gateway to the SKA Flight Ticket Booking System, transforming visitors into valued registered customers through a secure, quick, and convenient signup process. This module lays the foundation for personalized and efficient flight booking experiences.   

Flight New-User/Register/Sign-Up Module

| guest_routes.py -----> Handles:

| | └— user_register_bp --> user_register.html, register_success.html

Flight New-User/ Sign-Up Module Screenshots



The screenshot shows a 'USER REGISTER' form on a web browser. The background features a large United Airlines airplane on a runway under a blue sky with white clouds. The form itself has a light blue header and a white body. It contains several input fields with placeholder text and validation messages. At the bottom right of the form area, there are four buttons: 'Submit' (blue), 'CLEAR', 'CLOSE', and 'BACK'. Below the form, there is a promotional message and a copyright notice.

* Fields Mandatory

USER NAME*	Your Name
PASSWORD*	Password
RE-PASS*	Re-enter Password
GENDER*	Male <input type="radio"/> Female <input type="radio"/> Not To Specify <input type="radio"/>

EAMIL/GMAIL*	Email
ADDRESS*	Address
MOBILE*	Mobile Number
DOB*	dd-----yyyy <input type="text"/>
Id Card Type*	ID Type
Id Card Number*	Id Number

Submit CLEAR CLOSE BACK

Each people plan their Vacation to Enjoyment which comes true with SKA AIRLINES.
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4. Guest User Module

The Guest User Module caters to users who have not registered or logged in but still want to interact with the SKA Flight Ticket Booking System. This module provides essential access and functionalities to non-registered visitors, ensuring they can explore the system and its services before deciding to sign up.   

Key Features & Functionalities

View Flight Schedules & Availability: Guests can browse available flights, schedules, and routes without needing an account, helping them plan their travel efficiently.  

PNR Status Checking: Visitors can check their Passenger Name Record (PNR) status to track bookings made previously without logging in, providing convenient access to important information.  

User Registration Access: Guests are guided to create new accounts easily via clear prompts and links, facilitating smooth transition to registered user status.   

View News & Events: Access to the latest airline news, announcements, and special events keeps guests informed and engaged.  

Submit Anonymous Feedback: Guests can provide feedback or report issues anonymously, helping improve the service without the need for registration.  

User Experience & Interface

The Guest Module features clean, navigable pages designed to encourage exploration and easy access to information. Responsive design ensures seamless browsing across devices, including desktops, tablets, and smartphones.  

Summary

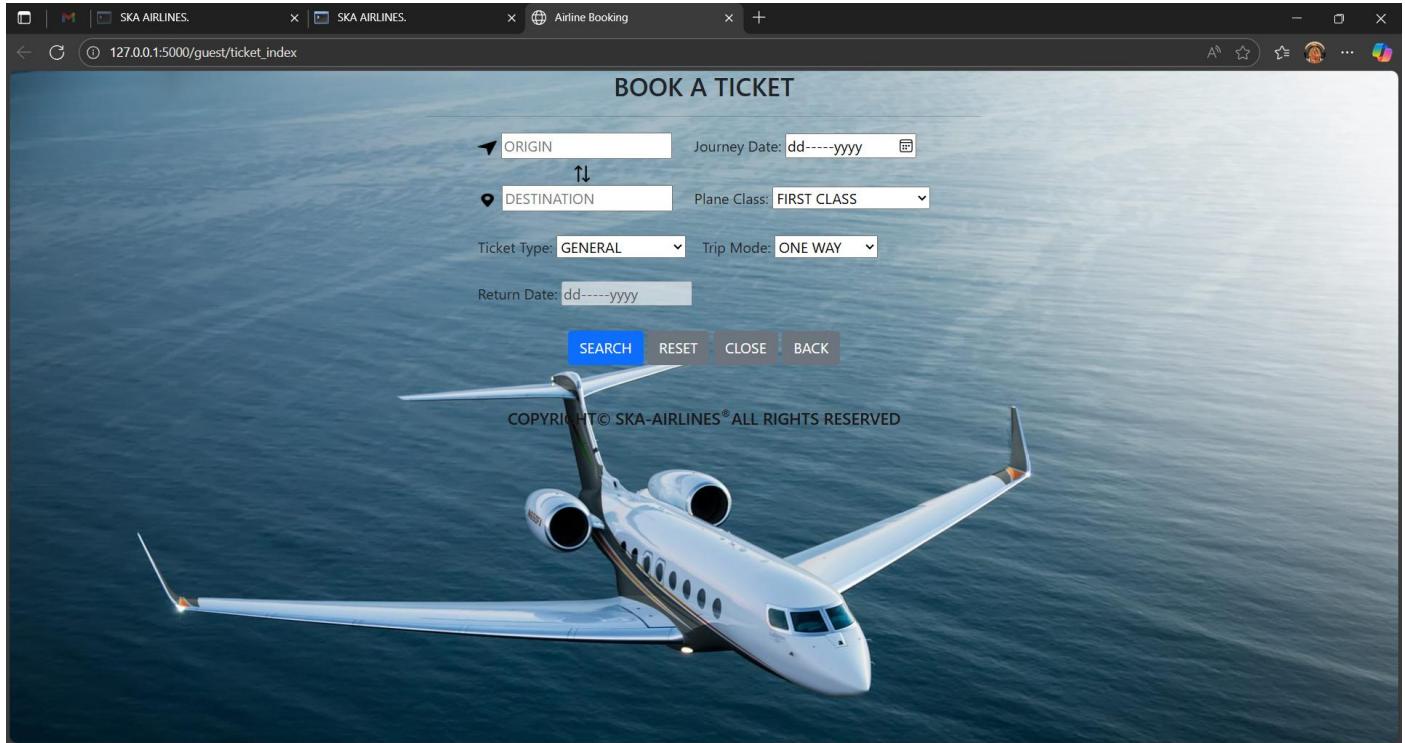
The Guest User Module offers a welcoming and informative gateway to the SKA Flight Ticket Booking System, allowing visitors to access essential travel information and interact anonymously before registering. This fosters engagement and builds trust with potential users.   

Flight Guest-User Module

```
|  
|   |-- Guest Section  
|   |   |-- guest_dashboard_bp  
|   |   |-- guest_bp  
|  
|   | guest_routes.py -----> Handles:  
|   |  
|   |   |-- user_register_bp      --> user_register.html, register_success.html  
|   |   |-- feedback_index_bp    --> feedback_index.html, feedback_index_su.html  
|   |   |-- plane_schedule_bp    --> plane_schedule.html, plane_schedule_su.html  
|   |   |-- pnr_index_bp        --> pnr_index.html, pnr_index_su.html  
|   |   |-- ticket_index_bp     --> ticket_index.html, ticket_index_su.html  
|  
|   | guest_dashboard_bp: also maps routes directly to HTML  
|   |   |-- airline_admins.html  
|   |   |-- instructions.html  
|   |   |-- newevents_index.html  
|  
|   |-- Other Modules  
|       |-- seat_avl_bp      --> seat_avl.html  
|       |-- payment_qr_bp  
|       |-- (future modules...)
```

Flight Guest-User Module Screenshots





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Flight Search Results

Flight Number	Flight Name	Origin	Destination	Class	Flight Type	Quota/Ticket Type	Flight Charge	Date	Check Seats	Book A Ticket
AA12II	RAMESH AIRLINES	HYDERABAD-HYD	CALIFORNIA-CF	FIRST CLASS	AIRBUS A321	GENERAL	1050	29/Aug/2025	Check Seat & Book	Book Now
AA12JJ	RAJITHA AIRLINES	HYDERABAD-HYD	CALIFORNIA-CF	FIRST CLASS	AIRBUS A321	GENERAL	1400	29/Aug/2025	Check Seat & Book	Book Now
AA12OO	RAMESH AIR LINES	HYDERABAD-HYD	CALIFORNIA-CF	FIRST CLASS	BOEING 747	GENERAL	1000	29/Aug/2025	Check Seat & Book	Book Now

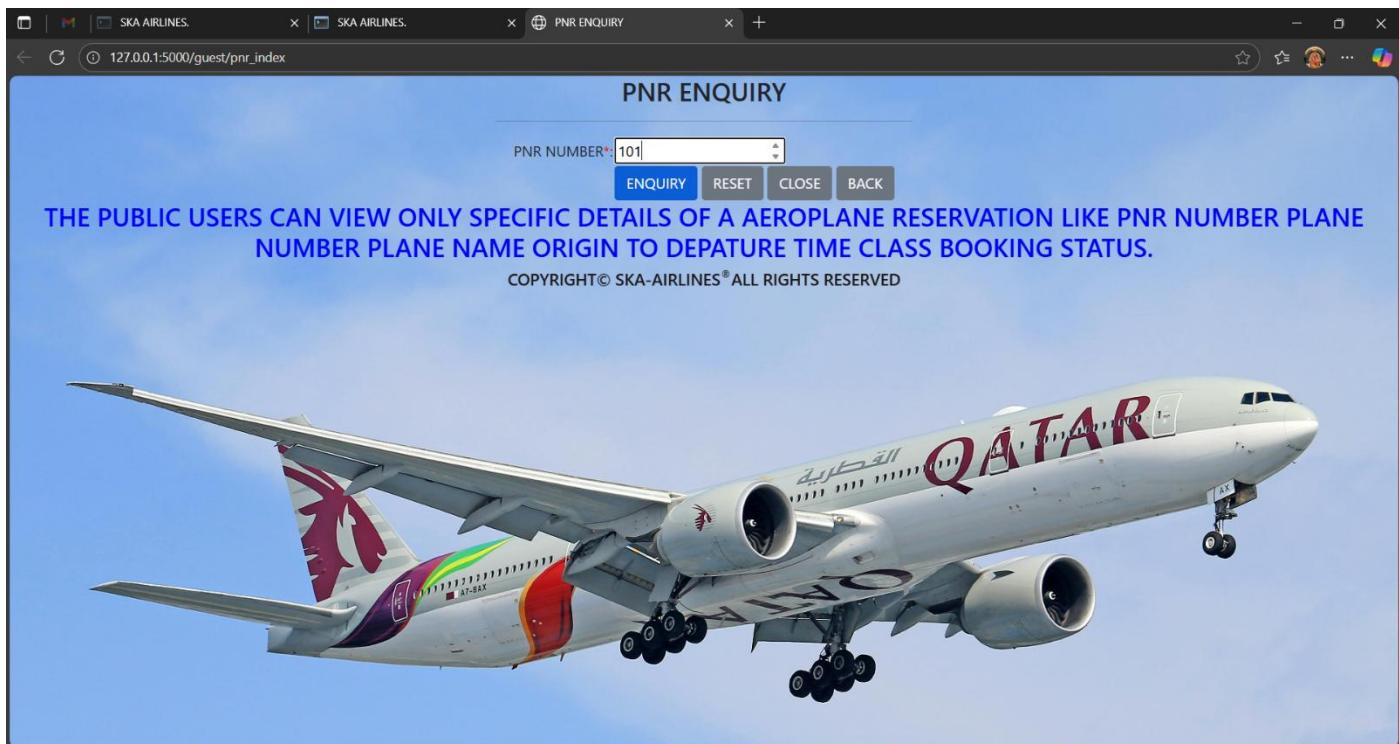
Available Seats:
Available Seats: 9 seats available

Fare Details

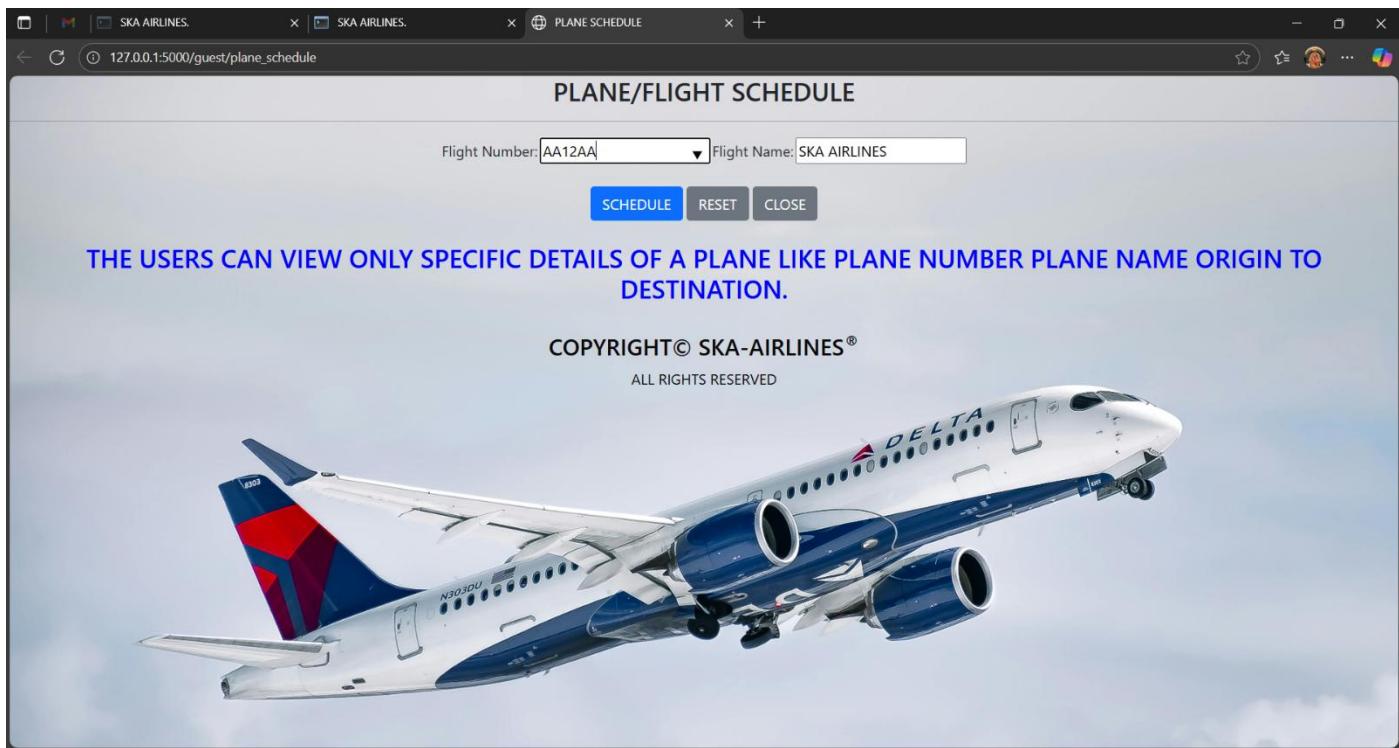
Journey Date: (29/Aug/2025), Return Date: (None),
Base Fare: 125000, **Class Charges (FIRST CLASS):** 1500, **Quota Discount(GENERAL):** , **Trip Mode:(ONE WAY):** , **Trip Discount:(ONE WAY):** 0, **Total Fare:** 126500 **KM:** 14500

SKA AIRLINES Offers Over 1% Discount on the Round Trip Mode to passengers while at the same time of Booking
 Special Category passengers need to carry a Photo Identity card issued by the Government which is to be produced for On-board / Off-board verification during the journey include Quota/Ticket type Defence, Govt Employee, Senior Citizen, Student, Dont Forget to carry the Identity Card!

[BACK](#) [CLOSE](#)



A screenshot of a web browser window titled "PNR STATUS". The URL is 127.0.0.1:5000/guest/guest/pnr_index. The page has a header "AIRLINE PNR STATUS" with the SKA-AIRLINES logo. It shows flight details: Origin is NEW DELHI-NDL and Destination is HYDERABAD-HYD. Under "Journey Details", it lists PNR Number 102, Departure on 31/Jul/2025, Return None, Class FIRST CLASS, Airplane Number AA12LL, Airplane Name ELON AIRLINES, Trip Mode ONE WAY, and Trip Type GENERAL. Under "Booking Details", it shows Booking Status CNF/FIRST CLASS/1C, Current Status CAN/FIRST CLASS/1C, Journey Status Journey Status: canceled, and KM 1260. At the bottom, a note says "SKA AIRLINES offers over 1% discount on the Round Trip Mode to passengers at the same time of booking." and "Special category passengers need to carry a photo identity card issued by the government for on-board/off-board verification during the journey. This includes quota/ticket types such as Defence, Govt Employee, Senior Citizen, and Student. Don't forget to carry your identity card!"



The screenshot shows a browser window titled "PLANE SCHEDULE DETAILS". The main title is "PLANE SCHEDULE" and the subtitle is "PLANE ARRIVAL AND DEPARTURE". A table provides flight details:

FLIGHT NUMBER	FLIGHT NAME	FLIGHT TYPE	AIRPORTS	CLASS AVAILABLE	QUOTA
AA12AA	SKA AIRLINES	BOEING 777	NEW DELHI-NDL, NEW YORK-NY,	FIRST CLASS, BUSINESS CLASS, PREMIUM ECONOMY,	GENERAL, DEFENCE, GOVT EMPLOYEE, SENIOR CITIZEN, STUDENT,

Below the table, a note states: "* If a person is traveling without a ticket, it is illegal and will be fined up to RS 5000". Another note says: "SKAR OR ITS AFFILIATES NEVER ASK FOR YOUR PERSONAL BANK OR SECURITY DETAILS, PLEASE BE AWARE IF ANYONE IS ASKING FOR YOUR ATM PIN OR CVV NUMBER". A third note from "SKA Railways" claims: "SKA Railways Recovers Only 61% of the Cost of Travel on an average Ticket & Reservation Tickets".

INSTRUCTIONS

- Never purchase e-tickets from unauthorized persons or persons using their ID for commercial purposes because the ticket refund amount will be refunded to their account. All users need to register themselves on the website for ticket booking purposes. It's free of cost and easy to book at SKA AIRLINES.

Buttons for "BACK" and "CLOSE" are located at the bottom right of the page.

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SKA

SYSTEM REQUIREMENTS

To operate efficiently, all software requires specific hardware components and software resources on the computer. These prerequisites are called system requirements and typically serve as guidelines rather than absolute rules. Most software defines two categories of system requirements: Minimum and Recommended.

With increasing demands for higher processing power and resources in newer software versions, system requirements tend to rise over time. Industry analysts suggest this trend drives more system upgrades than technological innovations themselves. Additionally, in a broader context, system requirements refer to the design specifications needed for a system or sub-system.

SOFTWARE REQUIREMENTS

Front End / Language: HTML5, CSS3, JavaScript

Backend Framework / Domain: Python (Flask)

Database: MySQL (or compatible SQL database)

Web Server: Gunicorn or Apache HTTP Server (for production), Flask built-in server for development

Server Logs: Standard logging formats (e.g., text, JSON)

Operating System: Windows 7, 10, 11, Linux, or macOS

HARDWARE REQUIREMENTS

Processor: Intel Core 2 Duo or later generations (i3, i5, i7, i9)

Main Memory (RAM): Minimum 4 GB

Hard Disk (Storage): Minimum 256 GB

Monitor: Colour Monitor (size as per user preference)

Mouse: Optical Mouse

FUNCTIONAL REQUIREMENTS

Functional requirements specify the actions the system must perform to fulfill the business needs of admins and users. These requirements are based on user needs and task analysis of the existing system.

Users must have a valid Admin/User ID and password to log in to the system. 

If an admin or user enters an incorrect password three consecutive times, the server will mark the attempts as unauthorized and restrict access. 

The system's behaviour is defined by the relationship between inputs (credentials, commands) and outputs (access granted/denied, system responses).

If an admin or user attempts to enter wrong credentials or access the system by directly copying the URL of an active session without proper login, the server will treat such attempts as unauthorized access.  

NON-FUNCTIONAL REQUIREMENTS

Non-functional requirements define how the system performs rather than what functions it performs. For the SKA Flight Ticket Booking System, these requirements ensure reliability, security, and quality user experience. Key non-functional requirements include:

Security: Protect confidential data such as admin and user credentials, booking information, and payment details through encryption and secure access controls. 

Performance: Ensure fast response times during booking, searches, and data retrieval to handle multiple concurrent users efficiently. 

Safety: Maintain data integrity and prevent unauthorized access or data loss.

Software Quality Attributes: Maintain reliability, usability, scalability, maintainability, and availability to offer a seamless and robust service. 

SYSTEM DESIGN

The SKA Flight Ticket Booking System's design is structured into logical and physical phases to deliver a scalable, secure, and user-friendly online flight reservation service.

1) System Design for Registered Users

The user requests access by entering the URL of the SKA Flight Booking Server. 

On the login page, the user enters their credentials (User ID and PIN). The system validates these credentials. 

If valid, the user is granted access to the main menu, where options include View Journey History, Book a Flight, View Flight Schedule, Update Profile, and more. 

For booking a flight, the user inputs Source (From), Destination (To), Travel Dates, and Class preferences, then submits the details

The system displays flight options; upon selecting a flight, the user confirms the booking by entering their secure PIN to finalize the transaction. 

Upon logout, users are recommended to clear browser cache for security reasons.  

2) System Design for Flight Admins

The admin requests the URL of the SKA Flight Booking Server. 

Admins input their credentials (Admin ID and PIN) on the login page; the system checks their validity.  , If valid, admins access the admin dashboard featuring options like Add New Flight, Add New Airport, Modify Fare, View PNR Status, Manage Reservations, View Flight Schedules, and Print/Download Tickets. 

For example, when using the PNR enquiry menu, admins input a PNR number and submit it; the system retrieves and displays detailed booking information for confirmation.  

3) Development Phases

The system design is developed through two major phases:

a) Logical Design

Analyze current project requirements including data flows, file contents, volume, and frequencies. Define output specifications such as report formats and frequencies.

Specify input formats, content, and functions.

Establish edit, security, and control processes

Prepare and review an information flow walkthrough including inputs, outputs, controls, and implementation plans. Evaluate benefits, costs, timelines, and system constraints.

b) Physical Design

Develop the actual working system based on the logical design.

Specify input/output devices and media formats.

Design and implement the database with backup and recovery protocols

Plan and design the physical information flow and system walk-through.

Schedule system implementation and prepare conversion and training plans.

Define test procedures and specify any additional required hardware or software.

Update project benefits, costs, milestone dates, and constraints accordingly.

This comprehensive design approach ensures the SKA Flight Ticket Booking System is secure, reliable, user-friendly, and scalable to meet modern airline reservation needs efficiently.  

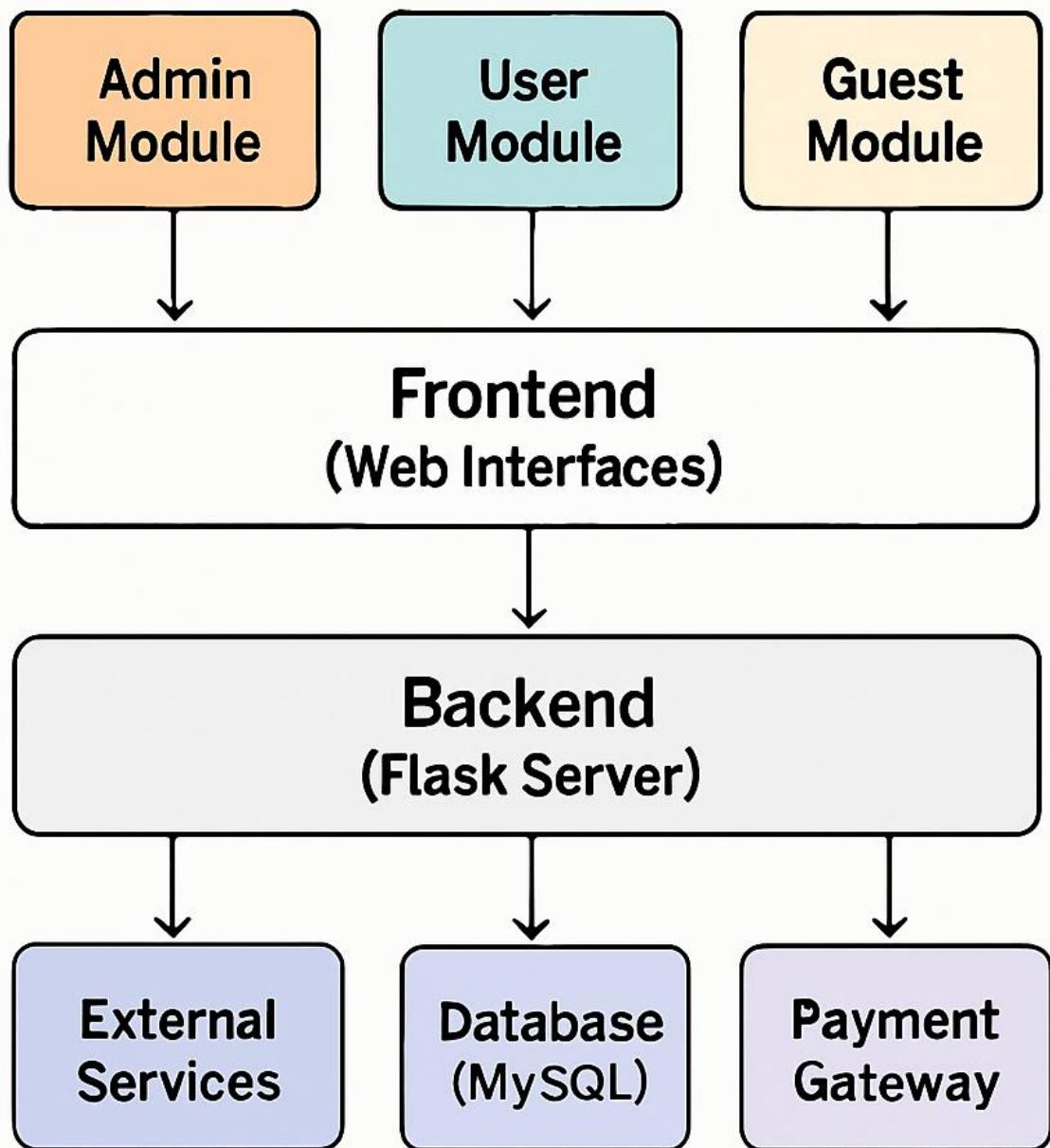
Flowchart: Flight Admin System Flow

1. Start
2. Admin requests URL of SKA Flight Booking System
3. Display Admin Login Page (Admin enters Admin ID and PIN)
4. Verify Admin ID and PIN
 - If Yes:
 - Show Admin Dashboard with options:
 - Add New Flight
 - Add New Airport
 - Modify Fare
 - View PNR Status
 - Manage Reservations
 - Print/Download Tickets
 - If No: Return to Login Page
 - 5. If View PNR selected:
 - Input PNR Number
 - Submit request and display details
 - 6. Logout
 - 7. End

Flowchart: Registered User System Flow

1. Start
2. User requests the URL of SKA Flight Booking System
3. Display Login Page (User enters User ID and PIN)
4. Check if User ID and PIN are valid
 - If Yes:
 - Show Main Menu with options:
 - Book Flight
 - View Journey History
 - Update Profile
 - Other features
 - If No: Return to Login Page
 - 5. If Book Flight selected:
 - Input Source, Destination, Travel Dates, and Class
 - Submit booking request
 - Confirm booking by entering secure PIN
 - 6. Logout and clear browser cache for security
 - 7. End

SKA FLIGHT BOOKING SYSTEM ARCHITECTURE DIAGRAM ✈️



SKA

Flight Reservation Booking Terms

- Reservation: The process of booking a seat on a specific flight for a particular date and route.
- PNR (Passenger Name Record): A unique identifier code generated for each booking that contains passenger details, itinerary, and ticket information. Used for tracking and managing bookings. 
- E-ticket (Electronic Ticket): A digital version of a flight ticket issued electronically without a physical paper ticket. It contains all travel information and is proof of purchase. 
- Fare: The price paid by the passenger for a flight ticket, which can vary based on class, time, and other factors. 
- Booking Confirmation: The official acknowledgment by the airline that a reservation has been successfully made, often sent via email.  
- Cancellation: The process by which a booked ticket is voided. Cancellation policies, fees, and refund eligibility depend on the fare rules.  
- No-Show: A passenger who does not show up for the flight without prior cancellation or notification. This may lead to forfeiture of fare. 
- Class of Service: The travel class selected by the passenger, e.g., Economy, Business, or First Class, affecting fare and amenities. 
- Connection / Layover: A stop or break between flights during a journey, where passengers may switch planes.  
- Seat Availability: The current number of free seats on a flight for booking, updated in real-time. 
- Payment Gateway: A service that processes online payments securely when booking tickets, supporting multiple payment modes like bank transfer or QR code.  
- Booking Reference: Another term sometimes used interchangeably with PNR, referring to the unique code for a booking.

The Below table can be quick reference and user clarity.

Term	Definition
Reservation	The process of booking a seat on a specific flight for a particular date and route.
PNR (Passenger Name Record)	A unique booking code containing passenger and itinerary details, used to track/manage bookings. 
E-ticket	An electronic version of a flight ticket; digital proof of purchase with travel details. 
Fare	The price paid for a flight ticket, which varies by class, timing, and other factors. 
Booking Confirmation	Official acknowledgment from the airline that the booking was successful, often via email.  
Cancellation	Voiding a booked ticket; refund policies depend on fare 
No-Show	Passenger who misses the flight without cancellation, risking loss of fare. 
Class of Service	Travel class chosen by passenger (Economy, Business, First), affecting price and amenities. 
Connection / Layover	A stop between flights allowing transfer to another flight.  
Seat Availability	Number of free seats on a flight updated in real-time. 
Payment Gateway	Secure online service processing payments (bank transfers, QR codes).  
Booking Reference	Another term for PNR; unique code used to identify a booking.

Flight Types / Terms

Term	Description
Domestic Flight	Flights operating within the same country, connecting cities or regions domestically.
International Flight	Flights that cross international borders, connecting different countries.
Direct Flight	A flight with no change of plane but may include stopovers for refueling or passenger boarding.
Non-Stop Flight	A flight that goes from origin to destination without any stops in between.
Connecting Flight	A journey with one or more stopovers requiring passengers to change planes at an intermediate airport.
Charter Flight	A non-scheduled flight arranged for specific groups or purposes, not part of the regular airline schedule.
Red-Eye Flight	Overnight flights typically departing late at night and arriving early morning.
Code Share Flight	A flight operated by one airline but marketed by one or more other airlines under their own flight number.
Round-Trip Flight	Travel from the origin to a destination and back to the origin on a single booking.
One-Way Flight	Travel from the origin to the destination only, without a return ticket.

Term	Description
Standby Flight	A flight where passengers wait for available seats, usually after missing an earlier flight.
Seasonal Flight	Flights operated only during specific seasons or periods (e.g., holiday seasons or summer).
Code Share Flight	A collaborative flight sharing arrangement where multiple airlines sell seats on the same flight.

This table can help users better understand the types of flights available and the terminology used in airline booking systems .

1. Emirates Airbus A380 (International Long-Haul Flight)

- First Class: Private suites with doors for complete privacy, located at the front of the aircraft offering maximum comfort and luxury, Business Class: Spacious 2-2-2 seating with lie-flat seats, designed for long-haul travel comfort, Economy Class: High-density 3-4-3 layout maximizing capacity
- Flight Type: International, long-haul flights connecting major global hubs

2. Boeing 777 (International and Some Domestic Flights)

- Business Class: 2-3-2 seating arrangement, balancing space and capacity for medium to long-haul flights, Economy Class: Standard 3-3-3 layout with moderate legroom typical of many international and high-capacity domestic routes.
- Flight Type: Used commonly for international long-haul flights & busy domestic routes

3. Regional Jet (Primarily Domestic or Short-Haul Flights)

- Economy Class: Compact 1-2 or 2-2 seating arrangements designed for short flights with quick turnarounds.
- Flight Type: Domestic or regional flights connecting smaller airports and shorter distances, focusing on efficient use of space and quick service.

Flight Seats Layout System

Airlines use various seat layout configurations depending on aircraft type, flight duration, and service class. Understanding seat layouts helps users select preferred seats during booking.

Common Seat Layout Types

Layout Type	Description	Typical Configuration
Single Aisle (Narrow-body)	Aircraft with one central aisle. Common in short-haul flights.	3-3 (six seats per row, e.g., A-B-C aisle D-E-F)
Dual Aisle (Wide-body)	Aircraft with two aisles, used mainly for long-haul international flights.	2-4-2, 3-3-3, or 3-4-3 seat arrangements
Regional Jet	Smaller jets with fewer seats, suitable for short regional routes.	Typically 1-2 or 2-2 seat configurations

Seat Classes & Layouts

Class	Description	Layout Characteristics
Economy Class	Standard seating, higher seat density, basic legroom and amenities.	Rows of seats in tight configuration, usually 17-18 inches wide seats.
Premium Economy	Enhanced economy seats with more legroom and amenities.	Wider seats, more legroom, sometimes recline feature.
Business Class	Spacious seating with enhanced amenities, priority boarding, and meals.	Lie-flat or angled seats, 1-2-1 or 2-2-2 layouts common.
First Class	Most luxurious seating, private suites, top-tier service.	Private suites or enclosed seats, spacious, can include beds.

Seat Selection Features

- Window Seat: Located by the aircraft window, preferred for views and privacy.
- Aisle Seat: Located by the aisle, preferred for easier access.
- Exit Row: Extra legroom but may have restrictions on passengers (e.g., must be able to assist in emergencies).
- Bulkhead Seat: Located at cabin row dividing classes or sections, extra legroom but sometimes no under-seat storage.
- Seat Map Display: Interactive visual of seat availability shown during booking.
- Seat Availability Status: Indicated via colors (available, reserved, blocked).

Example Seat Map Notation

- A-F: Seat letters typically represent seats from left to right starting from the window.
- Row numbers: Numbered front to back of the cabin. E.g., row 12 A-F means seats in row 12 from window-left (A) to window-right (F).
-

Including detailed seat layout information enhances user experience by helping travelers choose preferred seats confidently during booking.

Let me know if you want me to create sample seat maps or diagrams! Here is an overview of common Seat Layout Systems used in airline reservation platforms, including their typical configurations and terminology, for inclusion in your SKA Flight Ticket Booking System documentation:

Seat Layout Systems

Airlines use various seat layout configurations depending on aircraft type, flight duration, and service class. Understanding seat layouts helps users select preferred seats during booking.

Common Seat Layout Types

Layout Type	Description	Typical Configuration
Single Aisle (Narrow-body)	Aircraft with one central aisle. Common in short-haul flights.	3-3 (six seats per row, e.g., A-B-C aisle D-E-F)
Dual Aisle (Wide-body)	Aircraft with two aisles, used mainly for long-haul international flights.	2-4-2, 3-3-3, or 3-4-3 seat arrangements
Regional Jet	Smaller jets with fewer seats, suitable for short regional routes.	Typically 1-2 or 2-2 seat configurations

Seat Classes & Layouts

Class	Description	Layout Characteristics
Economy Class	Standard seating, higher seat density, basic legroom and amenities.	Rows of seats in tight configuration, usually 17-18 inches wide seats.
Premium Economy	Enhanced economy seats with more legroom and amenities.	Wider seats, more legroom, sometimes recline feature.
Business Class	Spacious seating with enhanced amenities, priority boarding, and meals.	Lie-flat or angled seats, 1-2-1 or 2-2-2 layouts common.
First Class	Most luxurious seating, private suites, top-tier service.	Private suites or enclosed seats, spacious, can include beds.

Seat Selection Features

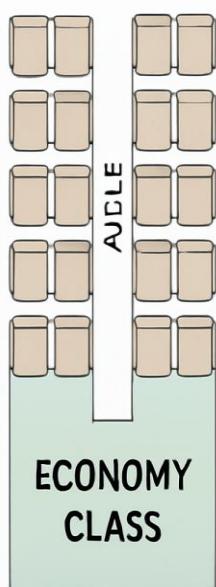
- Window Seat: Located by the aircraft window, preferred for views and privacy.
- Aisle Seat: Located by the aisle, preferred for easier access.
- Exit Row: Extra legroom but may have restrictions on passengers (e.g., must be able to assist in emergencies).
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- Seat Availability Status: Indicated via colors (available, reserved, blocked).

Example 1 Seat Map Notation

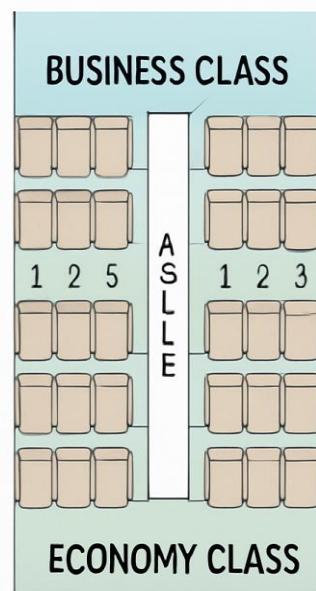
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Including detailed seat layout information enhances user experience by helping travelers choose preferred seats confidently during booking.

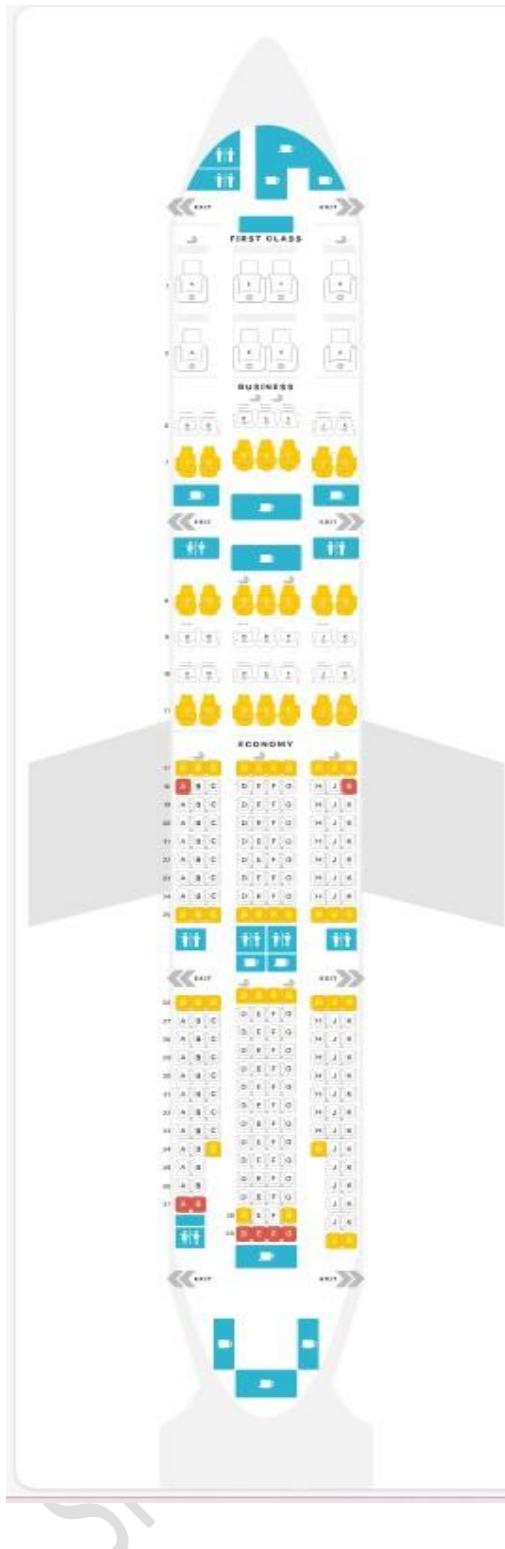
TYPICAL DOMESTIC
FLIGHT LAYOUT



TYPICAL INTERNATIONAL
FLIGHT LAYOUT



Example 2 Seat Map Notation



	A	B	AISLE	C	D
1	A	B	C	C	C
2	B	B	B	A	D
3	B	B	E	A	D
4	B	B	E	A	D
5	B	B	E	A	D
6	B	B	E	A	D
7	B	B	E	A	D
8	B	B	E	A	D
9	B	B	E	A	D
10	B	B	E	A	D
11	B	B	E	A	D
12	B	B	E	A	D
13	B	B	E	A	D
14	B	B	E	A	D
15	A	B	E	F	F
	A	B	C	C	F

Customer's Obligations



1. The customer must keep their Username and Password confidential. The bank assumes that login with valid credentials represents a session initiated by the customer.
 2. Transactions executed through a valid session are legally binding on the customer as originating from them.
 3. The customer must never attempt or allow others to access the SKA Flight Ticket Booking System through unlawful means.
- While registering on the website, users must note down their User Number, Username, and Password.
 - Tickets booked under PHC (Physically Handicapped Card) or Ladies Quota require passengers to carry valid identity proof.
 - When changing passwords, users must enter their old password, then the new password with confirmation.
 - PNRs with full waiting list status are automatically dropped and refunded.
 - Never purchase e-tickets from unauthorized persons.
 - SKA or its affiliates will never ask for your personal bank or security details.
 - If a flight delay exceeds 4 hours, refunds are admissible.
 - In case of flight cancellation, the full refund is automatically credited to the user's account.

Dos & Don'ts



1. Keep your User ID and password strictly confidential. Any loss due to negligence is the customer's responsibility; SKA Flight Booking is not liable.
2. Choose strong, unique passwords avoiding easily guessable personal information like name, birthdate, or phone number. Memorize passwords rather than writing them down.
3. Never leave your computer unattended during an active session, as others may access your account.

Safe Online Flight Booking Tips

- Check that the URL in your browser begins with “https”, where “s” means secured. 
- Look for the padlock icon in the browser’s address bar and verify the security certificate by clicking it. 
- Do not enter sensitive information in any pop-up windows. 
- A green address bar indicates a secured website. 

Beware of Phishing Attacks

- Phishing is a fraudulent attempt via email, phone calls, or SMS to steal your confidential information. 
- SKA or its representatives never request personal information, passwords, or one-time SMS (OTP) passwords via email, SMS, or phone calls. 
- Such communications are attempts to fraudulently withdraw money or access your account. Never respond! 
- Change your internet booking and banking passwords regularly. 
- Always check your last login date and time on the secure post-login page. 

Important Reminder

Scammers often send fake emails or texts pretending to be trusted companies like banks or utilities. They trick users into clicking malicious links or opening attachments to steal passwords or personal info.

Stay vigilant and protect your information! 

THE SKA FLIGHT TICKET BOOKING SYSTEM HIERARCHY / PROCESS

The SKA Flight Ticket Booking System is designed with a clear hierarchy of modules and a smooth process flow that ensures efficient flight reservation and management for users, admins, and guests.

System Hierarchy Overview

1. User Interface Layer (Frontend)

- Web pages and dashboards accessed by
 - Registered Users 
 - Flight Admins 
 - Guest Users 

2. Application Layer (Backend)

- Flask framework handling business logic including:
 - User authentication and authorization
 - Flight search and booking
 - Payment processing (bank transfers, QR payments)
 - Ticket management and cancellations
 - Feedback collection
 - Admin operations (flight/airport/fare management, PNR enquiries)

3. Data Layer (Database)

- MySQL database storing:
 - User profiles and credentials
 - Flight schedules and aircraft info
 - Booking and ticket details (PNRs, e-tickets)
 - Payments and refunds
 - Feedback and logs

4. External Services Integration

- Payment gateways for secure transactions
- Email services for ticket confirmations and notifications

System Process Flow

1. User / Guest Access

- Request website URL and reach landing page.
- Register (new user), log in (registered user/admin), or browse as guest.

2. Authentication & Authorization

- User/Admin submits credentials.
- System validates via backend and grants access.

3. Main Operations

- Users search flights by criteria (source, destination, date).
- Users select preferred flight and proceed to book.
- Multiple payment options offered: bank accounts, QR code.
- Tickets booked and e-tickets generated. Ticket status emailed.

4. Booking Management

- Users can view journey history, update profile, cancel bookings.
- Admins manage flights, fares, PNR enquiries, cancellations, refunds.

5. Security & Monitoring

- Secure sessions maintained; improper access attempts logged.
- Password and data confidentiality enforced strictly.

This hierarchy and process ensure a secure, efficient, and user-friendly flight booking experience for all stakeholders across the SKA Flight Ticket Booking System.   

PROJECT SCHEDULING



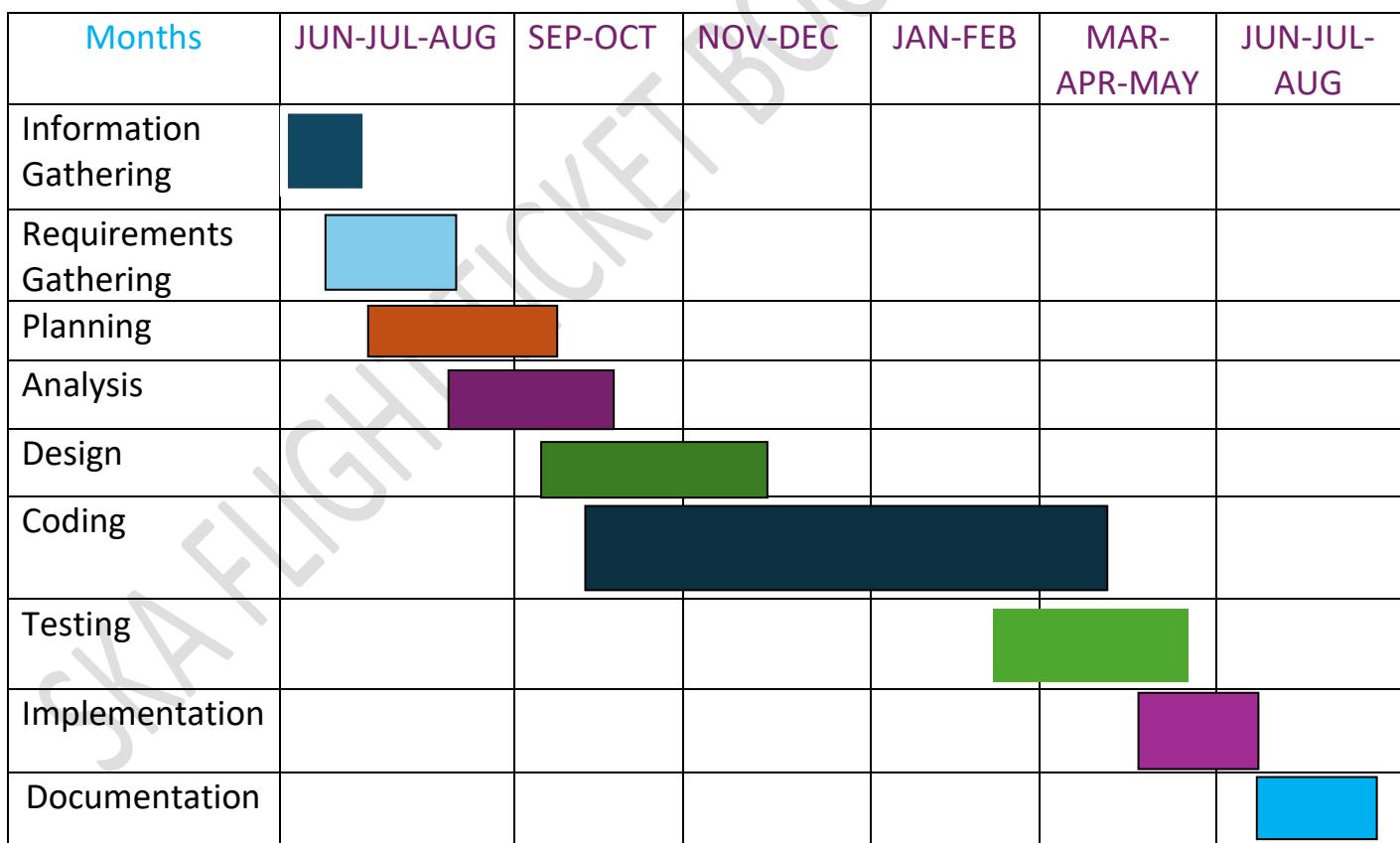
I estimated the time and resources needed for the SKA Flight Ticket Booking System project while planning the schedule. All project activities must be arranged in a coherent sequence, meaning tasks are organized logically and clearly for easy understanding and smooth execution.

Initial project estimates are often optimistic, assuming favorable conditions with no major threats or problems during development.

Project Timeline



- Duration: June 2024 to August 2025
- The project will be implemented in 2 major phases to ensure systematic development and deployment.



Benefits of Online Flight Ticket Booking



Many of us lead busy lives. Some wake up before dawn, preparing ourselves and our families for the day ahead. We rush to work, get the kids to school, and at the end of the day, rush home only to prepare for the next day. After such a hectic schedule, the last thing anyone wants is to spend time waiting in long lines at the airport or ticket counters.

That's where Online Flight Ticket Booking with SKA comes in. Many benefits of booking your flight tickets online are obvious:

- You don't have to wait in line. A blue hourglass icon with a red slash through it, indicating no waiting.
- You don't need to plan your day around the airport or ticket office hours. A blue clock icon with a red slash through it, indicating no fixed schedule.
- You can check your flight information anytime, not just when you receive a statement. A blue monitor icon with a small globe and a bar chart, representing real-time access to flight information.

There are also some hidden benefits:

- If you are new to flight booking, using the SKA system helps you manage your account and travel plans while observing your spending patterns. A blue bar chart icon with a small globe, representing account management.
- Online booking allows you to monitor your flights and schedule daily if desired. Keeping close tabs on your bookings means you're always aware of your travel status. A blue calendar icon with a small globe, representing travel monitoring.
- For experienced travelers, this system helps prevent surprises like running out of travel funds unexpectedly. A blue money bag icon with a dollar sign, representing budget management.
- It's also useful to track any service charges, time savings, or fees you may have incurred, helping you manage your travel budget better. A blue clock icon with a money bag icon, representing tracking travel expenses.

Booking flights online with SKA is a smarter, faster, and more convenient way to plan your travels! Blue icons of a plane and a yellow star.

More Benefits of Online Flight Ticket Booking with SKA



Convenience Anytime, anywhere



- Book your flights 24/7 from the comfort of your home, office, or on the go using any device—desktop, tablet, or smartphone.
- No more rushing to airport counters or dealing with long queues; your entire booking is just a few clicks away.

Instant Access to Information



- View up-to-date flight schedules, delays, cancellations, and gate changes in real-time.
- Receive timely email and SMS alerts about your bookings and travel updates directly from SKA.

Multiple Payment Options



- Pay securely using multiple methods including bank transfers, credit/debit cards, and QR code payments.
- Choose the payment method that best fits your convenience and comfort.

Easy Modifications and Cancellations



- Modify your bookings or cancel tickets anytime online without hassle.
- Get automatic notifications and refunds processed smoothly when applicable.

Personalized Travel Experience



- Save your preferences and travel history for faster bookings next time.
- Access special offers and loyalty rewards tailored just for you.

Secure and Confidential



- Protect your personal and payment information with SKA's advanced security features.
- SKA never asks for your full bank details outside secure payment gateways to keep your data safe.

Environmentally Friendly Option



- Reduce paper waste by using e-tickets instead of printed tickets.
- Travel greener by embracing digital solutions powered by SKA.

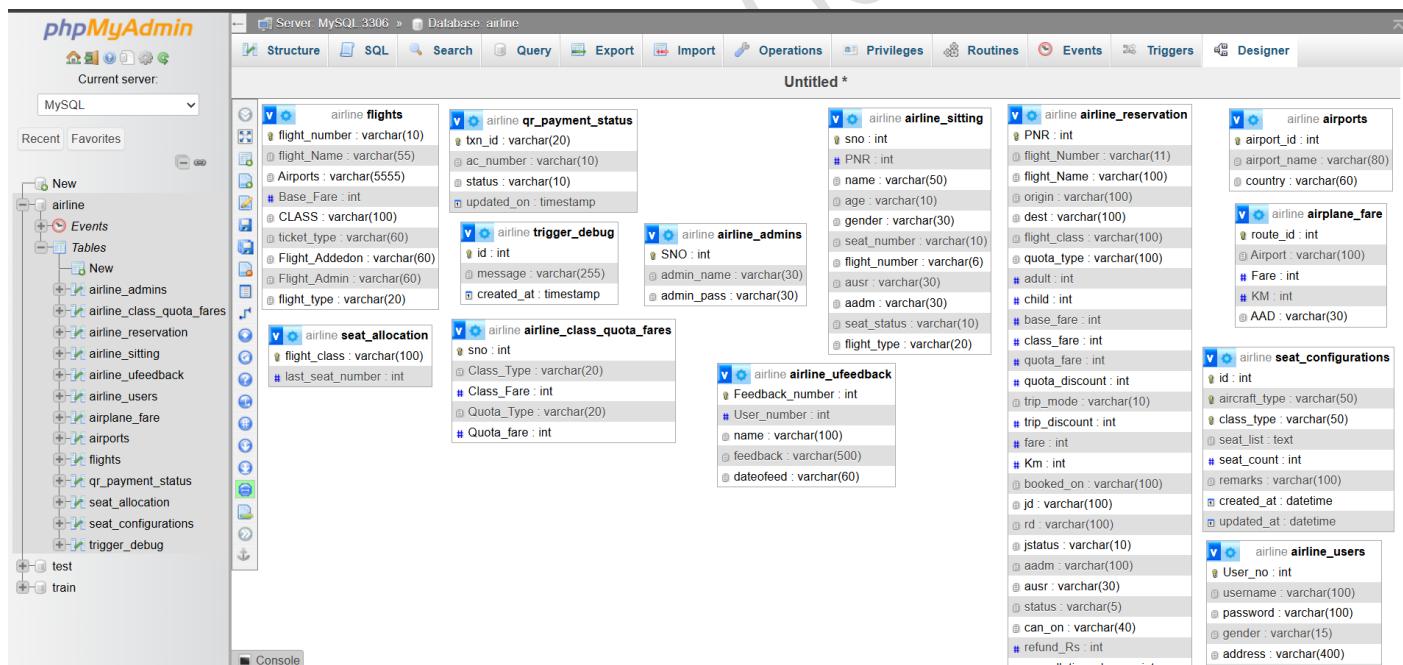
Booking online with SKA Flight Ticket Booking System is more than just purchasing a ticket—it's the start of a smooth, secure, and personalized travel journey.

SKA FLIGHT TICKET BOOKING SYSTEM APPLICATION DATABASE/TABLES

The SKA Flight Booking System's database is the core component that powers the entire application by securely managing and organizing all essential data. It includes multiple interconnected tables designed to handle user profiles, admin credentials, flight schedules, seat layouts, ticket bookings, payments, and feedback.

Each table stores specific information—such as passenger details, flight types, fare structures, and transaction records—allowing for efficient querying and seamless data integrity across the platform. The relational design supports dynamic features like real-time seat availability, automated PNR generation, and flexible payment processing.

By structuring data meticulously, the database ensures fast access, reliable updates, and smooth synchronization between backend processes and frontend user interfaces, ultimately delivering a robust and responsive flight booking experience.



The screenshot shows the phpMyAdmin interface for the 'airline' database. The left sidebar lists various tables under the 'airline' schema, including flights, qr_payment_status, trigger_debug, seat_allocation, airline_admins, airline_class_quota_fares, airline_reservation, airline_sitting, airline_users, airplane_fare, airports, and seat_configurations. The main area displays the structure of several tables:

- airline flights**: Columns include flight_number (varchar(10)), flight_Name (varchar(55)), Airports (varchar(5555)), Base_Fare (int), CLASS (varchar(100)), ticket_type (varchar(60)), Flight_Addedon (varchar(60)), Flight_Admin (varchar(60)), and flight_type (varchar(20)).
- airline qr_payment_status**: Columns include txid (varchar(20)), ac_number (varchar(10)), status (varchar(10)), and updated_on (timestamp).
- airline trigger_debug**: Columns include id (int), message (varchar(255)), and created_at (timestamp).
- airline seat_allocation**: Columns include flight_class (varchar(100)) and last_seat_number (int).
- airline airline_sitting**: Columns include sno (int), PNR (int), name (varchar(50)), age (varchar(10)), gender (varchar(30)), seat_number (varchar(10)), flight_number (varchar(6)), ausr (varchar(30)), aadm (varchar(30)), seat_status (varchar(10)), and flight_type (varchar(20)).
- airline airline_admins**: Columns include SNO (int), admin_name (varchar(30)), and admin_pass (varchar(30)).
- airline airline_class_quota_fares**: Columns include Class_Type (varchar(20)), Class_Fare (int), Quota_Type (varchar(20)), and Quota_fare (int).
- airline airline_reservation**: Columns include PNR (int), flight_Number (varchar(11)), flight_Name (varchar(100)), origin (varchar(100)), dest (varchar(100)), flight_class (varchar(100)), quota_type (varchar(100)), adult (int), child (int), base_fare (int), class_fare (int), quota_fare (int), quota_discount (int), trip_discount (int), fare (int), Km (int), booked_on (varchar(100)), Jd (varchar(100)), rd (varchar(100)), Istatus (varchar(10)), aadm (varchar(100)), ausr (varchar(30)), status (varchar(5)), can_on (varchar(40)), refund_Rs (int), cancellation_charge (int), and remarks (varchar(100)).
- airline airplane_fare**: Columns include route_id (int), Airport (varchar(100)), Fare (int), KM (int), and AAD (varchar(30)).
- airline seat_configurations**: Columns include id (int), aircraft_type (varchar(50)), class_type (varchar(50)), seat_list (text), seat_count (int), remarks (varchar(100)), created_at (datetime), and updated_at (datetime).
- airline airline_users**: Columns include User_no (int), username (varchar(100)), password (varchar(100)), gender (varchar(15)), and address (varchar(400)).

THE SKA FLIGHT BOOKING SYSTEM APPLICATION CALLS/FLOW

airlines.py <-- Main entry, initializes and registers all blueprints

|

| └— Admin Section

| | └— admin_login_bp <-- Login functions

| | └— admin_logout_bp <-- Logout logic

| | └— admin_dashboard_bp <-- HTML renderings (see below)

| | └— admin_bp <-- Route connectors

| admin_routes.py -----> Imports blueprints and submodules:

| |

| | └— new_flight_bp --> new_flight.html

| | └— add_airport_bp --> add_airport.html

| | └— add_fare_bp --> add_fare.html

| | └— change_fare_bp --> change_fare.html

| | └— ticket_admin_bp --> ticket_admin.html, ticket_admin1.html, ...

| | └— ticket_download_admin_bp --> ticket_download_admin.html

| | └— user_booking_history_bp --> user_booking_history.html

| | └— airplane_airports_bp --> airline_airports_su.html

| | └— admin_can_ticket_bp --> admin_can_ticket.html, admin_can_ticket1.html, ...

| | └— payment_gateway_tkt_can_admin_bp

| | └— airline_fund_bp --> airline_fund_su.html

| | └— (other submodules...)

| └— User Section

| | └— user_login_bp

| | └— user_logout_bp

| | └— user_dashboard_bp

| | └— user_bp

| user_routes.py -----> Handles:

```

|   |   ticket_user_bp      --> ticket_user.html, ticket_user1.html, ...
|   |   payment_gateway_bp   --> payment_gateway_su.html
|   |   ticket_userdb_bp
|   |   user_can_ticket_bp   --> user_can_ticket.html, user_can_ticket1.html, ...
|   |   user_journey_history_bp --> user_journey_history_su.html, ...
|   |   user_feedback_bp     --> user_feedback.html, user_feedback_su.html
|   |   user_update_mbl_num_bp --> user_update_mbl_num.html, ...
|   |   user_update_password_bp --> user_update_password.html, ...
|   |   qr_payment_bp        --> qr_payment_su.html
|   |
|   |   Guest Section
|   |   guest_dashboard_bp
|   |   guest_bp
|   |   guest_routes.py -----> Handles:
|   |   |
|   |   |   user_register_bp      --> user_register.html, register_success.html
|   |   |   feedback_index_bp    --> feedback_index.html, feedback_index_su.html
|   |   |   plane_schedule_bp    --> plane_schedule.html, plane_schedule_su.html
|   |   |   pnr_index_bp         --> pnr_index.html, pnr_index_su.html
|   |   |   ticket_index_bp      --> ticket_index.html, ticket_index_su.html
|   |   |
|   |   |   guest_dashboard_bp: also maps routes directly to HTML
|   |   |
|   |   |   airline_admins.html
|   |   |   instructions.html
|   |   |   newsevents_index.html
|   |
|   |   Other Modules
|   |       seat_avl_bp      --> seat_avl.html
|   |       payment_qr_bp
|   |       (future modules...)

```

THE SKA FLIGHT BOOKING SYSTEM ENTIRE APPLICATION ENVIRONMENT

Airlines/

```
|  
|   |-- admin/  
|   |   |-- add_airport.py  
|   |   |-- add_fare.py  
|   |   |-- admin_can_ticket.py  
|   |   |-- admin_can_ticket1.py  
|   |   |-- admin_delete_feedback.py  
|   |   |-- admin_login.py  
|   |   |-- admin_routes.py  
|   |   |-- admin_view_feedback.py  
|   |   |-- airline_fund.py  
|   |   |-- airplane_airports.py  
|   |   |-- airports.py  
|   |   |-- change_fare.py  
|   |   |-- logout.py  
|   |   |-- new_flight.py  
|   |   |-- payment_gateway_tkt_can_admin.py  
|   |   |-- pnr_enq_admin.py  
|   |   |-- routes.py  
|   |   |-- seat_avl.py  
|   |   |-- ticket_admin.py  
|   |   |-- ticket_admindb.py  
|   |   |-- ticket_download_admin.py  
|   |   |-- usernumber.py  
|   |   |-- user_booking_history.py  
|   |   |-- utils.py
```

```
| └── __init__.py  
|  
|  
|   ├── Extra Programs/  
|   |   ├── Application_Issues_bugs  
|   |   ├── brbr.txt  
|   |   ├── check things in project.txt  
|   |   ├── dateand time.txt  
|   |   ├── detailed program.txt  
|   |   ├── Email.txt  
|   |   ├── from flask import Blueprint, render.txt  
|   |   ├── good logic.txt  
|   |   ├── mix.txt  
|   |   ├── next steps.txt  
|   |  
|   |   └── Old trigger dynamic.txt  
|  
|  
|   ├── guest/  
|   |   ├── feedback_index.py  
|   |   ├── guest_routes.py  
|   |   ├── plane_schedule.py  
|   |   ├── pnr_index.py  
|   |   ├── routes.py  
|   |   ├── ticket_index.py  
|   |   └── user_register.py  
|  
|  
|   ├── guest/_pycache_/  
|   |  
|   |   ├── feedback_index.cpython-312.pyc  
|   |   ├── guest_routes.cpython-312.pyc  
|   |   └── plane_schedule.cpython-312.pyc
```

```
|   |   |   |-- pnr_index.cpython-312.pyc  
|   |   |   |-- routes.cpython-312.pyc  
|   |   |   |-- routes_py.cpython-312.pyc  
|   |   |   |-- seats_avl.cpython-312.pyc  
|   |   |   |-- ticket_index.cpython-312.pyc  
|   |   |   |-- user_register.cpython-312.pyc
```

```
|
```

```
|   |   |-- MYSQL/
```

```
|   |   |   |-- airline (30).sql  
|   |   |   |-- airline 28.sql  
|   |   |   |-- airline 33.sql  
|   |   |   |-- airline 34.sql
```

```
|
```

```
|   |   |-- Paper Work/
```

```
|   |   |   |-- IMG_20240905_173915450.jpg  
|   |   |   |-- IMG_20240905_173943677.jpg  
|   |   |   |-- IMG_20240905_173954705.jpg  
|   |   |   |-- IMG_20240905_174000415.jpg  
|   |   |   |-- IMG_20240905_174005665.jpg  
|   |   |   |-- IMG_20240905_174011513.jpg
```

```
|
```

```
|   |   |-- routes/
```

```
|   |   |   |-- db_config.py  
|   |   |   |-- email_cnf_can.py  
|   |   |   |-- oracle_db_config.py  
|   |   |   |-- payment_gateway_Qr.py  
|   |   |   |-- qr_code_generator.py
```

```
|
```

```
├── routes/_pycache_/
|   ├── db_config.cpython-312.pyc
|   ├── email_cnf.cpython-312.pyc
|   ├── email_cnf_can.cpython-312.pyc
|   ├── oracle_db_config.cpython-312.pyc
|   ├── payment_gateway_Qr.cpython-312.pyc
|   └── qr_code_generator.cpython-312.pyc
|
├── sample tickets/
|   ├── SKA AIRLINES Boarding Pass (11).pdf
|   ├── SKA-AIRLINES Boarding Pass (8).pdf
|   └── SKA-AIRLINES Boarding Pass (9).pdf
|
└── Screenshots/
    ├── Screenshot 2025-07-30 080941.png
    ├── Screenshot 2025-07-30 081116.png
    ├── Screenshot 2025-07-30 081129.png
    └── Screenshot 2025-07-30 081142.png
|
└── static/
    ├── aeroplane9.jpg
    ├── airport1.jpg
    ├── airport2.jpg
    ├── airport3.jpg
    └── airport4.jpg
|
└── templates/
    ├── adminlogin.html
```

```
|   |-- airline_admins.html  
|   |-- base.html  
|   |-- error.html  
|   |-- index.html  
|   |-- test.html  
|   |-- ticket_index.html  
|   |-- userlogin.html  
|   |-- admin/  
|       |-- add_airport.html  
|       |-- add_fare.html  
|       |-- admin_can_ticket.html  
|       |-- admin_can_ticket1.html  
|       |-- admin_can_ticket2.html  
|       |-- admin_can_ticket_su.html  
|       |-- admin_delete_feedback.html  
|       |-- admin_delete_feedback_su.html  
|       |-- admin_instructions.html  
|       |-- admin_news_events.html  
|       |-- admin_view_feedback_su.html  
|       |-- airline_airports_su.html  
|       |-- airline_fund_su.html  
|       |-- airport_success.html  
|       |-- change_fare.html  
|       |-- change_fare_su.html  
|       |-- fare_success.html  
|       |-- new_flight.html  
|       |-- pnr_enq_admin.html  
|       |-- pnr_enq_admin_su.html
```

```
| |   └─ seat_avl.html  
| |   └─ seat_avl_su.html  
| |   └─ success.html  
| |   └─ ticket_admin.html  
| |   └─ ticket_admin1.html  
| |   └─ ticket_admin2.html  
| |   └─ ticket_admin3.html  
| |   └─ ticket_admin_su.html  
| |   └─ ticket_download_admin.html  
| |   └─ ticket_download_admin_su.html  
| |   └─ user_booking_history.html  
| |   └─ user_booking_history_su.html  
| |   └─ welcome_admin.html  
| └─ guest/  
|   └─ feedback_index.html  
|   └─ feedback_index_su.html  
|   └─ instructions.html  
|   └─ newsevents_index.html  
|   └─ plane_schedule.html  
|   └─ plane_schedule_su.html  
|   └─ pnr_index.html  
|   └─ pnr_index_su.html  
|   └─ register_success.html  
|   └─ ticket_index.html  
|   └─ ticket_index_su.html  
|   └─ user_register.html  
| └─ partials/  
|   └─ seat_availability.html
```

```
|   |-- user/  
|   |   |-- payment_gateway_su.html  
|   |   |-- qr_payment_su.html  
|   |   |-- ticket_user.html  
|   |   |-- ticket_user1.html  
|   |   |-- ticket_user2.html  
|   |   |-- ticket_user3.html  
|   |   |-- ticket_user4.html  
|   |   |-- ticket_user_su.html  
|   |   |-- user_can_ticket.html  
|   |   |-- user_can_ticket1.html  
|   |   |-- user_can_ticket2.html  
|   |   |-- user_can_ticket_su.html  
|   |   |-- user_feedback.html  
|   |   |-- user_feedback_su.html  
|   |   |-- user_journey_history1_su.html  
|   |   |-- user_journey_history_can1_su.html  
|   |   |-- user_journey_history_can_su.html  
|   |   |-- user_journey_history_cnf1_su.html  
|   |   |-- user_journey_history_cnf_su.html  
|   |   |-- user_journey_history_su.html  
|   |   |-- user_update_mbl_num.html  
|   |   |-- user_update_mbl_num_su.html  
|   |   |-- user_update_password.html  
|   |   |-- user_update_password_su.html  
|   |   |-- welcome_user.html  
|  
|-- user/
```

```
|   |   └── logout.py  
|   |   └── payment_gateway.py  
|   |   └── payment_gateway_ticket_cancellation.py  
|   |   └── qr_payment.py  
|   |   └── routes.py  
|   |   └── ticket_user.py  
|   |   └── ticket_userdb.py  
|   |   └── user_can_ticket.py  
|   |   └── user_can_ticket1.py  
|   |   └── user_can_ticket2.py  
|   |   └── user_feedback.py  
|   |   └── user_journey_history.py  
|   |   └── user_journey_history1.py  
|   |   └── user_journey_history_can.py  
|   |   └── user_journey_history_can1.py  
|   |   └── user_journey_history_cnf.py  
|   |   └── user_journey_history_cnf1.py  
|   |   └── user_login.py  
|   |   └── user_routes.py  
|   |   └── user_update_mbl_num.py  
|   |   └── user_update_password.py  
|   |   └── utils.py  
|   └── __init__.py  
|  
└── __pycache__/  
    |   └── airline.cpython-312.pyc  
    |   └── airports.cpython-312.pyc  
    |   └── flight_name.cpython-312.pyc
```

```
|   |   |-- flight_number.cpython-312.pyc  
|   |   |-- usernumber.cpython-312.pyc  
|   |   └── user_numbers.cpython-312.pyc  
|  
|  
|   ├── airline.py  
|   ├── airports.py  
|   ├── Application_Issues_bugs/  
|   |   ├── filelist.txt  
|   |   ├── flight_number.py  
|   |   ├── models.py  
|   |   ├── Project Descriptions.txt  
|   |   ├── run.py  
|   |   ├── versions.txt  
|   |   ├── __init__.py  
|  
|  
|   ├── .idea/  
|   |   ├── .gitignore  
|   |   ├── .name  
|   |   ├── Airline.iml  
|   |   ├── misc.xml  
|   |   ├── modules.xml  
|   |   ├── workspace.xml  
|   |   └── inspectionProfiles/  
|   |       └── profiles_settings.xml  
|  
|  
└── .vscode/  
    └── launch.json
```

THE SKA FLIGHT BOOKING SYSTEM VERSIONS

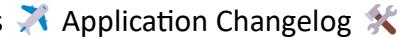


The SKA Flight Booking System has evolved through multiple versions, each improving features, performance, and user experience. This progression reflects ongoing enhancements in technology, security, and functionality to meet growing traveler and airline needs effectively.

THE SKA AIRLINES VERSIONS AND APPLICATION DEVELOPMENTS



SKA Airlines



The latest version is always the newest ✨ ; airline0 is old 📦 , and airline1 is newer than airline0 NEW .

For reference, the last version has all the most recent updates ➡ .

airline3: Up to the index page, changes are applied there 📄 .

airline4: Up to the index page, with updates to ticket_index for guest users 🧑‍🤝‍🧑 🎭 .

The file routes.py manages HTML routes 📁 , and common .py files are used throughout the website 🖥 .

Airline v4



Data now retrieves from DB tables in the right places 🗃 , such as routes_html.py inside the needed module, Progressed up to the airport_fare section 🛒 .

Version 7



Added plane quota feature ✈️ when adding a new plane; tracking capacity is much easier now! 😊

Version 8



Implemented new user registration with error flashes 🚫 when users try to register duplicates or refresh the page.

Checked pages for flash messages: Whenever you add things like airports or fares, you get an alert ⚠️ for duplicates, If the endpoint is user_register_success.html and the page is reloaded, you're redirected 🔗 to the homepage with an error, preventing duplicate DB entries 🙅‍♂️ 🗃 .

Version 9



All guest-related index functions completed, with tests 🎯 , ticket index, and user feedback included ❤️ .

If flights for a chosen origin-destination pair don't exist, there's an alert popup 🚨 .

Fixed journey date logic 📅 : now the return date can't be before the journey date 🕒 .

User-side reservation is paused 🚧 , while admin-side implementation is underway 🛠 .

Version 10

Shared data for HTML pages is now passed centrally through Python routes  , no more repetitive transfer.

Fares automatically update  , and all passenger names are shown in uppercase .

Version 11

Admin-side booking features auto-assign seat numbers based on class selection  by Python code—all logic, zero SQL!

All tickets and tables now use a responsive design .

Added user number at reservation time; registered users can re-download their ticket from the portal .

Version 12

Refined application responsiveness: focus is now on downloading tickets instead of printing   .

UI and fare logic now support roundtrips: base fare is doubled (base_fare*2)  , and dynamic updates are clearly visible!

Fixed issues with previous double-calculation logic; updates now show live .

Version 13

Admin entering a username now reveals the user number instantly .

Developed almost all admin features, including a robust PNR enquiry/audit system  for all bookings.

Admin and user booking histories are linked  ; also added textbox for country code when adding new airports .

Version 14

If the journey date is reached, journey status updates to “completed” automatically .

When booking is “In Progress,” the status is set to “IP” instantly .

Cancelled tickets are clearly flagged  . Event handlers with SQL keep everything up to date.

Plane schedules are available to all users  , and entering a plane number instantly reveals the plane name .

Version 15

Built PNR index module; user index page is now mobile-friendly .

Plane schedule and PNR index pages are shared between main user and index pages .

When downloading tickets, each user only sees their own—privacy protected! .

Version 16 🏛️

Fully developed the Bank Gateway 💳 integrated with User Ticket Booking 🚧 with proper logic and data flow.

Implemented up to user ticket download 📁.

Version 17 ⚠️

Added caution alerts 🚨 for users and admin when entering the user name during booking.

Developed User Journey History tracking 📋: routes from index -> user_journey_history.py -> user -> user_journey_history_su.html -> user_journey_history1.py -> user_ticket_download_su.html

Used session management to ensure data is accessed only for the particular user 🔑.

Version 18 ✗ 🎟️

Developed fully user cancellable tickets with Bank Gateway integration 💳 🏛️.

Reduced separate views for user to download CNF (confirmed) or CAN (canceled) tickets with all journey statuses.

Removed the old ticket download module 🔥 (no need to enter user PNR again).

Users can select a group of CNF, CAN, or both from the list for easy download 📁.

Version 19 🤖 📱

Developed User Feedback module 📝 and enhanced user mobile update 📱.

Version 20 🔑 💳

Developed User Password Update Module 🔒.

Improved some code usability and maintainability 🛠️.

Version 21 ⚠️ 🚩

Developed Admin Cancellation Ticket Module 🚪 but pending payment mode handling.

Problem: Admin booked tickets without bank account details cause issues on cancellation (empty account info).

Planned: Added module to require account number at admin booking or cancellation time (mandatory if digital payments involved) 💳.

Version 22 💰

Completed Admin side cancellation with payment types: Cash and Digital Payment 💰 💳.

Pending: Dynamic linking of account user number and name.

Version 23 📈💻

Developed full Admin cancel ticket module with automatic fetching of user account number and name in Python code 🤖.

Added JavaScript logic for both user and admin sides to display ticket details dynamically:

For CAN tickets ➔ show cancellation fare info 🔴

For CNF tickets ➔ show confirmed details only ✅

Reduced extra code for cancellation ticket handling 🎉.

Version 24 🗓💻

Developed date handling completely in Python code (not HTML forms) 🗓💻.

Reduced ticket download modules by unifying CNF and CAN ticket handling using JavaScript visibility toggles (hide empty cancellation details) 🧙👁.

Enhanced:

Admin side feedback control with deletion on selection 🗑

Maintained accurate Airline Fund Details 💰 for SKA Airlines.

Improved code layout and structure for better maintenance ✏️.

Version 25 🪑

Focused on seat availability based on user/admin seat selection 🚩💻.

Created seats_avl.py in admin folder, shared with admin, user, and guest.

Used JSON + MySQL join queries for realistic seat booking and layout visualization 🎨.

Version 26 🔍

Added submodule to check/modify flight search details on the same page 😊💻😊💻 for admin and guest users.

Enables quick rechecking with different plane classes, dates, and fares without page reload 🔄.

Version 27 12 34

Developed seat number auto-allocation based on flight_number, flight_class, with seat resets upon reaching max seats 🔁 seats reset.

Version 28 🔎🪑

Improved seat allocation trigger considering flight_number, flight_class, and journey date (jd).

Example:

Flight: AA12AA, Class: First, JD: 15/Sep/2024 → Seat: 1A

Flight: AA12AA, Class: First, JD: 16/Sep/2024 → Seat: 1A

Flight: AA12AA, Class: First, JD: 15/Sep/2024 (next seat) → Seat: 1B

Allocation dynamically resets per flight, class, and journey date.

Attempted integration: linked SKA Airlines to SKA Bank at admin ticket booking time only.

User-side ticket booking and cancellation fully linked with bank gateway .

Admin side ticket cancellation done , but booking-side bank account detail input is optional.

Fund increments to SKA Airlines bank account (account 106) handled if provided.

Version 29  

Backed up and inserted all transactions into bank-side database with full control and auditing .

Issue noted: Cancelling single passenger tickets works, but multiple passenger reservation ticket cancellations fail .

Version 30   (Most Important Version!)

Solved all previous issues; implemented correct seat allocation trigger for cancelled seats → seats freed up as available based on flight number, journey date, and flight class  .

Fixed issue where only single tickets could be cancelled, now multiple ticket cancellations work smoothly .

Bug fix: replaced cursor.fetchone() with cursor.fetchall() for multiple records handling  .

Added "Number of Passengers" display in public PNR status   .

Fixed user journey history to accurately show confirmed, canceled, and all statuses .

Removed problematic submodule showing user numbers on admin side during booking — avoiding counter ticket confusion .

Implemented counter ticket cancellation logic: tickets booked by admin must be cancelled only on admin side as counter tickets .

Added "All rights reserved" notices on specified pages ©.

PHASE 1: Previously Completed Modules (Theoretical Summary)

1. Multi-Step Ticket Booking System (Admin & User Side)

Goal: Seamlessly streamline flight ticket booking across multiple pages for a smooth user experience.

`ticket_admin1.html` : Captures initial booking inputs like flight number, origin , destination , and dates .

`ticket_admin2.html` : Selects travel class (Economy, Business), quota type  (e.g., Senior, Student), trip type (One-way/Round-trip ) , and number of passengers .

`ticket_admin3.html`  : Collects passenger details — name, age , gender  , and more.

`ticket_admin_final.html`  : Displays a comprehensive booking summary for final confirmation .

Note: Sessions  seamlessly carry data across pages, ensuring no details are lost during the booking flow!

2. Fare Calculation System

Goal: Dynamically calculate ticket fares based on smart business logic.

Base Fare: Standard flight fare 

Class Fare: Additional charge based on travel class  (e.g., Economy, Business).

Quota Discounts: Special discounts  for categories like seniors  , students .

Trip Discounts: Extra savings for round trips .

Real-time fare updates powered by JavaScript  keep passengers informed as they add travelers or change selections — no page reloads needed!

3. Seat Allocation Logic

Goal: Automate seat assignment for every booking to maximize efficiency.

Seats stored in `airline_sitting` table  , e.g., First Class seats from 1A to 3D.

Seats are assigned sequentially  , looping or managing overflow smoothly when full.

Candidate for implementation via SQL triggers  or Python logic  — both approaches explored depending on scalability & flexibility needs.

4. Ticket Cancellation Logic ✅ ❌ (User/Admin)

Goal: Enable smooth ticket cancellation, seat freeing, and refund processing.

Cancellation forms available for both admin and users 🧑‍💼 🧑. Upon cancellation: Updates the reservation's status field ✅ (e.g., canceled). Calculates and processes refund amount refund_Rs 💰. Frees or flags the seat in the airline_sitting table for reuse 🔄.

THE PHASE 2

Phase 1 Recap — Locked & Completed

These are already implemented, tested, and finalized:

✓ Feature	Details
Multi-Step Ticket Booking	Admin + User Booking Flow
Dynamic Fare Calculation (JS)	Class, Quota, Trip Mode based
Round Trip Fare Logic	Fare doubling + Return Date check
Seat Allocation Trigger	CNF/Seat assignment via Trigger
Seat Reuse Logic	Based on Flight No + JD/RD
Ticket Cancellation + Refund	Refund logic based on status/date
PDF Ticket + Cancel PDF	Using reportlab or fpdf
Admin Dashboard (Text)	CRUD, Search, Manage
Passenger Manifest	Based on PNR & Flight filter
Payment Simulation (Manual)	Form input only

PHASE 2 DEVELOPMENT PLAN

Unleashing dynamic, modern features for SKA Airlines! 

1. QR Code Integration in Ticket PDFs

Purpose: Fast airport check-in & digital ticket verification—COMPLETED 

pip install qrcode[pil] # QR Code generation

Libraries Used: qrcode, base64, reportlab/fpdf

QR Code Data Example:

json

{

 "PNR": "12345",

 "Passenger": "John Doe",

 "Flight No": "AI-202",

 "Seat": "2A",

 "Date": "2025-07-21"

}

Workflow:

Generate QR Code → Base64 encode → Embed in ticket PDF

Optionally preview QR in HTML before download 

2. Email Notification System

Purpose: Instantly update users via email on bookings and cancellations  

When to Send:

On Booking  (attach PDF ticket)

On Cancellation  (with refund details or summary)

<https://myaccount.google.com/apppasswords> to Generate the app password to use in the email system

Libraries & Install Commands:

text

```
pip install Flask flask-mail reportlab
```

Email Package: Flask-Mail (SMTP-based)

Session Management:

text

```
pip install Flask-Session
```

python

```
from flask_session import Session
```

```
app.config['SESSION_TYPE'] = 'filesystem' # Or use 'redis', 'sqlalchemy'
```

```
Session(app)
```

To Do:

Configure mail server and authentication 🔑

Trigger email on ticket booking/cancellation events 📩

3. 💳 QR Code Payment Gateway (Simulated)

Purpose: Simulate secure payments with QR before final booking 💰

Sample QR Payment Data:

json

{

 "Amount": 5600,

 "Reference": "PNR-12345",

 "Payee": "SKA Airlines",

 "Timestamp": "2025-07-08 11:23:12"

}

Steps:

Show payment QR on page

Simulate “Payment Done” → Confirm booking

4. 📊 Graphical Admin Dashboard

Purpose: Bring insights to life with eye-catching visuals!

Key Charts:

Bookings per Day 

Revenue per Flight/Class 

Cancellation vs Confirmed Trends 

Libraries:

Frontend: Chart.js, Plotly.js

Backend: Flask serves JSON endpoints

To Do:

Dashboard HTML

AJAX endpoints for live data

Note: Reservation funds visualization already implemented 

5. ✈️ Advanced Seat Allocation by Flight Type

Purpose: Automatically manage seat allocation by aircraft type 

Features:

Flight types (Boeing, Airbus) + seat range config for FC, BC, PECO, ECO

Auto-assign seats according to chosen flight type 

Implementation:

Add flight_type field in flights table

On selecting flight, auto-populate seat/class limits (JS or backend)

To Do:

Module: flight_type_seats.py

Embed logic in JS/frontend or backend

6. 🛠 Common DB Configuration File

Purpose: Centralized & secure database connection 🔒

File: db_config.py

python

```
import mysql.connector
```

```
def get_connection():
```

```
    return mysql.connector.connect(
```

```
        host='localhost',
```

```
        user='root',
```

```
        password='tiger',
```

```
        database='airline'
```

```
)
```

Usage:

python

```
from db_config import get_connection
```

Status: DONE ✅

7. 💼 Dynamic Fare Calculation (From DB)

Purpose: No more hardcoded fares—fetch dynamically from DB 📁

Current: Static fare in HTML—OUTDATED ❌

New: Calculate on backend from class, quota, base fare, origin, destination, distance

To Do:

Revise DB schema if needed

Implement logic to fetch accurate fare on every booking

Status: Successfully implemented! 🎉

8. Admin Fare Update & Visualization

Purpose: Equip admin with powerful fare editing & analysis tools! 

Features:

Form-based UI: edit fares for class/km/origin-destination

Optional: auto-calculate fare increases by percentage

Action Items:

Fetch/update from fare_config table

Build responsive admin HTML page

9. Dynamic IP Address / Domain Binding

Purpose: Make SKA Airlines accessible by domain name instead of raw IP 

Outcome: Users can reach the app at <https://ska-airlines.com> vs. <http://xxx.xxx.xxx.xxx>

Status: DONE 

10. Enhanced Time Logic (Optional Future Step)

Purpose: Add robust Departure/Arrival Time management in booking system

What's Next?

Integrate time pickers in booking UI

Use backend logic to ensure valid, timezone-aware times

Installations Required

```
pip install qrcode[pil]      # QR Code generation
```

```
pip install Flask flask-mail  # Email sending
```

```
pip install Flask-Session    # Session management
```

```
pip install reportlab        # PDF generation
```

```
pip install mysql-connector-python
```

```
pip install mysql-connector-python # MySQL database connector
```

VERSION 31

Implemented fully importable QR code generation on tickets  

Developed seamless ticket layouts integrating dynamic QR codes for fast scanning and verification.

Made the code modular and reusable wherever needed.  

VERSION 32

Centralized Database Access Created  

Developed a unified DB connection module for consistent and easy import across all Python programs.

Simplified database handling and improved maintainability.  

VERSION 33

Introduced Advanced Payment via QR Code on Payment Gateway  

Integrated complex payment workflow involving three bank-side JSP programs:

useqr.jsp, qr_codeaccept.jsp, authorize_payment.jsp

These communicate with our Flask backend via IP and port.  

Created new transaction table under airlines DB to capture txn_id and validate payment status dynamically.



Pending: Full ACID-compliant payment method processing under payment modules.  

VERSION 34

Dynamic Fare Calculation from DB Implemented  

Replaced static HTML fares with dynamic backend logic fetching from airline_class_quota_fares table.

Fare calculation now smartly considers:

Origin & Destination 

Travel Class & Quota 

Distance 

Flight base fare adjusted by flight priority for speciality flights 

Timestamp auto-update added for auditing in airlines_users:

sql

ALTER TABLE airlines_users

```
MODIFY COLUMN DOR TIMESTAMP NULL DEFAULT CURRENT_TIMESTAMP ON UPDATE  
CURRENT_TIMESTAMP;
```

VERSION 35

User-Side Email System Launched for Ticket Booking & Cancellation  

Sent professional, grammatically polished emails for both confirmed (CNF) and cancelled (CAN) bookings.

Corrected ticket cancellation info wording on printed tickets for clarity and professionalism.  

VERSION 36

Enhanced Email Logic to Avoid Duplicate Sends on Refresh  

Prevented repeated emails on accidental browser refresh during booking or cancellation.

Fixed unknown error page on user ticket cancellation related to refunds.

Positioned email dispatch before ticket_su and ticket_can_su methods in ticket_userdb.py and user_can_ticket2.py.

Admin Side Improvements:

Added extra email field in admin booking for capturing user emails. 

Fetches & uses user email during admin cancellations for realistic communication. 

Overall: Nearly all application issues resolved; future updates will focus on minor fixes and optimizations.



VERSION 37

Fixed User Ticket Journey History Display on Cancellations  

Ensured cancelled tickets properly reflect in user journey history with clear status messages. 

Skipping detailed notes on Version 37 to proceed to next significant update.

VERSION 38

Highly Dynamic Seat Allocation Based on Flight Number, Class, Journey Date & Flight Type  

Introduced flight types (e.g., Boeing, Airbus) selectable by admin during flight creation, saved in flights table.  

Advanced seat allocation logic extended to respect flight type-specific seat layouts.

Frontend restricts seat selection flow based on chosen flight type for accurate bookings. 

Modified airline_sitting table: added flight_type column for seat trigger logic consistency. 

Print & Display:

Tickets now show Flight Type info along with flight charges for transparency.  

Seat Availability Logic Improved:

seats_avl.py updated for robust seat availability checks — correctly handling switched origins and destinations.  

Example:

Flight AA12AA, Class: First, Total Seats: 12

Origin: Hyderabad, Destination: New York, Date: 01/Aug/2025

Booking status now accurately reflects seat availability—even if origin/destination are swapped.

Technical Enhancements:

Refined MySQL query logic in seat availability module for precision and error-free operation.  

Entire codebase polished and structured for maximum robustness and dynamic behavior.  

This version represents a major milestone with zero errors, seamless integrations, and enhanced user/admin experience!  

----- End of Changelog -----

Feature Developments

Develop a comprehensive module to display all admin operations, including charges and flight types (flight type display is optional).   

Fetch flight types dynamically from the database tables during the admin's flight addition process for seamless, flexible handling.  

Manage and configure flight layouts using data from the seats_avl.py module linked with the flight layout database table.  

Implement and maintain accurate flight timings for departure and arrival schedules.  

(Optional) Integrate the user-side payment gateway with payment_mode=ACID support to allow robust, transactional payment processing.  

Issues Encountered and Resolutions

During the development of the SKA Flight Booking System, several challenges arose, including:

- Data synchronization complexities between flight schedules and real-time seat availability, which were resolved by implementing efficient database transaction controls and caching mechanisms.  
- Payment gateway integration hurdles, especially ensuring secure, ACID-compliant transactions, overcome by adopting robust API protocols and thorough testing.  
- User authentication security risks, mitigated by strengthening password policies, session management, and encryption techniques.  
- Handling scalability for growing user base and flight data, addressed by modular system design and optimizing query performance.  

These solutions helped enhance the system's reliability, security, and performance, laying a strong foundation for future upgrades and maintenance.

ISSUES & BUGS DURING SKA AIRLINES APPLICATION DEVELOPMENT

Issue 1: Journey Date vs Return Date

Problem: Return date must be after the journey start date.

Status: Resolved  with JavaScript validation ensuring the return date is always later than the journey date.

Issue 2: Date Format Consistency

Problem: Date formats should appear as 12/Jul/2024 for consistency and clarity.

Status: Fixed  by enforcing date input and display formatting via JavaScript.

Issue 3: Round Trip Discount

Problem: When trip mode is Round Trip, a discount of 1% should apply on the total trip cost.

Status: Resolved  using JavaScript logic to automatically calculate and apply the discount.

Issue 4: Automatic Airport Name Retrieval

Problem: Airport names were hardcoded and not dynamically fetched.

Status: Solved  by fetching airport data from the database using Python (airport.py globally and respective routes.py modules for guest/admin).

Issue 5: Realistic Ticket Layout & Seat Allocation

Problem: Seat assignment during booking was not automatic or realistic.

Status: Fixed  with backend Python code implementing automatic seat allocation at booking time.

Issue 6: Reservation Data Transfer via Sessions

Problem: Booking details were not preserved properly across multi-step forms.

Status: Resolved  by managing data flow through Flask sessions, maintaining state across booking steps.

Issue 7: Dynamic Passenger Selection

Problem: Passengers couldn't book tickets for multiple people simultaneously.

Status: Fixed  by introducing dynamic JavaScript forms allowing multiple passenger entries in one booking.

Issue 8: Quota Reservation Discounts

Problem: Defence students discount (Rs 1000) not applied correctly, especially for round trips.

Status: Resolved  — Defence quota discount now applies Rs 1000 for one-way and Rs 2000 for round trips.

Issue 9: Automatic Fare & Class Updates

Problem: Fare details (base fare, quota fare, class fare) did not auto-update when adding passengers.

Status: Fixed  with JavaScript dynamically recalculating and updating all fare components instantly.

Issue 10: MySQL Trigger on airline_reservation Table

Problem: Needed DB-level triggers to synchronize seat assignments with reservations.

Status: Resolved  through a MySQL trigger, updating the airline_sitting table and displaying all PNRs with passengers accordingly.

Issue 11: Single PNR for Multiple Passengers

Problem: Passengers booking together did not share the same PNR.

Status: Fixed  — multiple passengers now share one PNR with distinct seats during a single booking.

Issue 12: Realistic Plane Seat Layouts

Problem: Seat allocation was not class-based or reflecting realistic flight seating.

Status: Resolved  by Python code dynamically managing seat layout based on flight class selection.

Issue 13: Ticket Download Instead of Printing

Problem: Printing tickets was inconvenient and non-digital.

Status: Solved  via an HTML template allowing users to download tickets to their devices instead of printing.

Issue 14: Correct Round Trip Charge Calculation

Problem: Charges were not doubling for round trips; quota discounts also miscalculated.

Status: Fixed  through JavaScript validation ensuring base fare doubles for round trip selections and discounts adjust accordingly.

Issue 15: Auto-fetch User Name Using User Number

Problem: Admin had to manually look up user names after entering user numbers.

Status: Resolved  — When admin enters user number, the username is automatically fetched from the database dynamically (airline_users.py with proper routes to HTML). Also applied to admin's user booking history views.

Issue 16: User Number vs Name in Admin Audit

Problem: Need dynamic display of user name when entering user number during admin audit or booking history review.

Status: Resolved  — Username now dynamically displays in the text box in admin ticket booking and user booking history audit.

Issue 17: Mapping User Booking History with Admin PNR Enquiry

Problem: Need to reduce redundant code by mapping user booking history to admin PNR enquiry based on user number input.

Status: Done  — Module developed to hold all user ticket bookings linked with PNR, accessible via admin enquiry for quick audit.

Issue 18: Auto-Clear Journey & Return Dates via SQL Trigger or Query

Problem: Need to automatically clear journey and return dates after completion.

Status: Business logic changed — Instead of deleting dates, jstatus is updated to "completed" once journey and return dates pass. 

Issue 19: Auto-Use Bank Account Details on Ticket Cancellation

Problem: Avoid asking user for bank account details again upon cancellation; refund should go automatically to the account used at booking.

Status: Implemented  — Added account number column in airline_reservation table and automated refund process to same account at cancellation.

Issue 20: Fare Auto-Population in Guest/Index Ticket Booking Page

Problem: Fare was not auto-fetched with base fare in index ticket booking.

Status: Resolved  — Fare now auto-populates on the ticket booking page for guests and users.

Issue 21: Combined Plane Schedule for Guest, User, and Admin

Problem: Separate plane schedule modules caused code duplication.

Status: Fixed  — Developed unified module combining guest, user, and admin plane schedules for efficient code maintenance.

Issue 22: Ticket Cancellation Module for Admin & User with Refund 💰 ✗

Problem: Need cancellation modules for both admin and user with automatic refund crediting.

Status: Implemented ✅ — Both user and admin ticket cancellation with refund processing in place.

Issue 23: Dynamic Flight Name Display on Plane Schedule by Flight Number ✈️ 📋

Problem: Flight name should dynamically display when flight number is entered in scheduling.

Status: Done ✅ — Flight names now fetch and display dynamically on input of flight number.

Issue 24: Form Close Button Should Not Trigger Empty Popups ✗ ✎

Problem: Closing forms with buttons caused unwanted empty popup forms.

Status: Fixed ✅ — Close buttons use correct type="button" and proper form attributes to avoid empty popups, plus UI fixes.

Issue 25: Global PNR Status Common for Index & User Pages 🚧 🌐

Problem: Need common PNR status view usable by guest, user, and admin for downloading tickets and viewing bookings.

Status: Developed ✅ — Shared module allows common access yet restricts downloads to respective users only.

Issue 26: Add “New User? Please Register” Link on User Login Page 🔑 🌐

Problem: Login page lacked direct link to registration for new users.

Status: Fixed ✅ — Hyperlink/button added redirecting new users directly to registration page.

Issue 27: Capitalize Passenger Names Automatically 🎉 ABC

Problem: Passenger names were entered inconsistently with regards to case.

Status: Resolved ✅ — Python code converting passenger names to uppercase before saving.

Issue 28: Passenger Details Alert in Booking 🚨 📱

Problem: Users/admin need to be cautioned to enter passenger details exactly as per government ID.

Status: Fixed — Alert message implemented on booking page. Plans for master list integration for added data validation.

Issue 29: Confirmation Popup on Ticket Cancellation

Problem: Users should confirm cancellation intent via alert popup.

Status: Done — Confirmation alert implemented before processing cancellation.

Issue 30: Combined User Journey History & Ticket Download Module

Problem: Required module to show user journey list with direct ticket download without entering PNR again.

Status: Developed — Users access complete journey with ticket download options seamlessly.

Issue 31: Separate Modules to Sort CNF, CAN & Complete Journey Tickets

Problem: Need modular separation for Confirmed (CNF), Cancelled (CAN), and full ticket journeys.

Status: Completed — Separate modules created with clear logic for respective ticket statuses.

Issue 32: User Sessions to Store Number, Name, Feedback, Mobile & Password Update

Problem: Data such as user number and name should be stored in session for easier retrieval and to enhance code maintainability.

Status: Implemented — User sessions now hold essential data, accessed via Python backend to maintain high data integrity.

Issue 33: Admin Side Ticket Cancellation Requires Extra User Account Handling

Problem: Admin ticket cancellation needs to capture and validate user account number properly.

Status: Resolved — Admin side cancellation module enhanced with user account number retrieval and validation.

Issue 34: Auto-Generate Fare Based on Distance (KM)

Problem: Fare calculation should dynamically reflect distance between airports (e.g., Rs 12 per KM).

Status: Implemented ✅ — SQL trigger created for automatic fare generation based on KM distance between origin and destination.

Issue 35: Seat Allocation Trigger with Cancelled Seats Fix 🚙 🔍

Problem: Trigger logic not correctly handling cancelled seats (seats not properly freed/reassigned).

Status: Fixed ✅ — Corrected trigger logic to handle seat availability accurately on cancellations.

Issue 36: Cancelling Confirmed Tickets Fails for Multiple Passengers (>2) ❌ 👤

Problem: Ticket cancellation fails when more than two passengers booked under same PNR.

Status: Resolved ✅ — Fixed by replacing fetchone() with fetchall() in seat handling logic.

Issue 37: Journey Status Should Be “In Progress” (IP) Until Ticket Cancelled 🔍 👍

Problem: Journey status not reflecting “In Progress” until ticket cancelation.

Status: Implemented ✅ — Python code updated to set journey status to “IP” during booking lifecycle.

Issue 38: Auto-Fetch Bank Account Number for Refunds 💳 ➡️

Problem: Bank account used in booking should auto-fill in cancellation refund process.

Status: Fixed ✅ — Implemented code to retrieve and use user’s bank account during refund.

Issue 39: Match Transaction Scenarios With Banking Logic 💳 💹

Problem: DB transaction records didn’t correctly reflect debit/credit flow for bookings and cancellations.

Status: Fixed ✅ — Updated transaction entries so that booking debits user account & credits airline account, cancellation reverses credit/debit accordingly.

Issue 40: Admin-Booked Ticket Cancellation Logic 💳 🧑‍💼 ✖️

Problem: Tickets booked by admin must only be cancellable by admin (counter ticket cancellation), without involving user number fetching.

Note: Admin retains power to cancel user-booked tickets.

Status: Resolved  — Removed user number requirement for admin-booked ticket cancellations to streamline process.

Issue 41: Professional “All Rights Reserved” Footer Addition ©®

Requirement: Add a consistent footer on every page displaying:

SKA AIRLINES ALL RIGHTS RESERVED © ®

Status: Implemented  — Footer with copyright and registered mark added site-wide.

Issue 42: Improve Code Reusability  

Goal: Create common reusable packages for HTML, including JS scripts and CSS, to avoid duplication and ease maintenance.

Status: Completed  — Modular includes implemented for reusable frontend assets.

Issue 43: Seat Allocation Trigger Fix for Multiple Cancelled Seats  

Problem: Trigger logic failed to reassign cancelled seats when more than one seat is available for the same flight/class/journey.

Example: For First Class with 12 seats, 2 cancelled seats were not reassigned correctly.

Status: Fixed  — Trigger logic corrected to allocate cancelled seats properly and in order.

Issue 44: Phase 2 Development Module Summary  

SKA Airlines is building dynamic & modern features:

 QR Code on Ticket PDF: Fast airport check-in & digital verification (Generation and Base64 encoding done)

 Email System / WhatsApp Notifications: Booking and cancellation updates

 QR Code Payment Gateway (Simulated): Realistic payment simulation via QR (done)

 Graphical Admin Dashboard (Optional): Visual insights for bookings, revenue, cancellations

💡 Advanced Seat Allocation by Flight Type: Flight types (Boeing, Airbus) with seat configs per class; auto seat range setup done

🛠️ Common DB Configuration File: Centralized DB connection (db_config.py)

⌚ Dynamic Fare Calculation from DB: Fare fetching and calculation done dynamically, avoiding static HTML fares

📊 Admin Fare Update & Visualization Page: Admin can update fares by class/quota/km with optional fare increase calculations

📶 Dynamic Domain/IP Configuration: Application accessible via domain instead of raw IP (done)

Issue 45: QR Code on Ticket Implementation 🚧

Requirement: Develop an importable Python module to generate QR codes containing ticket reservation details, embedded in ticket layout after booking.

Status: Completed ✅ — QR code generation module implemented and integrated in tickets successfully.

Issue 46: QR Code for User-Side Payment Gateway 💳

Requirement:

Develop a dedicated QR code generator module that encodes transaction details like fare and bank URL.

When the user scans the QR, it opens a bank authentication window for login and payment authorization.

Upon successful payment, the bank backend notifies the ticketing system, triggering ticket generation and payment confirmation.

Maintain a transaction ID (txn_id) tracked in the qr_payment_status table.

Pass user's bank account ID (acid) into the airline_reservation table for automated refunds on cancellations.

Flow:

ticket_user4.html (QR module) → uselqr.jsp (bank) → accept_qr_payment.jsp → authorised_payment.jsp
→ qr_payment_gateway.py → qr_payment_su.html → ticket_userdb.py → ticket_user_su.html

Status: Debugging completed and issue resolved .

Issue 47: Email-Based Ticket Confirmation & Cancellation Notifications

Requirement:

Implement an email system that automatically sends booking or cancellation confirmations to users with ticket details (flight number, passenger name, class, journey date, etc.).

Add an email_id column to the airline_users table to store user emails.

Create a dedicated email module linked to user-side booking and cancellation processes.

For admins, sending emails on ticket booking is optional but recommended.

Status: Implemented and fully operational .

Issue 48: Centralized Database Handling & Security

Requirement:

Create centralized DB configuration for MySQL and Oracle to avoid exposing database credentials across multiple files/pages.

Facilitate easy maintenance and improved security.

Status: Successfully implemented .

Issue 49: Including Flight-Specific Charges in Fare Calculations

Requirement:

Include individual airline flight charges dynamically during booking fare calculation.

Status: Completed and integrated successfully .

Issue 50: Dynamic Fare Calculation from Database Based on Class & Quota

Requirement:

Fetch fares dynamically from DB tables storing class fares and quota discounts (e.g., Defence discount).

Allows admins to update fares in the DB without changing application code, enhancing business flexibility.

Example: First class fare = 1500 ₹.

Status: Fully implemented and tested .

Issue 51: Reflecting Bank Account ID in QR Payment Gateway Flow

Requirement:

Add ac_number column in the qr_payment_status table to hold user bank account info.

After payment confirmation, insert the bank account ID into the corresponding record in the airline_reservation table for reconciliation and refund processing.

This solves cancellation/refund issues when payment mode is QR code.

Status: Logic corrected and issue resolved .

Issue 52: Email Delivery Error on Ticket Cancellation Confirmation 📧❌

Problem:

Cancellation confirmation emails were failing due to errors in passenger list formatting (specifically, incorrect access like `p['name']`).

The fix involved correctly fetching email and passenger details from the `airline_users` table for reliable email content.

Status: Bug fixed and emails are now delivered successfully ✅.

Issue 53: QR Code Missing in Ticket Cancellation Emails 🚩✉️

Problem: When a user cancels a confirmed ticket, the email sent does not include the QR code—only textual information is delivered.

Root Cause: QR generation was implemented only for confirmation emails (`email_cnf_can.py`), not for cancellations.

Resolution: Redesigned email module to include QR codes for both ticket confirmations and cancellations.

Status: Done ✅ — QR code now generates correctly in cancellation emails.

Issue 54: Duplicate Emails Sent on Browser Refresh 🌐🔄✉️

Problem: Refreshing the endpoint page causes the system to resend booking/cancellation emails again, causing duplicates.

Fix: Placed email-sending logic before success methods in backend Python code for user and admin booking/cancellation routes, preventing resends on page refresh.

Status: Resolved ✅.

Issue 55: Error Pages on Browser Refresh after Confirmation

Problem: Refreshing the confirmation pages after ticket generation causes error pages, particularly with cancellation endpoints for both user and admin sides.

Fix: Adjusted flow so that database confirmation data is properly passed to success pages, preventing errors on refresh.

Status: Fixed .

Issue 56: Add Email Column to airlines_reservation Table for Admin Use

Requirement: Store users' email addresses in the reservations table to allow admins to send email notifications during ticket bookings.

If user email is null, no email sent (neutral handling).

Status: Implemented successfully .

Issue 57: Fetch User Email ID during Admin Ticket Cancellations

Requirement: Retrieve stored email from airlines_reservation table to send cancellation notices when admin cancels tickets.

Status: Implemented and working .

Issue 58: Insert User Email into Reservation Table during User Booking

Requirement: Store email in email_user column during user-side bookings for use during admin-side cancellation notifications.

Benefits: Enables admins to notify users if admin cancels user-booked tickets, improving communication and trust.

Status: Completed .

Issue 59: Dynamic Advanced Seat Allocation by Flight Details type

Requirement: Implement dynamic seat allocation factoring in flight number, name, class, journey date, origin, destination, and flight type (e.g., Boeing seats allocation to Boeing flights).

Current Status:

Existing 3 scenarios had limitations; seats_avl.py restricts reservation seats at frontend.

Old trigger allocates seats based on flight type but needs enhancement to handle larger seat configurations (i.e., Boeing 747 FC with 14 seats, etc.).

Next Steps:

Upgrade trigger logic to handle larger seat layouts per aircraft type.

Add submodule in admin for selecting aircraft type while adding a flight, storing flight type in the flights table.

Store flight_type also in airlines_sitting table for accurate seat availability tracking.

Pass flight type info in tickets and emails (including QR codes) during reservation to ensure consistency.

Outcome:

A single, robust trigger plus frontend logic (seats_avl.py) enables seamless and accurate seat allocation while handling cancellations dynamically.

Status: Fully implemented and all related issues resolved .

Issue 60: Display Flight Type & Flight Charge on Tickets  

Requirement: Add Flight Type and Flight Charge details visibly on the ticket, QR code, and email confirmations.

Status: Fixed  — Flight Type and Flight Charge now clearly displayed on tickets and included within QR codes and emails.

Issue 61: Increase Seat Allocation Trigger for Largest Flight Layouts  

Requirement: Enhance the seat allocation database trigger to support the highest-capacity aircraft like Boeing 747, which have large seat layouts.

Status: Completed  — The trigger was successfully scaled to handle the largest layouts seamlessly. Impressive performance ensured! 

Issue 62: Add Exact Seat Layouts in seats_avl.py for Frontend Validation  

Requirement: Integrate precise seat layouts within the seats_avl.py module to validate seat availability and booking on the frontend, preventing overbooking or invalid selections.

Status: Resolved  — The program now validates seat layout accurately during booking.

Issue 63: Add Flight Type Column in airlines_reservation Table 

Requirement: Add a new column in the airlines_reservation DB table to store the flight type, enabling more accurate data retrieval especially during ticket cancellation workflows.

Status: Done  — Flight Type column added and integrated successfully.

Issue 64: Correct Display of Seat Availability with Origin-Destination Consideration 

Problem:

When origin and destination are swapped (e.g., Delhi ↔ New York on flight AA12AA), the seat availability was incorrectly shown as the same for both directions.

Requirement: Seat availability must reflect exact journey direction and other parameters like journey date, flight type, etc.

Fix: Updated seats_avl.py to consider origin and destination properly during seat availability checks, giving accurate display of available seats.

Status: Issue fixed  — Seat availability now reflects exact journey data, ensuring correctness and user trust.

Final Note:

The entire app's latest stable and corrected version is Version 38  — incorporating all these fixes and improvements.

Conclusion

The SKA Flight Ticket Booking System represents a significant step forward in providing a modern, efficient, and secure online platform for flight reservations. It addresses the critical needs of today's travelers by offering a seamless booking experience that is accessible anytime and anywhere, reducing the hassles of traditional ticketing methods. 

With features like secure user authentication, flexible payment methods including QR code and bank account payments, and comprehensive admin controls for flight, fare, and ticket management, the system ensures both user convenience and operational effectiveness.

 The integration of real-time seat availability and dynamic flight management ensures customers receive up-to-date information, empowering them to make informed travel decisions. 

Moreover, the system design emphasizes strong security measures, data integrity, and user privacy, which are essential in maintaining trust and reliability in online transactions. The modular architecture, powered by Python Flask and MySQL, facilitates scalability and easy maintenance, making the system future-ready. 

Looking ahead, planned feature enhancements such as dynamic flight type fetching, advanced seat layout configuration, and robust payment gateway integration with ACID compliance will elevate the platform's flexibility and transactional security. These advancements will not only improve administrative efficiency but also enhance the overall user experience, making flight booking more personalized and responsive to customer needs. 

In conclusion, the SKA Flight Ticket Booking System is well-positioned to transform how airlines and passengers interact in the digital age. By blending technology, usability, and security, it offers a comprehensive solution that supports the evolving dynamics of air travel, ensuring smoother journeys and greater satisfaction for all stakeholders involved.



Future Look of SKA Flight Ticket Booking System 🚀 ✨

Feature Developments & Enhancements 🧑‍💼 💼 💻

- Comprehensive Admin Operations Dashboard:
Develop a unified module that displays all admin functionalities seamlessly, including managing charges and optionally displaying flight types for better clarity and control.

- Dynamic Flight Types Integration:
Implement dynamic fetching of flight types directly from the database tables while adding new flights through the admin panel. This allows flexible management and easy updates of flight categories without code changes. ✈️ 🔍
- Advanced Flight Layout Management:
Leverage the existing seats_avl.py module connected with the flight layout database to enable admins to visualize, configure, and manage detailed seat layouts for each flight accurately. This improves seat allocation and passenger experience. 🚪 🗓️
- Accurate Flight Timing Implementation:
Ensure precise tracking and maintenance of flight departure and arrival times for all flights, enhancing the user booking experience and operational reliability. ⏳ ✈️
- Enhanced Payment Gateway Support (Optional):
Integrate the user-side payment gateway with payment_mode=ACID support to provide strong transactional guarantees, making payment processes more robust and secure. This supports reliable online payments across multiple modes. 💳 🔒

These future advancements will significantly improve the system's flexibility, usability, and security, keeping SKA Flight Ticket Booking System competitive and responsive to user needs.

Author's Note

This entire project, SKA Flight Ticket Booking System, has been solely designed, developed, and documented by Adepu Sai Kiran. All concepts, code, designs, and content reflect my personal effort and dedication to delivering a comprehensive and high-quality flight booking platform.

Contact Information

For any questions, feedback, or collaboration related to the SKA Flight Ticket Booking System, please feel free to reach out to me:

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Find This Project Repository from Here: [FLIGHT-TICKET-BOOKING-SYSTEM](https://github.com/SaiKiran-Adepu/FLIGHT-TICKET-BOOKING-SYSTEM)

Website: <https://saikiran-adepu.github.io/SKA-Re/>

I am happy to assist with any inquiries about the project or explore opportunities for further development and teamwork.

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THE END

SKA FLIGHT TICKET BOOKING SYSTEM