

JAVA PROJECT

Project Name:

Winglet Wanderlust: An Aviation Booking & Management System

Done By:

K.Spurthi

2nd Year - AI-DS

AIM:

To build a secure and user-friendly aviation booking system that allows passengers to book, cancel, and manage flights with ease. The system supports one-way and two-way journeys, offers personalized services like food and wheelchair assistance, applies loyalty discounts, and ensures strict user validation. With seat exchange and real-time billing, it delivers a smooth and reliable travel experience.

FEATURES:

Booking System

- **One-Way & Two-Way Booking Options** Supports both single-leg and round-trip reservations with independent seat selection.
- **Seat Class Selection** Choose from Economy, Premium Economy, First Class, and Business — each with distinct pricing.
- **Destination Mapping** Flights from Hyderabad to major cities like Mumbai, Delhi, Chennai, Bengaluru, and Kolkata.
- **Dynamic Pricing Engine** Calculates total fare based on seat class, destination, and optional services.

Discounts & Loyalty

- **Frequent Flyer Discount** 20% off for users with prior bookings — automatically applied.
- **Two-Way Journey Discount** Additional 10% off on combined fare for round trips.

Optional Services

- **Food Selection** Veg and Non-Veg menus with itemized pricing and real-time bill updates.
- **Wheelchair Assistance** ₹150 add-on for passengers requiring mobility support.

Seat Management

- **Seat Availability Viewer** Displays real-time seat status for any travel date.
- **Seat Exchange Feature** Allows users to change their booked seat with recalculated pricing and preserved services.

Cancellation System

- **Secure Cancellation** Only the original passenger can cancel their booking.
- **Refund Calculation** 20% cancellation fee, 80% refund issued.
- **Cancellation Bill** Detailed breakdown of refund and charges.

User History & Tracking

- **Action Logging** Tracks all user actions: bookings, cancellations, add-ons, seat changes.
- **Timestamped Records** Each entry includes ticket ID, seat number, class, destination, and total cost.

Safety & Validation

- **Strict User Authentication** Prevents unauthorized access or changes to bookings.
- **Input Validation** Ensures correct formats for dates, phone numbers, and seat numbers.

Folder Structure:

```
WingletWanderlust/
├── bin/          # Compiled .class files
│   ├── BillPrinter.class
│   ├── BookingService.class
│   ├── CancellationService.class
│   ├── MainMenu.class
│   └── Seat.class
└── src/          # Source code (.java files)
    ├── BillPrinter.java
    ├── BookingService.java
    ├── CancellationService.java
    ├── MainMenu.java
    └── Seat.java
```

OUTPUTS:

>Start the program,(booking seat)

```
PS E:\MLSA pro\FBS> javac -d bin src\*.java
>>
PS E:\MLSA pro\FBS> java -cp bin MainMenu
>>

===== Flight Booking System =====
1. Book Seat
2. Cancel Seat
3. Check Available Seats
4. Change Seat
5. My History
6. Exit
Enter your choice: 1

--- Book Seat ---
1. 1-Way
2. 2-Way
Enter choice: 1
Enter your details:
Name: spurthi
DOB (dd-MM-yyyy): 11
? Invalid DOB format!
DOB (dd-MM-yyyy): 11-05-2007
Phone Number (10 digits): 123456789
? Invalid phone number!
Phone Number (10 digits): 1234567890
Enter travel date (dd-MM-yyyy): 10-9-2025
? Invalid date! You can only book for future dates.
Enter travel date (dd-MM-yyyy): 11-10-2025
```

>We can not book seat with today's and before date.

```
Select Destination from Hyderabad:
1. Mumbai (Price: 500)
2. Delhi (Price: 700)
3. Chennai (Price: 400)
4. Bengaluru (Price: 450)
5. Kolkata (Price: 800)
Enter destination number: 1

? Seat Status for 11-10-2025:
Seat 1 -> Available (Class: Economy, Price: 500)
Seat 2 -> Available (Class: Economy, Price: 500)
Seat 3 -> Available (Class: Economy, Price: 500)
Seat 4 -> Available (Class: Premium Economy, Price: 1000)
Seat 5 -> Available (Class: Premium Economy, Price: 1000)
Seat 6 -> Available (Class: Premium Economy, Price: 1000)
Seat 7 -> Available (Class: First Class, Price: 1500)
Seat 8 -> Available (Class: First Class, Price: 1500)
Seat 9 -> Available (Class: Business, Price: 2000)
Seat 10 -> Available (Class: Business, Price: 2000)
Enter seat number to book: 1

--- Special Assistance Menu ---
1. Food
2. Wheelchair Service
3. Exit Assistance
Enter your choice: 1
Select Food Type:
1. Veg
2. Non-Veg
Choice: 1
```

>After every order,bill will be printed and ask if any requirements needed in particular section until we select to exit from that section.

```
Veg Menu:  
1. Mushroom Biryani - 200  
2. Ulavacharu Biryani - 150  
3. Veg Pulav - 100  
4. Paneer Tikka - 300  
5. Jackfruit Pulav - 250  
Select item: 1  
? Food added successfully: Mushroom Biryani  
  
----- BOOKING BILL -----  
Name : spurthi  
TicketID : T1001  
Date : 11-10-2025  
Source : Hyderabad  
Destination : Mumbai (Price: 500)  
Seat No : 1 (Economy)  
Seat Price : 500  
Food : Mushroom Biryani (200)  
-----  
Total : 1200  
-----  
  
--- Special Assistance Menu ---  
1. Food  
2. Wheelchair Service  
3. Exit Assistance  
Enter your choice: 2  
Wheelchair Service Price: 150  
? Wheelchair service added.
```

```
----- BOOKING BILL -----  
Name : spurthi  
TicketID : T1001  
Date : 11-10-2025  
Source : Hyderabad  
Destination : Mumbai (Price: 500)  
Seat No : 1 (Economy)  
Seat Price : 500  
Food : Mushroom Biryani (200)  
Wheelchair : 150  
-----  
Total : 1350  
-----  
  
--- Special Assistance Menu ---  
1. Food  
2. Wheelchair Service  
3. Exit Assistance  
Enter your choice: 3
```

>Here ,up on ordering 2 assistances,Total bill is printed.

```
Enter your choice: 3

? Seat booked successfully!

----- BOOKING BILL -----
Name      : spurthi
TicketID  : T1001
Date      : 11-10-2025
Source    : Hyderabad
Destination : Mumbai (Price: 500)
Seat No   : 1 (Economy)
Seat Price : 500
Food      : Mushroom Biryani (200)
Wheelchair : 150
-----
Total     : 1350
-----

===== Flight Booking System =====
1. Book Seat
2. Cancel Seat
3. Check Available Seats
4. Change Seat
5. My History
6. Exit
Enter your choice: 3
Enter date to check availability (dd-MM-yyyy): 11-10-2025
```

>Now,Checking wheather seat is bookied or not on
respected date only?Wow it happened!

```
? Seat Status for 11-10-2025:
Seat 1 -> Booked (TicketID: T1001, Class: Economy, Price: 500)
Seat 2 -> Available (Class: Economy, Price: 500)
Seat 3 -> Available (Class: Economy, Price: 500)
Seat 4 -> Available (Class: Premium Economy, Price: 1000)
Seat 5 -> Available (Class: Premium Economy, Price: 1000)
Seat 6 -> Available (Class: Premium Economy, Price: 1000)
Seat 7 -> Available (Class: First Class, Price: 1500)
Seat 8 -> Available (Class: First Class, Price: 1500)
Seat 9 -> Available (Class: Business, Price: 2000)
Seat 10 -> Available (Class: Business, Price: 2000)

===== Flight Booking System =====
1. Book Seat
2. Cancel Seat
3. Check Available Seats
4. Change Seat
5. My History
6. Exit
Enter your choice: 3
Enter date to check availability (dd-MM-yyyy): 12-10-2025

? Seat Status for 12-10-2025:
Seat 1 -> Available (Class: Economy, Price: 500)
Seat 2 -> Available (Class: Economy, Price: 500)
Seat 3 -> Available (Class: Economy, Price: 500)
Seat 4 -> Available (Class: Premium Economy, Price: 1000)
Seat 5 -> Available (Class: Premium Economy, Price: 1000)
Seat 6 -> Available (Class: Premium Economy, Price: 1000)
Seat 7 -> Available (Class: First Class, Price: 1500)
Seat 8 -> Available (Class: First Class, Price: 1500)
Seat 9 -> Available (Class: Business, Price: 2000)
Seat 10 -> Available (Class: Business, Price: 2000)
```

>Now,Let's see 2-way booking features!

```
===== Flight Booking System =====
1. Book Seat
2. Cancel Seat
3. Check Available Seats
4. Change Seat
5. My History
6. Exit
Enter your choice: 1

--- Book Seat ---
1. 1-Way
2. 2-Way
Enter choice: 2
Enter your details for DEPARTURE trip:
Name: spurthi
DOB (dd-MM-yyyy): 11-05-2007
Phone Number (10 digits): 1234567890
? You're eligible for a 20% frequent user discount on both legs!

Departure Trip:
Enter departure date (dd-MM-yyyy): 11-10-2025

Select Destination from Hyderabad:
1. Mumbai (Price: 500)
2. Delhi (Price: 700)
3. Chennai (Price: 400)
4. Bengaluru (Price: 450)
5. Kolkata (Price: 800)
Enter destination number: 2
```

```
? Seat Status for 11-10-2025:  
Seat 1 -> Booked (TicketID: T1001, Class: Economy, Price: 500)  
Seat 2 -> Available (Class: Economy, Price: 500)  
Seat 3 -> Available (Class: Economy, Price: 500)  
Seat 4 -> Available (Class: Premium Economy, Price: 1000)  
Seat 5 -> Available (Class: Premium Economy, Price: 1000)  
Seat 6 -> Available (Class: Premium Economy, Price: 1000)  
Seat 7 -> Available (Class: First Class, Price: 1500)  
Seat 8 -> Available (Class: First Class, Price: 1500)  
Seat 9 -> Available (Class: Business, Price: 2000)  
Seat 10 -> Available (Class: Business, Price: 2000)  
Enter seat number to book for Departure: 5  
  
--- Special Assistance Menu ---  
1. Food  
2. Wheelchair Service  
3. Exit Assistance  
Enter your choice: 1  
Select Food Type:  
1. Veg  
2. Non-Veg  
Choice: 2  
Non-Veg Menu:  
1. Chicken - 200  
2. Mutton - 500  
3. Fish - 450  
4. Prawn - 550  
5. Crab - 600  
Select item: 2  
? Food added successfully: Mutton
```

>Here,we can see that,the customer is frequent user.

```
----- BOOKING BILL -----  
Name : spurthi  
TicketID : T1002  
Date : 11-10-2025  
Source : Hyderabad  
Destination : Delhi (Price: 700)  
Seat No : 5 (Premium Economy)  
Seat Price : 1000  
Discount : -200 (Frequent User 20%)  
Food : Mutton (500)  
-----  
Total : 2000  
-----  
  
--- Special Assistance Menu ---  
1. Food  
2. Wheelchair Service  
3. Exit Assistance  
Enter your choice: 3  
  
--- Return Trip Details ---  
Enter return date (dd-MM-yyyy): 12-10-2025
```

```

? Seat Status for 12-10-2025:
Seat 1 -> Available (Class: Economy, Price: 500)
Seat 2 -> Available (Class: Economy, Price: 500)
Seat 3 -> Available (Class: Economy, Price: 500)
Seat 4 -> Available (Class: Premium Economy, Price: 1000)
Seat 5 -> Available (Class: Premium Economy, Price: 1000)
Seat 6 -> Available (Class: Premium Economy, Price: 1000)
Seat 7 -> Available (Class: First Class, Price: 1500)
Seat 8 -> Available (Class: First Class, Price: 1500)
Seat 9 -> Available (Class: Business, Price: 2000)
Seat 10 -> Available (Class: Business, Price: 2000)
Enter seat number to book for Return: 1

--- Special Assistance Menu ---
1. Food
2. Wheelchair Service
3. Exit Assistance
Enter your choice: 3

? 2-Way Booking Successful! Final Bill:

```

>Frequent user discount applies on entire bill of person and for 2-way booking also disount provided even for fresher.

```

--- Departure Trip ---

----- BOOKING BILL -----
Name      : spurthi
TicketID  : T1002
Date      : 11-10-2025
Source    : Hyderabad
Destination: Delhi (Price: 700)
Seat No   : 5 (Premium Economy)
Seat Price : 1000
Discount   : -200 (Frequent User 20%)
Food       : Mutton (500)
-----
Total     : 2000
-----
```

```

--- Return Trip ---

----- BOOKING BILL -----
Name      : spurthi
TicketID  : T1003
Date      : 12-10-2025
Source    : Delhi
Destination: Hyderabad (Price: 700)
Seat No   : 1 (Economy)
Seat Price : 500
Discount   : -100 (Frequent User 20%)
-----
Total     : 1100
-----
-----
Subtotal (Before 2-Way Discount): 3100
2-Way Discount (10%): -310.00
Grand Total (After All Discounts): 2790.00
-----

===== Flight Booking System =====
1. Book Seat
2. Cancel Seat
3. Check Available Seats
4. Change Seat
5. My History
6. Exit
Enter your choice: 1

```

>Customer Viewing history of his bookings and bill

```
===== Flight Booking System =====
1. Book Seat
2. Cancel Seat
3. Check Available Seats
4. Change Seat
5. My History
6. Exit
Enter your choice: 5
Enter your name to view history: so
? No history found for so!

===== Flight Booking System =====
1. Book Seat
2. Cancel Seat
3. Check Available Seats
4. Change Seat
5. My History
6. Exit
Enter your choice: 5
Enter your name to view history: spurthi
```

```
? Booking & Cancellation History:
1. Fri Oct 10 14:55:25 IST 2025 -> FOOD ADDED | TicketID: T1001, Seat: 1, Class: Economy, Destination: Mumbai, Date: 11-10-2025, Total: 1200
2. Fri Oct 10 14:55:33 IST 2025 -> WHEELCHAIR ADDED | TicketID: T1001, Seat: 1, Class: Economy, Destination: Mumbai, Date: 11-10-2025, Total: 1350
3. Fri Oct 10 14:55:36 IST 2025 -> BOOKED | TicketID: T1001, Seat: 1, Class: Economy, Destination: Mumbai, Date: 11-10-2025, Total: 1350
4. Fri Oct 10 15:06:40 IST 2025 -> FOOD ADDED | TicketID: T1002, Seat: 5, Class: Premium Economy, Destination: Delhi, Date: 11-10-2025, Total: 2000
5. Fri Oct 10 15:06:55 IST 2025 -> BOOKED (Departure) | TicketID: T1002, Seat: 5, Class: Premium Economy, Destination: Delhi, Date: 11-10-2025, Total: 2000
6. Fri Oct 10 15:06:55 IST 2025 -> BOOKED (Return) | TicketID: T1003, Seat: 1, Class: Economy, Destination: Hyderabad, Date: 12-10-2025, Total: 1100
```

>Customer,when he want to cancel ticket.

>Only he can cancel if he books, and

>An excellent authentication here is,only particular person can cancel his ticket not other who have booked.

>Upon cancellation,20% will be taken off and returns 80% from management side.

```
===== Flight Booking System =====
1. Book Seat
2. Cancel Seat
3. Check Available Seats
4. Change Seat
5. My History
6. Exit
Enter your choice: 2
Enter your name to cancel: sonu
Enter booking date of the seat to cancel (dd-MM-yyyy): 11-10-2025
Enter seat number to cancel: 1
? You don't have access to cancel this seat!

===== Flight Booking System =====
1. Book Seat
2. Cancel Seat
3. Check Available Seats
4. Change Seat
5. My History
6. Exit
Enter your choice: 2
Enter your name to cancel: spurthi
Enter booking date of the seat to cancel (dd-MM-yyyy): 11-10-2025
Enter seat number to cancel: 1
```

```
? Seat 1 cancelled successfully!

----- CANCELLATION BILL -----
Name      : spurthi
TicketID  : T1001
Date      : 11-10-2025
Seat No   : 1 (Economy)
Original   : 1350
Cancellation(20%) : 270.0
Refund     : 1080.0
-----
===== Flight Booking System =====
1. Book Seat
2. Cancel Seat
3. Check Available Seats
4. Change Seat
5. My History
6. Exit
Enter your choice: █
```

>Changing seat,can be possible only when he books seat,by clearly verifying credentials

```
===== Flight Booking System =====
1. Book Seat
2. Cancel Seat
3. Check Available Seats
4. Change Seat
5. My History
6. Exit
Enter your choice: 4
Enter your booking date (dd-MM-yyyy): 11-10-2025
Enter your name to change seat: spu
Enter your current seat number: 5
? No booking found under your name at seat 5

===== Flight Booking System =====
1. Book Seat
2. Cancel Seat
3. Check Available Seats
4. Change Seat
5. My History
6. Exit
Enter your choice: 4
Enter your booking date (dd-MM-yyyy): 11-10-2025
Enter your name to change seat: spurthi
Enter your current seat number: 5
```

```
? Seat Status for 11-10-2025:
Seat 1 -> Available (Class: Economy, Price: 500)
Seat 2 -> Available (Class: Economy, Price: 500)
Seat 3 -> Available (Class: Economy, Price: 500)
Seat 4 -> Available (Class: Premium Economy, Price: 1000)
Seat 5 -> Booked (TicketID: T1002, Class: Premium Economy, Price: 1000)
Seat 6 -> Available (Class: Premium Economy, Price: 1000)
Seat 7 -> Available (Class: First Class, Price: 1500)
Seat 8 -> Available (Class: First Class, Price: 1500)
Seat 9 -> Available (Class: Business, Price: 2000)
Seat 10 -> Available (Class: Business, Price: 2000)
Enter new seat number to change to: 9
? Seat changed successfully from 5 to 9

----- BOOKING BILL -----
Name      : spurthi
TicketID  : T1002
Date      : 11-10-2025
Source    : Hyderabad
Destination : Delhi (Price: 700)
Seat No   : 9 (Business)
Seat Price : 2000
Discount   : -200 (Frequent User 20%)
Food      : Mutton (500)
-----
Total     : 3200
-----
```

```
===== Flight Booking System =====
1. Book Seat
2. Cancel Seat
3. Check Available Seats
4. Change Seat
5. My History
6. Exit
Enter your choice: 1

--- Book Seat ---
1. 1-Way
2. 2-Way
Enter choice: 1
Enter your details:
Name: sam
DOB (dd-MM-yyyy): 1-2-2009
Phone Number (10 digits): 1029384756
Enter travel date (dd-MM-yyyy): 12-10-2025

Select Destination from Hyderabad:
1. Mumbai (Price: 500)
2. Delhi (Price: 700)
3. Chennai (Price: 400)
4. Bengaluru (Price: 450)
5. Kolkata (Price: 800)
Enter destination number: 4
```

```
? Seat Status for 12-10-2025:
Seat 1 -> Booked (TicketID: T1003, Class: Economy, Price: 500)
Seat 2 -> Available (Class: Economy, Price: 500)
Seat 3 -> Available (Class: Economy, Price: 500)
Seat 4 -> Available (Class: Premium Economy, Price: 1000)
Seat 5 -> Available (Class: Premium Economy, Price: 1000)
Seat 6 -> Available (Class: Premium Economy, Price: 1000)
Seat 7 -> Available (Class: First Class, Price: 1500)
Seat 8 -> Available (Class: First Class, Price: 1500)
Seat 9 -> Available (Class: Business, Price: 2000)
Seat 10 -> Available (Class: Business, Price: 2000)
Enter seat number to book: 1
? Seat already booked!

? Seat Status for 12-10-2025:
Seat 1 -> Booked (TicketID: T1003, Class: Economy, Price: 500)
Seat 2 -> Available (Class: Economy, Price: 500)
Seat 3 -> Available (Class: Economy, Price: 500)
Seat 4 -> Available (Class: Premium Economy, Price: 1000)
Seat 5 -> Available (Class: Premium Economy, Price: 1000)
Seat 6 -> Available (Class: Premium Economy, Price: 1000)
Seat 7 -> Available (Class: First Class, Price: 1500)
Seat 8 -> Available (Class: First Class, Price: 1500)
Seat 9 -> Available (Class: Business, Price: 2000)
Seat 10 -> Available (Class: Business, Price: 2000)
Enter seat number to book: 2

--- Special Assistance Menu ---
1. Food
2. Wheelchair Service
3. Exit Assistance
Enter your choice: 3
```

```
? Seat booked successfully!

----- BOOKING BILL -----
Name      : sam
TicketID  : T1004
Date      : 12-10-2025
Source    : Hyderabad
Destination : Bengaluru (Price: 450)
Seat No   : 2 (Economy)
Seat Price : 500
-----
Total     : 950
-----

===== Flight Booking System =====
1. Book Seat
2. Cancel Seat
3. Check Available Seats
4. Change Seat
5. My History
6. Exit
Enter your choice: 6
Exiting... Thank you!
PS E:\MLSA pro\FBS> █
```

>This is the working of the Project,Thank you!!