

# ***SkyFare***

## **Group-19 Leafs members:**

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## **GitHub repo:**

<https://github.com/CMPT-276-SPRING-2025/final-project-19-leafs>

## **Overview**

Booking a flight can be stressful—bouncing between websites, comparing prices, and checking flight statuses takes a lot of time and effort. Our project makes this process easier by giving users a simple, all-in-one platform to search for flights, compare prices, and get real-time updates. Plus, with the help of an AI-powered chatbot, users can get instant assistance, making the experience smoother and more interactive.

## **Problems to solve**

This project originated from the need for a streamlined flight search experience that minimizes manual effort and enhances user convenience. By integrating the Amadeus API and OpenAI API, we provide users with real-time flight information and intelligent chatbot support, ensuring a seamless searching process.

### **Potential Users:**

- Casual Traveler
- Business Traveler
- Family Traveler

## **List of Apis – 4**

### **Main APIs**

- Amadeus (<https://developers.amadeus.com/self service/category/flights>)
- OpenAI (<https://platform.openai.com/docs/overview>)

### **Backup APIs**

- AviationStack (<https://aviationstack.com/documentation>)
- Google Gemini (<https://ai.google.dev/gemini-api/docs>)

## Description of features to implement for each API

### *Amadeus API Features*

- **Flight Offers Search:** Search flights from over 400 airlines based on departure, destination, date, and budget.
- **Flight Offers Price:** Confirm final pricing (after taxes).
- **Flight Status API:** Provide real-time flight schedule updates, including departure/arrival times, terminal, and gate information.

Feature	API Used	Endpoint
Flight Search	Flight Offers Search	/v2/shopping/flight-offers
Final Pricing	Flight Offers Price	/v1/shopping/flight-offers/pricing
Live Flight Updates	Flight Status API	/v2/schedule/flights

### *OpenAI API Features*

- **Chat Completion:** AI chatbot answers flight-related queries.
- **Context Memory:** Helps users by remembering previous responses.
- **Summarization:** Provides clear explanations of ticket policies and booking details.

Feature	API Used	Endpoint
Chatbot (Flight Queries)	Chat Completion API	/v1/chat/completions
Context Memory	Chat Completion API (with history)	/v1/chat/completions
Summarization	Chat Completion API	/v1/chat/completions

### ***AviationStack API Features***

- **Flight Offers Search:** Search for flights based on departure, destination, and date.
- **Flight Offers Price:** Confirm final flight pricing (taxes).
  - **NOTE:** AVIATIONSTACK **DOES NOT PROVIDE** PRICING DATA DIRECTLY.
  - **Workaround:** Retrieve flight details from AviationStack.
  - Redirect users to airline booking pages for final pricing.
- **Flight Status API:** Get live flight updates, including departure/arrival times, terminals, and gates.

Feature	API Used	Endpoint
Flight Offers Search	Flights API	/v1/flights
Flight Offers Price	Not available	Use airline sites
Flight Status API	Flights API	/v1/flights

### ***Google Gemini API Features***

- **Chat Completion:** AI chatbot answers flight-related queries.
- **Context Memory:** Helps users by remembering previous responses.
- **Summarization:** Provides clear explanations of ticket policies and booking details.

Feature	API Used	Endpoint
Chat Completion	Gemini Pro Model API	/v1/models/gemini-pro:generateContent
Context Memory	Gemini Pro Model API	/v1/models/gemini-pro:generateContent
Summarization	Gemini Pro Model API	/v1/models/gemini-pro:generateContent

## **Persona for each user group**

### **Persona 1: Casual Traveler**

Name: Emily Carter

Age: 29

Occupation: Marketing Specialist

Tech Proficiency: Moderate

Motivation: Looking for affordable and convenient flight options for vacations and work trips.

Pain Points: Struggles with comparing prices, tracking flights, and understanding ticket policies.

### **Persona 2: Business Traveler**

Name: Daniel Lee

Age: 38

Occupation: Sales Manager

Tech Proficiency: High

Motivation: Needs quick, reliable, and efficient flight booking with minimal hassle.

Pain Points: Frequent last-minute travel changes, flight delays, and managing expenses.

### **Persona 3: Family Traveler**

Name: Sarah Johnson

Age: 35

Occupation: Stay-at-home Parent

Tech Proficiency: Moderate

Motivation: Traveling with kids and family, prioritizing safety, convenience, and cost-effectiveness.

Pain Points: Managing multiple tickets, flight delays, and navigating airline policies for children.

## **User stories:**

### **Main API 1: Amadeus API**

#### **1. Flight Offers Search**

As a traveler, I want to search for flights from over 400 airlines based on my departure, destination, date, and budget, so that I can quickly find options that fit my travel plans.

#### **2. Flight Offers Price**

As a traveler, I want to confirm the final pricing of flights—including all taxes and fees—so that I can accurately plan my budget and avoid unexpected costs.

#### **3. Flight Status API**

As a traveler, I want to receive real-time flight schedule updates, including departure/arrival times, terminal, and gate information, so that I can manage my travel schedule effectively.

### **Main API 2: OpenAI API**

#### **4. User Story 4: Chat Completion for Flight Queries**

As a traveler, I want to interact with an AI chatbot that leverages chat completion, so that I can ask flight-related queries (e.g., baggage policies, seat selection, in-flight services) and receive immediate, accurate responses.

#### **5. User Story 5: Context Memory for Personalized Assistance**

As a traveler, I want the AI chatbot to remember my previous interactions and preferences, so that my experience becomes more personalized, and I don't have to repeat my information.

#### **6. User Story 6: Summarization of Ticket Policies and Booking Details**

As a traveler, I want the AI chatbot to provide a concise summary of ticket policies, cancellations, and booking details, so that I can quickly understand the key information without wading through lengthy text.

## Backup API 1: AviationStack API

### **7. User Story 7: Flight Offers Search**

As a traveler, I want to search for flights based on departure, destination, and date using a backup API, so that I can still find available flights if the primary service is down.

### **8. User Story 8: Flight Offers Price**

As a traveler, I want to retrieve flight details for pricing via a backup API and be redirected to the airline booking page, so that I can confirm the final cost even when direct pricing data is unavailable.

### **9. User Story 9: Flight Status (Backup)**

As a traveler, I want to receive live flight status updates—including departure/arrival times, terminal, and gate information—from a backup API, so that I remain informed during my journey.

## Backup API 2: Google Gemini API

### **10. User Story 10: Chat Completion for Flight Queries**

As a traveler, I want to use an AI chatbot powered by the backup API to ask flight-related queries, so that I can continue receiving assistance if the primary chatbot is unavailable.

### **11. User Story 11: Context Memory for Ongoing Assistance**

As a traveler, I want the backup AI chatbot to remember my previous queries and preferences, so that I can benefit from a personalized interaction even when the main service is down.

### **12. User Story 12: Summarization of Ticket Policies and Booking Details**

As a traveler, I want the backup AI chatbot to provide a clear and concise summary of ticket policies and booking details, so that I can quickly understand the essential information without confusion.

# Low fidelity interfaces

## 1. Home/Landing Page

logo

Search by flight number, Airport or city

Username  
Profile

From

To

Departure Date  
Click to choose a date

Return Date  
Click to choose a date

Round Trip ☒

Round Trip

One-way

Multi-city

Economy ☐

Search →

Passengers

Adult (16+)  
⊖ 0 ⊕

Youth (12-15)  
⊖ 0 ⊕

Child (2-11)  
⊖ 0 ⊕

Infant  
⊖ 0 ⊕

## 2. Flight Options Page

Search

From

To

Depart Date

Return Date

passengers

Username  
Profile

Stops ☐

Direct \$000-\$000

1 stop \$000-\$000

2 stop \$000-\$000

Departure Times ☐

Departure  
10:00 15:00

Return  
10:00 15:00

Airlines ☐

Air Canada

\$000-\$000

Cheapest

Fastest

Recommend

Company Icon

00:00AM AAA

Flight hour: 0h:00

00:00AM AAA

CAD \$000

Company Name

00:00AM AAA

Flight hour: 0h:00

00:00AM AAA

Detail →

Save Flight

Company Icon

00:00AM AAA

Flight hour: 0h:00

00:00AM AAA

CAD \$000

Company Name

00:00AM AAA

Flight hour: 0h:00

00:00AM AAA

Detail →

Save Flight

Company Icon

00:00AM AAA

Flight hour: 0h:00

00:00AM AAA

CAD \$000

Company Name

00:00AM AAA

Flight hour: 0h:00

00:00AM AAA

Detail →

Save Flight



### 3. Flight Details Page

← Back to Results

City ↔ City

0 Travelers

Round-trip

Username

Profile

Flight Details

Outbound

Monday, January 01, 0000

Air Canada

00:00AM

AAA

Flight hour: 0h 00

Direct

00:00AM

AAA

Air Canada AA000

Flight hour: 0h 00

Direct

00:00AM

AAA

Unknown International Airport

00:00AM

AAA

Unknown International Airport

Return

Monday, January 01, 0000

Air Canada

00:00AM

AAA

Flight hour: 0h 00

Direct

00:00AM

AAA

Air Canada AA000

Flight hour: 0h 00

Direct

00:00AM

AAA

Unknown International Airport

Note: All time are local

✓ Cheapest ✓ Best

CAD \$000

C\$ 000-000

C\$ 000-000

C\$ 000-000

♥ Save Flight

Check your Saved Flight in Profile

Select

Direct to Air Canada

### 4. Saved Flights Page

← Main Page

UserName

Company Icon

00:00AM

AAA

Flight hour: 0h 00

Direct

00:00AM

AAA

Unknown International Airport

Unknown International Airport

Best ✓

CAD \$000

C\$ 000-000

C\$ 000-000

C\$ 000-000

Detail →

Select →

♥ Unsave

Company Name

00:00AM

AAA

Flight hour: 0h 00

Direct

00:00AM

AAA

Unknown International Airport

Unknown International Airport

Cheapest ✓

CAD \$000

C\$ 000-000

C\$ 000-000

C\$ 000-000

Detail →

Select →

♥ Unsave

Email

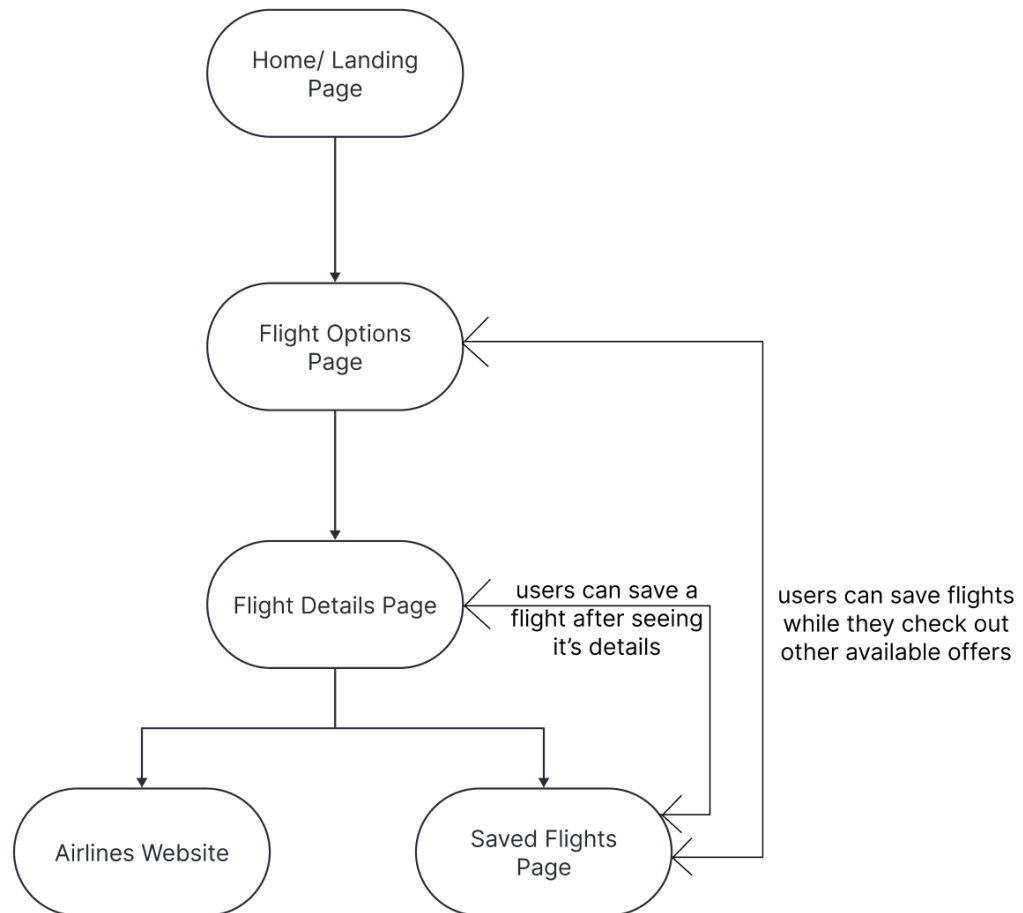
ABC012345@gmail.com

Phone

000-000-0000

Log out

## User Flow



Also available on: <https://www.figma.com/design/Y3XsMWMfqNgebyQjEJscRI/Untitled?node-id=0-1&t=yy94rCy9z3Ph8RQu-1>

## **Tech stack:**

- **Frontend Framework**

- React.js

Reason:

- Component-based structure makes it easy to manage UI.
- Efficient API calls using fetch or Axios.
- React Query can handle caching API responses.

- **UI Library**

- Tailwind CSS

Reason: Lightweight and customizable for styling.

- **Testing**

- Jest

Reason: to test chatbot or API responses

- **Deployment**

- Vercel

Reason:

- Simple, free hosting for frontend-only apps.
- Automatic CI/CD from GitHub repo.