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CS 5010
11 March 2025

Project 2: Functional Programming

Problem Statement

Gogo is an air travel planner that helps people search for airfare and arrange travel plans. This application is designed to save customers time and money by providing the travel plan that best matches their needs.

There is only one type of target audience: the traveler. Any traveler who wants to travel by air can be a potential user. Since all airfare options are supposed to be obtained directly from the individual airline companies, there is no type of user that provides airfare. (In this project, all flights/airfare options are simulated.)

Users can enter multiple destinations and the number of days they plan to stay at each location. The application can then filter the airfare options that best match users' needs, compare them, and eventually provide a sequence of, hopefully, the cheapest airfare options. Users may also add some filters, such as a specific time of day.

Business Requirement

noun

verb

- ❖ The **app** must be able to **handle** users' **input** from the **keyboard**.
- ❖ To **search** for **flights**, **users** can **enter** multiple **destinations** with a **number** of **days** to **stay**.
- ❖ Users should be able to **narrow** down **results** by **applying** additional **filter** **factors** like a specific **time range**.
- ❖ The app should **compare** the **prices** of all the possible flights and find the cheapest **option**.
- ❖ Users can see the results of their **searches**.
- ❖ The app should be able to **store** the **sequence** of flights as **travel plans**.
- ❖ Users can **decide** whether to **use** the results as travel plans.
- ❖ Users should be able to **view** and **delete** travel plans.
- ❖ All kinds of results should be **displayed**, including the **error** "unavailable."
- ❖ Users may **export** the results to another **file** they want.

- ❖ The app will ask users for a review. (creative addition)
- ❖ For the review, users can choose either Like or Dislike by clicking buttons. (creative addition)
- ❖ All flights (airfare options) should contain basic information like flight number, departure time, arrival time, and price.

Noun

app, input, keyboard, flight, user, destination, number, day, result, filter, factor, time range, price, option, search, sequence, travel plan, error, file, review, like, dislike, button, information, flight number, departure time, arrival time

Verb

handle, search, enter, stay, narrow, apply, compare, store, decide, use, view, delete, display, export, choose, click, contain

Class & Attribute/Method Classification (Briefly)

- User
 - Attribute: file
 - Method: enter, use, export
- Search
 - Attribute: destination, number of days to stay, flight,
 - Method: display
- Filter
 - Attribute: time range
 - Method: apply
- Travel Plan
 - Attribute: sequence of flight
 - Method: store, review, delete
- Flight
 - Attribute: flight number, destination, departure time, arrival time, price
 - Method: compare

- Review
 - Attribute: like, dislike
 - Method: click

Challenge Question

- ➔ How many destinations can a user enter for travel planning?
- ➔ Can users search for flights from a particular airline company?
- ➔ Will the app update when certain flights become unavailable?
- ➔ Will the app always provide the cheapest options?

Dimension

1. Intent (of using the app) – The reason and goal of users using this app.
2. Engagement Level – Frequency of a user using this platform.
3. Age Group – People of different ages.

User Persona

Persona 1 – Young Traveler Eager to Meet Friends

Name: Lance

Age: 23

Occupation: Graduate Student

Intent: Look for cheap airline tickets for travel during vacation.

Engagement Level: Monthly (medium)

Background:

Lance is a young guy who loves to enjoy time with friends. However, after he graduated, he and his friends were far separated and lived in different places, which gave him a reason to travel by air.

Scenario:

As spring break approaches, Lance decides to reconnect with some of his old friends. He wants to use this short break efficiently and, most importantly, limit his budget. Thus, he opens *Gogo* and starts searching.

User Story:

1. As a traveler, I want to enter different destinations using the keyboard.
2. As a traveler, I want to find the cheapest flights for my trips.
3. As a traveler, I want to filter by a specific time of day to find a flight to handle jet lag better.
4. As a traveler, I want to view my travel plan and know which flights I should get.
5. As a traveler, I want to see the app's responses, including unavailable results, so that I know what to do next.

Persona 2 – Elderly Passenger Busy Traveling on Business

Name: Glen

Age: 51

Occupation: Market Manager

Intent: Look for cheap airline tickets for travel during vacation.

Engagement Level: Weekly (high)

Background:

Glen is a hardworking manager who needs to travel to different cities quite frequently. He always takes care of the trips by himself, and it takes time.

Scenario:

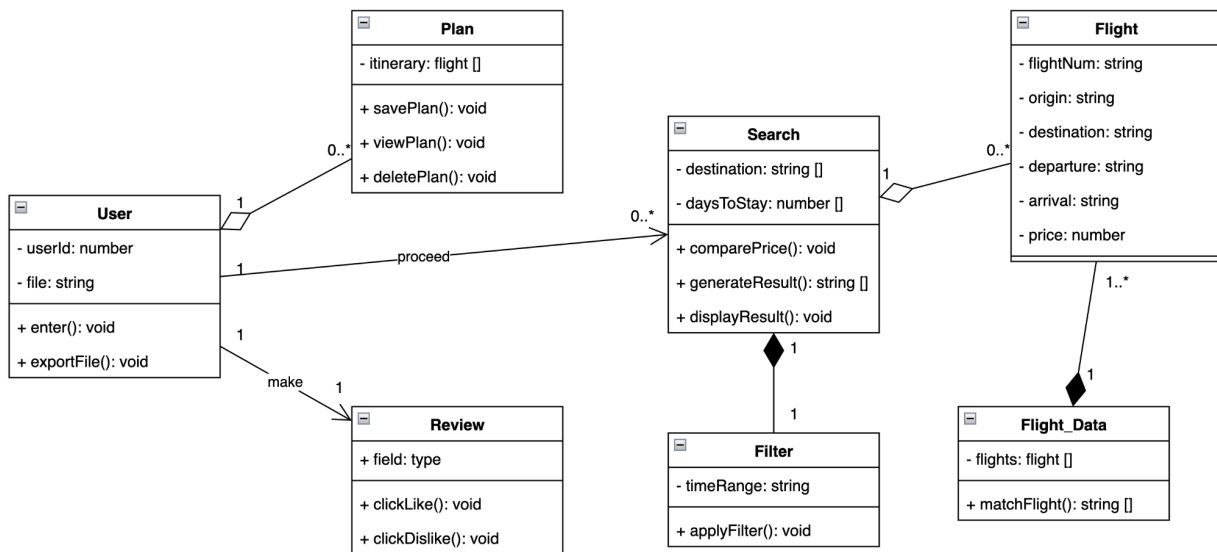
The company has assigned Glen to investigate the market situation in some areas to help the company grow. He needs to make arrangements for the trip as soon as possible, so he opens *Gogo* and starts searching.

User Story:

1. As a frequent traveler, I want to find flights and arrange my multiple-way trips quickly.
2. As a frequent traveler, I want to compare airfare options between different airline companies.
3. As a frequent traveler, I want to export my travel plan to another file so that I can easily check it.
4. As a frequent user of this app, I wanted to leave a positive review to express my gratitude to this app and its developers.

UML Class Diagram

<https://drive.google.com/file/d/1yr6KF9aNkqOSEYaEJDZppFGm2IT8HSEY/view?usp=sharing>



Interface Mockup

<https://www.figma.com/design/Hu44yZsgzUzcnAg0mzOeZA/Project-2?node-id=0-1&t=aYX6KTiKqClyKJLI-1>

Lance 1: As a traveler, I want to enter different destinations using the keyboard.

MacBook Pro 14" - 1

Search Flight

Saved Plan

Leave a Review

Destination(s)

Day(s) to Stay

input

input

-

input

input

-

+

Filter

Search Button

Lance 2: As a traveler, I want to find the cheapest flights for my trips.

MacBook Pro 14" - 1

Search Flight

Saved Plan

Leave a Review

Result

From San Francisco to San Diego

Flight Number:

Depart Time:

Arrival Time:

Price:

From San Diego to Atlanta

Flight Number:

Depart Time:

Arrival Time:

Price:

From Atlanta to Shanghai

Unavailable: no nonstop flight

Lance 5: As a traveler, I want to see the app's responses, including unavailable results, so that I know what to do next.

Glen 2: As a frequent traveler, I want to compare airfare options between different airline companies.

Lance 4: As a traveler, I want to view my travel plan and know which flights I should get.

MacBook Pro 14" - 1

Search Flight

Saved Plan

[Leave a Review](#)

Saved Plan

San Francisco > San Diego > Atlanta > San Francisco

View

Delete

Export

Glen 3: As a frequent traveler, I want to export my travel plan to another file so that I can easily check it.

Glen 4: As a frequent user of this app, I wanted to leave a positive review to express my gratitude to this app and its developers.

MacBook Pro 14" - 1

Search Flight

Saved Plan

Leave a Review

How do you think of
this app?

Like

Dislike

Gen AI Usage

No AI Usage for this part.