

## **Initial Project Proposal (extension: Hopper)**

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### **Problem**

Our app is trying to solve problems for people who plan on buying flight tickets but want to purchase the tickets at a later time. Current applications and websites allow users to enter constraints and search for specific flights, but most of them require the user to refresh the page or enter the details again manually if the page has to be reopened. For example, if a person wants to track a flight from Champaign to LA, they'll enter the details on the existing website. To see updated prices, they'll need to refresh the page, and if the page is closed they'll need to reopen another page and enter all the flight details again.

The user can also configure the app to send them notifications and alerts when the price reaches a certain threshold. This allows the user to make sure they book tickets before the price gets too high.

Google Flights allows users to turn on email notifications to receive updates when flight prices change, but users cannot view flight prices manually when they want to.

### **Existing solutions**

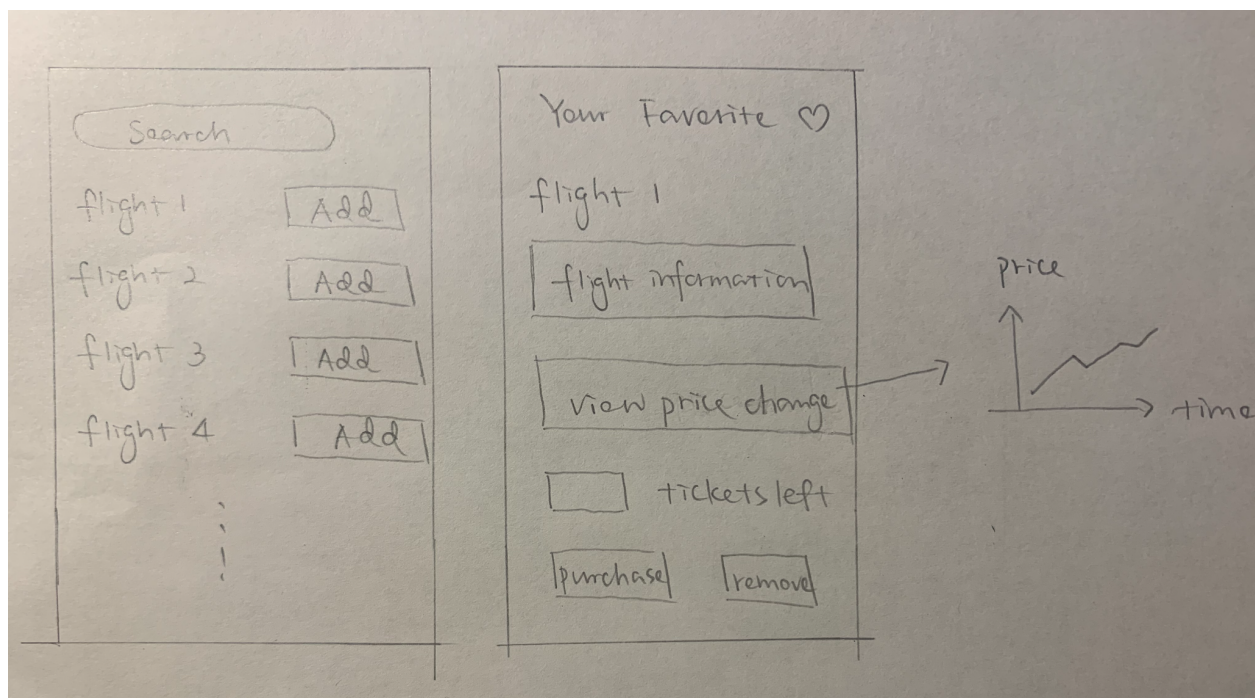
Expedia allows users to search for specific flights and enter constraints like departure, destination, etc. and view all flights with that criteria. However, if the user wants to check price updates they'll need to refresh the page, and if the page is closed, they'll have to type the flight details all over again - this can get annoying.

Google Flights allows users to similarly search for flights with specific criteria, and also allows them to turn on email notifications to get updates when flight prices change. However, users cannot manually check the prices of a flight whenever they want to, they only get updates when prices change. If the user wants to check the price at a specific moment, they'll need to refresh the page, and if the page is closed, they'll need to enter the details again.

## Project idea

We aim to make an application that allows users to track the most updated information about their favorite flights at any time, without the need to refresh the page or re-enter the filtering condition. More specifically, as users find flights they are interested in but don't want to purchase right away, they can add them to their "favorite list" and choose to track them in the application easily. Whenever there is a price change or any information change about the flights in the collection, users will be notified through email and will be prompted to open their favorite lists to get the latest updates about the flights. The application will also record previous user input and memorize their preference (save the previously used filters) which allows the users to bypass the annoying process of searching for flights manually each time.

From the user's favorite flight list, users are able to see the change of price over time of the flight in their list, as well as the number of tickets left. We would like to visualize this information in graphs or charts which helps the users to better predict when would be the best time to purchase the ticket. if they are no longer interested in a flight from their list, they can simply remove it from the list so the application will stop sending alerts to the users about that specific flight.



### Flight Info

- Economy
- Premium Economy
- Business

7

 Oct, 7, Sat

9

 Oct, 9, Mon

Name : \_\_\_\_\_

Add to  
My List

### My Flight List

Flight 1

Flight 2

Flight 3

Flight 4

## User Audiences

Any passenger who has a demand for flight tickets, whether it is for travel, or business travel..., etc. For the general audiences, it doesn't make sense to keep an eye on the price change of a flight for a long time, unless there are very few people who own the company's stock and want to keep track of the company's operating condition. However, for passengers who need to buy flight tickets, it is useful for them to get relatively cheaper tickets or tickets that better fit their schedule by quickly refreshing the page.

One of the well-known ticketing sites, Expedia, has 30% of its audience between the ages of 25 and 54 and earning more than \$100,000/year. Therefore, in addition to the user's occupation, we speculate that the user's income will also affect the frequency they use this website/app, since it is obvious that flight tickets are mostly more expensive than trains or other kinds of transportation.

## Context

Context of the app can be for different booking scenarios. It can be for users who are planning to book a particular ticket for a specific flight and time, and they want to keep track of prices and book it when the prices reach a favorable level. The scope of our project will be limited to tracking prices for different flights based on filters as specified by the user. Locations of use could naturally be anywhere as not much attention is required when setting the filters. You could do it at home, when on a walk, while in the car, in the office discussing with colleagues while planning a trip together, etc.. Frequency of use would be based on when you get a notification, and will involve a

short burst of attention until the point when the user decides to actually purchase the ticket. The app will not compete for too much attention of the user as it just serves as a reminder for ticket details.

The app is mainly useful for users who are planning to book a particular ticket for a specific flight and time, and they want to keep track of prices and book it when the prices go below a threshold level, and for frequent travelers, their previous flights can be saved, and with a click of a button, the app can keep track of those flights(very little work required)

## **Feasibility**

The most important module in this project is to gain the information of flights. In 2018, Google ended access to the public-facing API and now only offers access for enterprise products. Fortunately, we still have many substitutes for it.

Duffel's Flights API enables everyone to access the flights' information by offering search, book, seat reservation, and paid extra additions from 150+ airlines seamlessly through a developer-friendly platform. Duffel provides the detailed official API document which is used for reference. "Built on a RESTful architecture, providing JSON responses, and using OAuth 2.0, Duffel gives developers the security and flexibility needed to make and manage booking requests with a few lines of code." Duffel's Flights API also provides client libraries in JavaScript, Python, Ruby and C# which makes it easy to build Duffel integration. Even if you do not use the programming language list above, Duffel's Flights API provides the API demo in an HTTP client like Postman which allows developers to extend these functions to the programming language they use.

Based on the Duffel's Flight API and Database (like SQL or MongoDB), we can save the filter information for different users in the database and get the corresponding flights' information through the Duffel's Flight API. Whenever users want to check their specific flights' information, we can retrieve their preferences from the database and send a request to the API to get the flights' information easily.