

HistoFlight Project Summary

Yilun Fu, Weikun Wu, Henry Wang, Chengyan Ji

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1 Change in Direction

Our previous proposal requirements are mostly met, the most important function of displaying the historical price trend of the ticket has been completed, and we have improved the entire web design, including the login system, the personal user interface and the airline comments system. The changes we made was removing the idea of most cities to only 3 major cities, Chicago, San Francisco and Los Angeles, and also removing the idea of doing other travel classes and sticking with economy class. This was due to the abundance of data as we have collected and inserted over 30 million tickets from the last few weeks. We also decided to remove the implementation of the recommendation component of the project as we did not have enough time to implement this feature.

2 Achievements and Failures

We successfully displayed the historical information of each ticket, including its flight number, price, take-off and landing place. It even contains more specific information such as wifi coverage and In-seat power outlet. We designed the perfect search experience for users from their point of view, and showed them historical price trends, so they can determine which tickets can be purchased at a lower price.

3 Change in Schema or Source of Data

No, we didn't. We all followed the original proposal with schema or source of the data unchanged.

4 Change in ER and Table

We didn't make any changes to the implementation of the ER Diagram and table from the original design.

5 Addition/Removal of Functionality

By implementing the trigger, we added a functionality that censors bad words in comments. This is useful in that it is widely-used in online forums, and is especially useful for our website because comments can contain explicit content.

We added a line chart for each flight to display the history of the ticket prices. This was added as it allows users to know whether the ticket price will rise or fall in the coming days or if the current ticket is a local max/min.

6 Advanced Database Program

Our first advanced query returns if a particular flight is cheaper than the average price of all the flights near its departure date. With the stored procedure, we optimized this functionality. We showed this result in our UI by adding a star after the flight information in search results. This procedure utilizes the vast amount of information from our database and produces meaningful information for the user. It performs some simple data

analysis based on the user input and makes the search experience better.

Like mentioned above, the trigger is a very practical function in that it is a crucial part in our CRUD procedure. Our comment section is where the majority of user interaction takes place, and it has potential to be a huge landing point of user acquisition. The triggers signalizes our attempt to optimize the user experience when they read and write comments and create a better environment that potentially increases user retention.

7 Challenges for Each Member

7.1 Weikun

The biggest challenge I faced was implementing the user login and signup features. I had to figure out ways to grant users token when they login and invalidating tokens after they expired. After extensive research I was able to find a package called jwt. With some modification, I was successfully incorporating the user login and signup feature into our application.

7.2 Yilun

The biggest problem I had was setting up the login system because it had a lot of small areas to improve. Specifically, it is divided into login, sign up, account verification, personal user interface, and verification of the current status of whether log in successfully. For example, when we post a comment, we will automatically read the user's user name and email from the information of the currently logged in user, and if no login status is detected, the user needs to manually enter the information. Also, when a user wants to modify and delete their comments about an airline, this can only be done if the user has successfully logged in. And the user only has permission to change and delete their own comments, but cannot operate on others' comments.

7.3 Henry

The technical challenge I encountered was working with the mounting and rendering of the data chart in vue. As I had not used vue before, there was a learning curve for the learning the framework. The problem with the mounting of the chart was due to the async issue with calling the api to set up the data needed for the flight table. Because of this issue, the mounting of the graph would happen before the initialization of the flightData was finished. To fix this, we had to implement a function on the extend arrow of the table where it has to recollect the data needed for the purchase ticket line graph before passing onto the function that does the mounting and creation of the graph.

7.4 Chengyan

I have two challenges. At first when I was developing back-end programs with Weikun, I was struggling to understand how it works. I had little experience with software development. But after some help and explanation from Weikun and some online resources, I learned that it was just Python. So I was able to implement what we needed. When I did the queries for trigger/stored procedure, I wanted to build queries not learned in class. I learned the grammar for while loops and manipulating variables, which helped me to build a more realistic trigger. The oriented-like programming in SQL is very different from Python and is very challenging.

8 Other Changes

We met the requirements of the initial proposal, and there may be some minor changes such as limiting travel class to economy, only 3 major cities and removing the creative component of the recommendation system, but most of the functionality has been fully implemented and the login system has been improved. Therefore, our final application perfectly achieved the expected results and made optimizations.

9 Future Expectations

For future work, we can include more cities (currently we only have Chicago, San Francisco and Los Angeles) for arrival and destinations as well as adding flights that have layovers at other airports. Besides, we are currently limited to Economy Class and direct flights, and in the future we can add Business Class and First Class flight

information, as well as transfer options.

10 Division of labour

Our group division is clear, and we do group projects together at Grainger Library every time we meet. Everyone works according to the sector they are responsible for.

10.1 Weikun

Back-end/api

10.2 Yilun

Front-end

10.3 Henry

Front-end

10.4 Chengyan

Back-end/SQL

10.5 Summary

For teamwork, we created a groupchat on WeChat where there was constant communication between each group member. Whenever one group member would struggle or needed help, there would always be someone on the team that would step up and help that person. Individually, we make sure each one of us is accountable for their assigned tasks, is present and active at the meetings and group works and have a positive attitude.