CS465 User Evaluation of Functional Prototype Report
Team: Midnight Masterminds

Research Questions
We came up with the following three research questions to explore. They are appropriate because they can help us to evaluate the usability of our application, and gain insights on what aspects we could potentially improve in the future.

1) What are the perceived strengths and weaknesses of the prototype?
2) What is the average task completion time or error rate?
3) Whether the application satisfies user needs and which aspect(s) of the application satisfy the user's needs?

Users
The three users we select represent the three persona we identified previously
1) International Students
2) Businessmen / people who tend to travel frequently for business purpose
3) Travel Lover

Method
We conducted user evaluations remotely using the functional prototype. We gave them access to control our screen and asked them to perform tasks on the running emulator.

Data and Results

We collected data by observing or asking the users upon the below questions. 1-2 are related to the second research questions (completion time and error rate). We generally asked the user to perform the tasks and record their approximate completion time / observe the mistakes they made during the use of the app. 3-5 are related to our first research question (strengths and weaknesses) and 6-7 are related to our last research question (if or not satisfies their needs)

For the computation of error rate, we divide the task into several steps, and calculate the error rate by calculating (the number of times users make mistakes/total steps)

1, Task completion time

The following is the time that the app takes for the users to explore and get familiar with the main features (alternative flight keeper, multi-trip planner, autofill) of the application:

The average completion time is around 10 minutes

International student	Businessman	Travel lover
9 minutes	Around 10 minutes	6 minutes

Most users can finish the tasks and get familiar with (understand) the app within 10 minutes without any previous experience. The 3rd interviewee is a travel lover who is very familiar with the travel-related applications. What's more, he scanned the help section of the app first which helped him to understand the different functionalities better before he explored the application. Though the international student and businessman did not scan the help section first, they could understand the target of different functions quickly after they explored the different pages of the application.

2. Error rate

The following is the error rate when users explore the application:

International student	Businessman	Travel lover
N/A	1/4	N/A

The international student and travel lover finish their tasks without any errors during the interview. The most potential reason is that the two groups of users are mostly young people and often use this kind of software, so they are familiar with the structure of the software and can quickly get familiar with and correctly operate the software.

During the interview process, the businessman made only one error: she added two flight keepers and created two plans in total, and she mistakenly added one of the tickets to the wrong flight keeper. According to our observation during the interview, this is probably due to unskilled use of Android phones. These business people are older than the other two types of users (international students and travel lovers), and they are not very familiar with the use of smartphones or such applications, so they will make small mistakes in the process of using these applications.What's more, this error has little impact on the subsequent use of the app (the user just adds one ticket to the wrong flight keeper, and she can delete the ticket in the corresponding flight keeper later or ignore the ticket when she add tickets in the planner).

3. Good things about the application

The following is the features or interface design the users like most:

International student	Interface is nice and clean (especially like that each flight has an image); Recently browsed flight keeper feature is useful.
Businessman	Like the blue color of the app; The new features (flight keep, multi-trip planner) look promising; Also like the recently browsed flight keeper feature.
Travel lover	Auto filter saves a lot of time

For international students, the price of international tickets was very high and changed frequently, so they preferred the flight keeper function which could help them to compare different flight combinations, the recently browsed flight keeper feature in the main page is really convenient to them so they can get the information after they open the app immediately.

For businessmen who have very strict schedules, they like the flight keeper and multi-trip planner function which could help them to manage their tickets to fit into their schedule.

For travel lover, they need to use the search function frequently to get flight tickets to travel, so the auto fill function for search filters can really save lots of time for them, because in most cases, their filters are the same (like bags and number of passengers), except for the departure and destination, so they can search a brand new trip through just changing the origin and destination from the last trip.

In conclusion, the features different users like are almost consistent with our prediction at the design stage, and the simple design style also won the praise.

4. Confusing parts of the application

The following is the part of the app which the users found most confusing:

The three users all mentioned the navigation problems of our application

International student	Navigation. There are both a navigation bar at the bottom and different back buttons on the page, which

	can cause some confusion.
Businessman	The navigation is tedious if the user wants to jump to a specific page.
Travel lover	Navigation; Hard to resolve the issue when a mistake is made

5. User suggestion on the application:

The following the parts that the users suggested the app to improve:

International student	Make the navigation easier and more consistent; The multi-trip planner feature can be more accessible.
Businessman	Improve the navigation; put a menu bar on every page so users can pause actions or directly cancel the current actions.
Travel lover	Try to reduce the number of pages (maybe using more toast or popup windows) since it is easy to get lost when there is too much navigation.

Due to the complexity of the application, the user needs to dive very deep into the application if they want to explore all the functionalities. From the main page to the plan page, the user needs to experience at least 5 pages, so the lack of navigation may confuse the users: Which step in the process do I take now? How can I go to a step I want to reach? Adding a navigation bar to every page can give users more freedom to explore the application as they please and make them better understand the workflow of the application.

Based on the confusing parts and the parts the users suggested the app to improve, we concluded some design ideas listed in the "Design idea" part.

6. Which part of the application do you think is the most useful in practice?

International student	Flight keeper
Businessman	Multi-trip planner
Travel lover	Auto filter, multi-trip planner

The user under the international student persona suggested that the flight keeper functionality is most useful according to his needs, because he usually hesitates a lot and goes through careful consideration before making a decision on which ticket to purchase. We believe this is also a need for many other international students.

Both users under businessman and travel lover categories suggested they in particular look forward to the multi-trip planner feature. For people who travel for business purposes they might want to visit some places nearby before going back, and for travel lovers they also tend to visit multiple places during a trip.

7. Are you willing to use our application instead of a traditional flight booking platform if our application is in production?

International student	Yes
Businessman	Yes
Travel lover	Yes

All the three users mentioned they are willing to try out the new features of the application during our conversation. Though some of the features may look new to them, they agree that the new features are innovative changes made on top of the existing platform and have the potential to bring them convenience and save their time after they get familiar with those features. The users also suggested that the help center is useful in providing them information on how to access the features, and a tutorial might be an even better choice.

Design idea

1) Optimize the function of the menu bar: add menu bar to every page and add more navigations of main functional pages to the menu bar (may be shown in an operation sequence to help users understand the workflow of the app) .
2) Optimize some pages to pop-up window, such as configuration setting page and flights add page in a specific plan.
3) Increase fault tolerance of app operation and improve user experience: before every operation is done, ask users to confirm their operations, or the app will return to the user's last operation page, so the user can withdraw some operations that are wrong or not expected to be executed.

4) Further improve the help section, for example, show a video of app use to improve the accessibility of the app and help users become more familiar with various functions of the app as well as to reduce misuse or confusion.