# Booking Travel Design Critique

**Reagan Leonard**

**Daniel Beamer**

**Tyler Kidd**

**Abhimanyu Abhinav**

**Malaya Reece**

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This document is a summary of our group's design critique of our own system prototype for our website to assist in the task of booking a travel experience. Contained in this document is an introduction discussing our user interface, how we tested our users, as well as a description of each user. Most importantly, we have created 20 UARs for our prototype, each grouped into categories that they fall under in the system. These groups of problems each have a chapter devoted to them in Section 3 of this document. We then provide a conclusion summarizing these problems and a reflection on our findings. The following is an outline of the contents:

1. **Executive Summary**

2. **Introduction**

3. **Chapters for each Design Problem Group**

4. **Conclusion**

5. **Reflection**

6. **Appendix**

    a. Full Task Descriptions

    b. Link to our Prototype

    c. (5) Test Videos

# <u>Executive Summary</u>

This summary is a brief condensation of the report that follows detailing the results of the think-aloud user testing that we performed for our website that was built to assist in the task of booking a travel experience. Our group presented a formalized design for this site in a previous project (A3) which was then critiqued by another group. We have now attempted to accommodate those design critiques and present the site in an even more refined and functional prototype. We then conducted think-aloud user testing on 5 separate users and recorded the results of these tests in 5 UARs per user. The UARs represent critical problems with the system that our users exposed naturally in the course of their testing of the prototype. These UARs were then synthesized and grouped according to their topic and are reported here in section 3 of this document. We grouped the UARs into five categories: Design/Aesthetics, Ease of Use, Presentation of Information, Discoverability/Functionality, and Prototyping Limitations. Each of these categories has their own chapter in this document with a description of the topic and a conclusion which includes some recommendations for the redesign of some aspects relating to the topic. These chapters can be found on pg. 4-33.

Following our UAR section, we wrote a conclusion (pg. 34) that sums up all the problems that were found as a result of our think-aloud testing as well as a summary of our own recommendations for redesign. We then conclude our report with a brief reflection (pg. 35). This section addresses how many problems we found through our think-aloud testing and whether or not we think these problems encompass all of the flaws that were/are actually present in our design. We also discuss how much time our team spent on each step of our process and any changes we would make to improve our process if we were to repeat it.

For more details on each of these sections, please see the outline on the title page and visit the respective section's page(s).

# __Introduction__

Our application is a travel website designed to help the user find a hotel, flight, rental vehicle, etc. for wherever they decide to go. The intent is to streamline the process in such a way that the website is both approachable to those who do not have much experience with travel sites as well as customizable enough that a user can filter their searches to find exactly what they are searching for.

The application's home page can be searched from directly, and will lead to a results page consisting of all types of results. The top of the screen will also consist of five tabs: The leftmost tab will lead back to the home page. The other tabs will be labeled - and lead to results pages for - flights, lodgings (consisting of hotels, motels, campsites, etc.), rental vehicles, and bundles. Each result has links to lead to both a corresponding details page, which displays information relevant to the listing, and a button allowing the user to add the listing to their cart. Their cart allows the user to select additional options for their trip (such as selecting class on a flight) as well as insurance for their purchase.

## Testing Tasks

For the purposes of testing our interface, we utilized the Balsamiq wireframing system to replicate our original UARs (which were designed in Whimsical, another wireframing system which did not allow for interactive pieces and was purely visual). While the typical testing process would see each user going through the entirety of their process from beginning to end (in our case, from the home screen to the checkout page), our testing was done in blocks based on our user. By that, it is meant that one user may focus on searching for flights, another for lodging, yet another for no specific search at all. Each one might be taking a different path through the site, but this is to ensure that all aspects of the site are thoroughly tested and given user exposure.

## User Profiles

U01 (Reagan's User)

U01 is a 50-year-old male who is a professional driving instructor by occupation. He also does some administrative work as part of his job (scheduling other instructors, managing the driving school calendar, etc.) which requires him to have a basic level of computer skills and knowledge of basic operating systems. Beyond this, he has a fairly high level of general website knowledge both on his personal laptop and smartphone. Because he is fairly experienced with web interfaces, many of his critiques of the system were due to it being a bit *too* simple and *too* basic or geared toward a naive user. He values time and efficiency in a website rather than

simplicity so he is always looking for advanced features and misses them when they are not present.

## U02 (Daniel's User)

U02 is a 22-year-old female who was attending college for education prior to the move to online schooling. She also would work at a local daycare during the week as her classes allowed. She uses computers in basically all aspects of her schooling to do assignments, but also uses them for entertainment (Netflix, Hulu, etc.). For this reason, she had little trouble understanding what the website was *trying* to do, and so had comments about aspects of the site that she enjoyed / disliked. There were little to no issues about getting the site to actually do its job.

## U03 (Tyler's User)

U03 is a 22-year old male attending college. He works for a subsection of the IT department at his university and is very familiar with computers, and as a result is very familiar with websites and how they function. As a result, he likes things as customizable as possible, while still being efficient and easy to complete. His complaints were more geared towards certain interfaces and information he was used to be seeing not being present, or the integration of redundant features.

## U04 (Abhimanyu's User)

U04 is a graduate level student with roughly 2 years of work experience in transport and construction engineering. He is 25 years old and has a good level of computer knowledge in terms of its operability and being comfortable using them as he completes many of his civil engineering tasks on his computer. But when it comes to using general websites he rates himself as a very basic user and does not like too much sophistication in a website.

## U05 (Malaya's User)

U05 is a 62-year-old female retiree. She enjoys spending time with her family, especially with her 2-year-old grand daughter, whom she watches 3 times a week. She also enjoys staying healthy by walking every day, and going to an exercise class twice a week. She also enjoys taking trips to visit friends living out of town, but because she is now on a fixed income, she must plan her budget very carefully in order to accomplish this goal. She is not a frequent user of technology and he uses her smart phone mostly for communicating via text and social media.

# Design/Aesthetic Problem UARs

This chapter discusses all of the deficiencies with our prototype design. These features may not have been designed/placed in the most ideal way. If redesigned, they would certainly make a valuable addition to our overall product vision. We also discuss those features which possessed good aesthetic design which creates added value to our product. These features are presented below in the UAR format:

| No.   **Beamer # 2** | **Problem/Good Aspect:** Problem |
|---|---|
| **Name:**Filter section not easily recognizable | |
| **Evidence:**<br>Discussion occurred post interview. Stated that the filter screen on the left of the broad result screen was not easily distinguishable due to its same color / inclusion with the "Your search criteria" section. | |
| **Criterion:**<br>User has a negative reaction / says something is a problem | |
| **Explanation:**<br>User stated that the filter section of the broad results screen was not easily recognizable due to clutter or similarity to the adjacent "Your search criteria" section (or both, which is likely). | |
| **Severity or Benefit:**<br>**Rating:** <choose one of the following:><br>NA – good aspect<br>1 – cosmetic problem (does not matter too much)<br>**2 – minor problem (would be nice to solve, but not a high priority)**<br>3 – major problem (a problem that should definitely be solved with high priority)<br>4 – usability catastrophe (a problem that renders the Web site / app useless)<br>**Justification (Frequency, Impact, Persistence):**<br>    *Frequency:* Frankly, this varies on the user. To some it's easily recognizable, to others it might seem a bit "busy" as it was stated, which leads to mild confusion.<br>    *Impact:* The impact of this was minor, as it simply took the user some time to step back and recognize a few key aspects (namely the price range filter) to understand what the entire section was and what its purpose is.<br>    *Persistence:* As mentioned, the user realized the use of the section quite quickly, so this issue was not very persistent.<br>    *How I weighted the factors:* I weighed each factor evenly here, as they all were relatively minor in nature. While definitely an issue, it was easily rectifiable by the user on their own, and did not impact their usage of the website for any more that a couple seconds. | |

**Possible solution(s) and/or trade-offs:** One solution I have thought was the inclusion of a header at the top of the section denoted "Filter your search", or something to that effect. This would allow the user to easily recognize what the section is for while minimally impeding on screen real estate.

**Relationships:** N/A

| No. | **Beamer #3** | **Problem/Good Aspect:** Good aspect |
|---|---|---|

**Name:** Website is aesthetically pleasing

**Evidence:** User enjoyed the general design of the site, including font choice

**Criterion:** User has a positive reaction

**Explanation:**
The user expressed delight that the website has both a layout / design that is easy on the eyes, as well as a font that is easy to read (for context, the interview was conducted in a relatively low-light environment, so this is actually quite significant).

**Severity or Benefit:**
**Rating:** <choose one of the following:>
**NA – good aspect**
1 – cosmetic problem (does not matter too much)
2 – minor problem (would be nice to solve, but not a high priority)
3 – major problem (a problem that should definitely be solved with high priority)
4 – usability catastrophe (a problem that renders the Web site / app useless)
**Justification (Frequency, Impact, Persistence):**
   *Frequency:* This is (hopefully) something the user encounters every time they visit the site, as the intent is to have the website be pleasing to the eye everywhere, everywhen.
      *Impact:* While initially this may seem minimal, a good aesthetic is very important for a site, as it determines the users general outlook on the site (I've personally used sites that are extraordinarily useful / effective, but are so awful to look at I have found alternatives).
      *Persistence:* One would imagine that this would be a persistent thing at all times. One normally doesn't think an aspect is "cute" and then, the next time they see the page, find it repulsive.
      *How I weighted the factors:* I weigh the impact more heavily here, as the frequency and persistence are more of a constant when it comes to cosmetic designs such as this.

**Possible solution(s) and/or trade-offs:** N/A

**Relationships:** N/A

| No.     **Tyler Kidd # 03** | **Problem/Good Aspect:** Problem |
|---|---|

**Name:**

"Promotional Emails" checkbox

**Evidence:**

☐ Promotional Emails

**Criterion:**

User expresses distressed surprise

**Explanation:**

User was apathetic towards the "Promotional Emails" checkbox

**Severity or Benefit:**

**Rating:** 1

1 – cosmetic problem (does not matter too much)

**Justification (Frequency, Impact, Persistence):**

    *Frequency:* High

    *Impact:* Low

    *Persistence:* Moderate

    *How I weighted the factors:* The potential impact of this problem is very low, the user simply just did not like the inclusion of the button. However, it is pretty frequent, as it will be presented to every user that checks out or creates an account

**Possible solution(s) and/or trade-offs:**

The solution is to simply add these features back in. It's not difficult to do given the scope of this project, it was just a simple oversight on my part.

**Relationships:**

N/A

| No. **Tyler Kidd #04** | **Problem/Good Aspect:** Problem |
|---|---|

**Name:**

User suggests removing "Cart" icon from the Cart screen

**Evidence:**



**Criterion:**

User makes a design suggestion

**Explanation:**

 User expressed confusion at the presence of the "View Cart" icon On the Cart screen

**Severity or Benefit:**

**Rating:** 1

1 – cosmetic problem (does not matter too much)

**Justification (Frequency, Impact, Persistence):**

*Frequency:* Low

*Impact:* Low

*Persistence:* Moderate

*How I weighted the factors:* While this is confusing and a little odd, clicking this icon will just bring you back to the same menu with the same choices made, so the potential impact is very low, and I can't see the frequency being too high either.

**Possible solution(s) and/or trade-offs:**

The solution is to simply remove this icon. It will not impact the overall page too much, and can just make the "Login/Account" button larger or move it over to the right to keep the same nments.
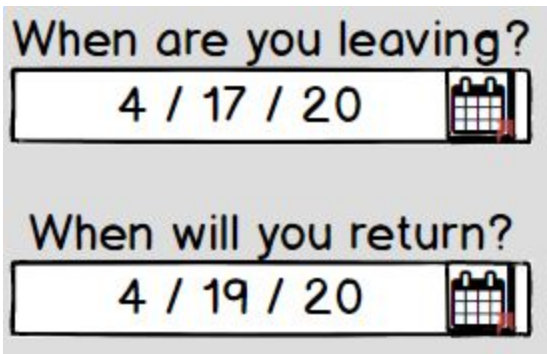
**Relationships:**

N/A

**Redesign Recommendation:**

The listed problem (**Beamer#2**) could be mitigated by designing the filters such that there is enough spacing between the filters and search criteria box. For the problem (**Tyler Kidd#03**), we could resolve it by displaying the promotional email section dynamically based on users choices and preferences. The problem of cart screen present on the cart (**Tyler Kidd # 04**) can be resolved by removing it from the cart screen.

# Ease of Use Problem UARs

This chapter addresses the problematic aspects in our prototype models that made the user perform a task in a suboptimal manner and probably made them distressed. Apart from problem aspects, there were also quite a few good aspects related to the topic and made the user appreciate the website. Following UARs enumerate all such features.

| Reagan #1 | Problem |
|---|---|

| |
|---|
| **Name:** User complained about the date boxes being separate |
| **Evidence:**<br><br>When are you leaving?<br>4 / 17 / 20<br><br>When will you return?<br>4 / 19 / 20 |
| **Criterion:** User makes a design suggestion |
| **Explanation:** What went wrong here was simply that the user has seen date selections like this before and does not prefer them. He also has experience with other date selectors in which there is only one box and one calendar button and he selects the first date (his departure date) and is then prompted to select a second date in the same calendar (his return date). His goal was to select the dates as quickly and easily as possible and he felt that the other date selection process allowed him to do that better. There was no error here, it was simply his preference. |
| **Severity or Benefit:**<br>**Rating:** 1<br>**Justification (Frequency, Impact, Persistence):**<br>Frequency: This problem is very common in the sense that every user will come into contact with this date selection process. However, it is also uncertain how many users will have the same preference as this specific user. So overall, the frequency of this exact problem occurring is unclear.<br>Impact: This problem is very easily overcome. Again, there was no error or even confusion with this specific feature. It was simply a design preference.<br>Persistence: For almost all users, the dates that they first select will likely not change throughout their interaction with the website. Most users will know what dates they want to travel on and this will not change. Therefore, most users will only interact with the date selection process once per visit.<br>How I weighted the factors: I rated this problem a 1 because it is completely unclear what |

percentage of our other users would agree with this user's design suggestion. It does not ultimately impede the user's progress towards their goal. Therefore, it is a cosmetic design problem that would need more thorough testing to see what more users preferred.

**Possible Solution and/or Trade-offs:** If we found that most users agree with this specific user, a possible solution to this problem is to combine the date selections into one (as described above in the "Explanation".
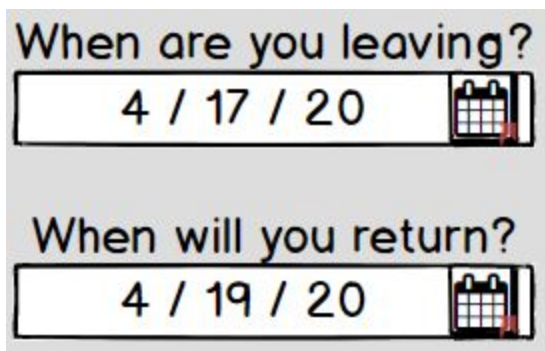
**Relationships:** Related to Reagan #2 (date selection critique)

| Reagan #5 | Good Aspect |
|---|---|

**Name:** Calendar buttons on search pages are intuitive, clear that he can choose dates from there or type them in

**Evidence:**



When are you leaving?

4 / 17 / 20

When will you return?

4 / 19 / 20

**Criterion:** User has a positive reaction/says something is really easy

**Explanation:** The user explained that he liked the calendar buttons that allowed him to select dates from a popup calendar widget. He said that this is intuitive to him and that he knows he is free to do this or manually type in a date.

**Severity or Benefit:**
**Rating:** N/A
**Justification (Frequency, Impact, Persistence):**
Frequency: Every user will come into contact with this date selection process.
Impact: If the user is familiar with this date selection process and comfortable using it, it could save the user maybe 4-5 seconds overall since they don't have to type anything into the text boxes.
Persistence: This date selection process is likely to only happen once for each user visit.
How I weighted the factors: I think this date selection process is intuitive to most users as more and more sites have started using similar calendar buttons. Users are now more familiar with this process and comfortable using it to the point that it greatly speeds up their date

| selection as they don't have to type anything in. |
| :--- |
| **Possible Solution and/or Trade-offs:** N/A |
| **Relationships:** Related to Reagan #1 and #2, but positive |

| No. | **Abhimanyu # 5** | **Good Aspect** |
| :--- | :--- | :--- |

| **Name:** Clear and efficient filters. |
| :--- |
| **Evidence:**<br><br>The filters presented here were clear and useful for the user. The user wanted to search for flights which were refundable and could do that using one of the filters. Users did express his pleasure over this.<br><br> |
| **Explanation:**<br>  As the user was evaluating his options of displayed results , he thought of filtering his results for flights which were refundable , which he could do by one of the options available in filters.Usually the user would have to go to details of the individual flights and check there.This prompted user to express his pleasure. |

**Severity or Benefit:**

**Rating:** <choose one of the following:>
**NA – good aspect**
1 – cosmetic problem (does not matter too much)
2 – minor problem (would be nice to solve, but not a high priority)
3 – major problem (a problem that should definitely be solved with high priority)
4 – usability catastrophe (a problem that renders the Web site / app useless)

**Justification (Frequency, Impact, Persistence):**
   *Frequency:* **Moderate**, I would like to assume that there would be a fairly good number of people       who could go back on their booking plans or would like to book a ticket which let them have their payment refunded, so rating this feature for frequency as moderate.

   *Impact:* **Moderate**, I would like to  rate this feature for its impactness  as moderate because having this provided upfront as a filter certainly saves the user a couple of clicks for each option which he would like to evaluate if it's refundable or not. Further this would expedite the user booking process.

   How I weighed the factors*:*
With frequency and impact rated as moderate for this feature , this makes this feature quite significant in making the user's booking process much faster and efficient.

**Possible solution(s) and/or trade-offs:**
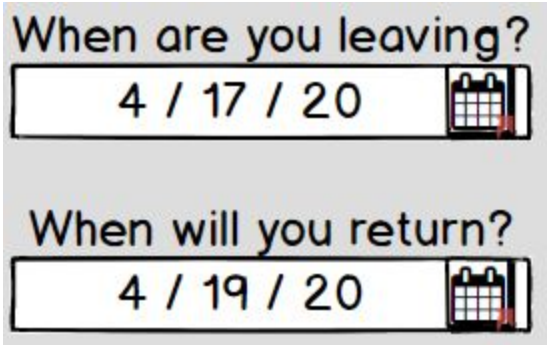**N/A**

**Relationships:**
N/A

**Redesign recommendation:**

To address the (**Reagan #1**) , one possible solution could be presenting the user with one slightly bigger calendar situated in between the two fields where the user can select both his departure and return dates at one go. This one change should solve our issue here.

# Presentation of Information Problem UARs

This chapter describes all the positives and negatives the users experienced in regards to how certain information is displayed on the website. This pertains to the labels of various text boxes and site elements, various prompts the user may come across during their browsing experience, and other elements of the interface that is required for the user to use the website.

| Reagan #2 | Problem |
|---|---|

| |
|---|
| **Name:** Not obvious why dates are prefilled, should be blank |
| **Evidence:**<br><br>When are you leaving?<br>4 / 17 / 20<br><br>When will you return?<br>4 / 19 / 20 |
| **Criterion:** User makes a design suggestion |
| **Explanation:** What went wrong here was that the user did not immediately know why the dates were prefilled for him (that the system was trying to guess when he'd leave). He said that to avoid potential confusion about this, the date boxes should be left blank. There was no real error here, it was simply another design preference. |
| **Severity or Benefit:**<br>**Rating:** 1<br>**Justification (Frequency, Impact, Persistence):**<br><u>Frequency:</u> This problem is common in the sense that every user will come into contact with this date selection process. However, it is also uncertain how many users will have the same preference as this specific user. So the frequency of this exact problem occurring is unclear.<br><u>Impact:</u> This problem is very easily overcome. Again, there was no error or true difficulty when selecting dates. It was simply a design preference to avoid potential user confusion.<br><u>Persistence:</u> For almost all users, the dates that they first select will likely not change throughout their interaction with the website. Most users will know what dates they want to travel on and this will not change. Therefore, most users will only interact with the date |

selection process once per visit. So only one opportunity for this potential confusion.

How I weighted the factors: I rated this problem a 1 because it is completely unclear what percentage of our other users would agree with this user's design suggestion. It would only impede the user's progress towards their goal if they somehow thought that they could not change the dates. I think this is highly unlikely, so I rated it a 1 because it is a user preference.

**Possible Solution and/or Trade-offs:** A possible solution to this is simply to remove the prefilled dates and leave the boxes blank on startup.
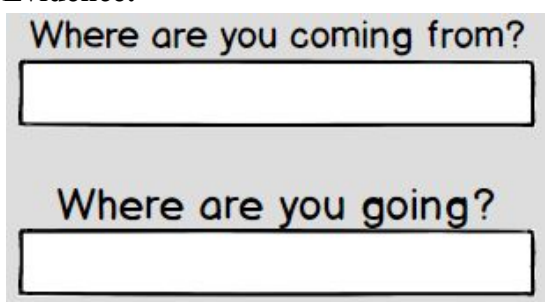
**Relationships:** Related to Reagan #1 (date selection critique)

| Reagan #3 | Problem |
|---|---|

| **Name:** User didn't like the prompt questions on home screen, would prefer simpler prompts |
|---|

**Evidence:**



**Criterion:** User makes a design suggestion

**Explanation:** What went wrong here was simply that the user would prefer a more direct prompt for these text input boxes. The user understood what he was supposed to type here, but he thinks he processed these 4-5 word questions slower than he would have processed shorter prompts like "Departure Location". There was no error here, it was simply his preference.

**Severity or Benefit:**
**Rating:** 1
**Justification (Frequency, Impact, Persistence):**
Frequency: This problem is very common in the sense that every user will come into contact with these questions that prompt them to enter in departure and destination locations. However, it is also uncertain how many users will have the same preference as this specific user. So overall, the frequency of this exact problem occurring is unclear.
Impact: This problem is very easily overcome. The biggest impact it could have is slowing the user down 1 or 2 seconds. It was simply a design preference to avoid potential user confusion.
Persistence: For almost all users, the locations that they first select will likely not change throughout their interaction with the website. Most users will know where they want to travel and this will not change. Therefore, most users will only interact with these question prompts once per visit. So only one opportunity for this potential confusion/slowdown.

| How I weighted the factors: I rated this problem a 1 because it is completely unclear what percentage of our other users would agree with this user's design suggestion. It would only impede the user's progress towards their goal a few seconds, if at all. So I rated this a 1. |
|---|
| **Possible Solution and/or Trade-offs:** A possible solution to this problem is to change the questions to shorter, more direct prompts such as "Departure Location" and "Destination Location". |
| **Relationships:** N/A |

| No. **Beamer - 1** | **Problem/Good Aspect:** Problem |
|---|---|
| **Name:** Broad search results not distinct enough from one another | |
| **Evidence:** On the broad search results page, the user did not initially recognize that there were multiple types of search results displayed (in this case, a hotel and a rental vehicle). | |
| **Criterion:** User thinks they did it right, but actually got it wrong<br>User makes a design suggestion | |
| **Explanation:** The user saw the search results (which were both the same color, a very important detail) and assumed that they were both the same type of result (a hotel). They did not even notice that there were multiple types of results listed. | |

**Severity or Benefit:**
**Rating:** <choose one of the following:>
NA – good aspect
1 – cosmetic problem (does not matter too much)
2 – minor problem (would be nice to solve, but not a high priority)
**3 – major problem (a problem that should definitely be solved with high priority)**
4 – usability catastrophe (a problem that renders the Web site / app useless)
**Justification (Frequency, Impact, Persistence):**

*Frequency:* It is difficult to gauge the frequency of this error, but I would gather that this error could occur to any number of people as it is a very simple error to make (and I'm amazed I overlooked it in the design process).

*Impact:* In the test, the user thought that they were looking at two hotels: one for $55/day and one for $60 for day. They did not even bother looking at the $60 result as they wanted the cheaper option. This kind of mistake could cost users valuable information (omitting it entirely from their experience).

*Persistence:* The user did, in fact, realize their mistake upon closer reading of the page, and so did not make the same mistake again. This did, however, take a couple minutes of looking over the page (whilst looking at other aspects of the page, she just so happened to read the result for the rental vehicle).

*How I weighted the factors:* I weigh impact very heavily here, as the user nearly fully neglected an entirely separate class of results due to this design flaw. Such a result should not stand. Since the user did eventually realize their mistake, however, which is why I decided to rate this at 3 rather than 4 (as it shows the problem is – at the very least – recoverable).

**Possible solution(s) and/or trade-offs:**
Make different types of results have different corresponding colors.
This was suggested by the user post-interview, and was not captured in the recording. Color-coordinated results would display a stark difference in them to the user while not cluttering up the UI.

**Relationships:** N/A

| No. | **Abhimanyu # 3** | **Problem** |
|---|---|---|

**Name:** User gets confused about fields "Billing Address 1" and "Billing Address 2" while entering his billing address

**Evidence:**

As the user enters his billing address , he is confronted with these two fields and for a moment mistakes them as provisions for giving two of your addresses. On little thinking he assumes it is multiple line for the same address.



**Criterion:**

User makes a design suggestion .

**Explanation:**
  The user is entering his address details when he confronts these two fields "Billing Address 1" and "Billing Address 2" and thinks for a moment that the system can take 2 of his addresses while the reality was he was being provided multiple lines to fill out his single address.

**Severity or Benefit:**

**Rating:** <choose one of the following:>
**NA – good aspect**
**1 – cosmetic problem (does not matter too much)**
2 – minor problem (would be nice to solve, but not a high priority)
3 – major problem (a problem that should definitely be solved with high priority)
4 – usability catastrophe (a problem that renders the Web site / app useless)

**Justification (Frequency, Impact, Persistence):**
    *Frequency:* **Medium**, I think quite some number of users mights be experiencing this situation especially someone who has had little exposure to these booking sites. Hence rating it as Medium.

   *Impact:* **Low**, with the current interface this problem can be overcome by changing the label to "Address Line 1" and "Address Line 2" . Also the interface per se does not hinder the user in achieving the task he intended to do.
*Persistence:* **Low**, Once the users  gets the hang of it , this will not be a persisting issue.

How I weighted the factors:

Low.

Since the impact and persistence are low for this problem and the solution would be a minor label change, I am rating this as overall low.

**Possible solution(s) and/or trade-offs:**
Changing the labels to "Billing Address Line1" and "Line2" can help resolve the confusion.

**Relationships:** N/A

| No. **Tyler Kidd - 01** | **Problem/Good Aspect:** Problem |
|---|---|

**Name:**

Price changes on "Choose Class" tab

**Evidence:**

**Criterion:**

User makes a design suggestion/User says something is a problem

**Explanation:**

User suggested having the cost increase/decrease of changing classes be visible while selecting

**Severity or Benefit:**

**Rating:** 2

2 – minor problem (would be nice to solve, but not a high priority)

**Justification (Frequency, Impact, Persistence):**

*Frequency:* High

*Impact:* Moderate

*Persistence:* Moderate

*How I weighted the factors:* While the frequency and persistence of this problem will be high, at the end of the day the impact of this issue will be moderate at best, as the prices will still update on the "Trip Summary" area of the screen. It may confuse less experienced users and lead to complaints. As this was a feature already integrated with the interface in the wireframe prototype (we moved to a different website for interactivity and I forgot to add them back in), this will be a VERY easy fix.

**Possible solution(s) and/or trade-offs:**

The solution is to simply add these features back in. It's not difficult to do given the scope of this project, it was just a simple oversight on my part.

**Relationships:**

N/A

| No. | **Tyler Kidd - 02** | **Problem/Good Aspect:** Problem |
|-----|---------------------|----------------------------------|

**Name:**

Price changes on "Cancellation Insurance" tab

**Evidence:**



**Cancellation Insurance:**

○ Yes, I would like insurance

○ No, I don't want to insure my flight

**Criterion:**

User makes a design suggestion/User says something is a problem

**Explanation:**

User suggested having the cost increase/decrease of choosing to have insurance be visible on the selection menu

**Severity or Benefit:**

**Rating:** 2

2 – minor problem (would be nice to solve, but not a high priority)

**Justification (Frequency, Impact, Persistence):**

*Frequency:* High

*Impact:* Moderate

*Persistence:* Moderate

*How I weighted the factors:* While the frequency and persistence of this problem will be high, at the end of the day the impact of this issue will be moderate at best, as the prices will still update on the "Trip Summary" area of the screen. However, it may confuse less experienced users and lead to complaints. As this was a feature already integrated with the interface in the wireframe prototype (we moved to a different website for interactivity and I forgot to add them back in), this will be a VERY easy fix.

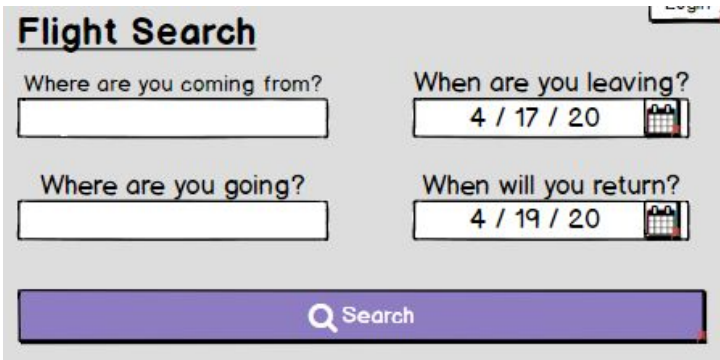| **Possible solution(s) and/or trade-offs:** |
|---|
| The solution is to simply add these features back in. It's not difficult to do given the scope of this project, it was just a simple oversight on my part not carrying it along from my. |
| **Relationships:** |
| N/A |

**Redesign Recommendation:**

As you can see from these UAR Diagrams, a lot of the problems in this chapter have a lot to do with the confusion of certain text fills and labels. To redesign these UAR issues, we could change the questions to shorter, more direct prompts such as "Departure Location" and "Destination Location", or simply find clearer wording like "Where are you leaving from?" and "Where would you like to go?" in order to find a middle ground (**Reagan #3**). For the other (**Abhimanyu # 3**), we could simply change the "Billing Address 2" label to "Apartment/Suite #, P.O. Box, etc." to make it clear what we are asking for in that line. As for the confusion with the search filters (**Beamer #1**), we could simply add color codes as suggested, or bold the terms so that it is clear what form of travel/lodging the user is selecting filters for. When considering the issue with the calendar (**Reagan #2**), we could simply remove the date from the text field and opt for a simple display of the format in the text box instead (ex. "mm/dd/yyyy"). For the last two (**Kidd #1 and Kidd #2**), the feature the user suggested was already implemented in the previous wireframe prototype (displaying the price increase/decrease right next to the selections) , so simply bringing that feature back would be the easiest solution.
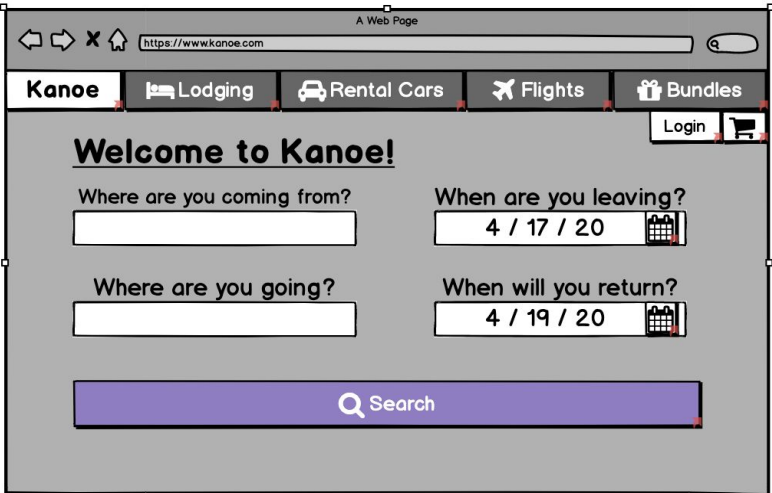
# Discoverability/Functionality Problem UARs

This chapter describes all the positives and negatives users may have had in regards to the discovery and functionality of the website. The discovery and functionality of the site is in regards to the direct features that the site has (ex. checkboxes, text boxes, and other interactive elements), as well as how well the site functions and transitions between pages.

| Reagan #4 | Problem |
|---|---|

| |
|---|
| **Name:** On flight search page, would like "one-way/round-trip" checkbox |

**Evidence:**



**Flight Search**

Where are you coming from?

When are you leaving?
4 / 17 / 20

Where are you going?

When will you return?
4 / 19 / 20

Q Search

**Criterion:** User has a negative reaction/says something is a problem

**Explanation:** The user expressed slight frustration when there was no option to customize his flight search for one-way flights vs. round-trip flights. He said that he would want a checkbox menu on the Flight Search page that allowed him to check "one-way flights", "round-trip flights", or both. He also pointed out that if the one-way box is checked (and only that one), then the "When will you return?" date selector should be grayed out as it is no longer relevant.

**Severity or Benefit:**
**Rating:** 2
**Justification (Frequency, Impact, Persistence):**
Frequency: This problem will occur only on the Flight Search page and will, therefore, only affect users who click on the Flights tab. I would estimate that around ⅓ of users will do this.
Impact: This problem doesn't ultimately impede a user's progress toward their goal. There's a filter on the Flight Search Results page that allows them to filter for one-way/roundtrip flights.
Persistence: This problem is easily overcome as there is a filter on the Flight Search Results page that allows them to filter for one-way/roundtrip flights. Therefore, this problem would only persist on the Flight Search page but would be a problem on that page permanently.
How I weighted the factors: Considering the frustration that it caused this user, and considering that searching for flights will be a relatively popular feature of our site, I rated this a 2 because it is more than just a cosmetic problem. This would be nice (and easy) to solve and would improve consistency across our site as this filter is already available on the results page.

**Possible Solution and/or Trade-offs:** The possible solution to this problem would be to include a checkbox menu for one-way/roundtrip flights on the Flight Search page (maybe near the top of the screen).

**Relationships:** N/A

| No. | **Abhimanyu # 1** | **Problem** |
|-----|-------------------|-------------|

**Name:** User ends up searching for wrong category results.

**Evidence:**
User meant to search for flights but doesn't click the flights tab before he does that. Hence, once he inputs his search criteria and searches, he gets shown a broad results page which leaves him little bemused.



**Criterion:**
User thinks they did it right, but actually got it wrong

**Explanation:**
 The user's goal was to search for the flights between his travel points which was from Greenville to Kansas. As the user comes to the home page after logging in, he sees the fields present on the screen and enters his details and straight aways clicks the search button. He completely passes the top horizontal tabs and doesn't take cognisance of  "flights' option that's there. He  expects that the website would know his intent and would accordingly behave. But on the contrary the website displays the broad results page displaying most popular/fetched searches between the users travel points. This is actually a feature deliberately built in the website for users more in the exploring mode to look at what's available on their intended journey route.

**Severity or Benefit:**

**Rating:** <choose one of the following:>
NA – good aspect
1 – cosmetic problem (does not matter too much)
**2 – minor problem (would be nice to solve, but not a high priority)**
3 – major problem (a problem that should definitely be solved with high priority)
4 – usability catastrophe (a problem that renders the Web site / app useless)

**Justification (Frequency, Impact, Persistence):**
   *Frequency:* **Low**, I think not many users will be experiencing this situation especially someone who has had exposure for even a couple of instances to booking flights. Hence rating it as low.

   *Impact:* **Low**, with the current interface this problem can be overcome by adding a catchy underline just below the tabs to make users of this particular case more drawn to taking notice of the tab options.Also the interface per se does not hinder the user in achieving the task he intended thought this did result in taking more time to get the user where he wanted to.

*Persistence:* **Low**, Once the users  gets the hang of it , this will not be a persisting issue.

  How I weighted the factors*:*
I would rate the overall rating as low as this issue is something easy to be fixed plus I don't think user who are even slightly aware with this kind of websites would make this mistake often.Also the fact that this doesn't stop the user in doing the core task which is searching.Just that user user would realise he is getting a broader results that he wanted.Also once a user realises, it wouldn't bother him.

**Possible solution(s) and/or trade-offs:** Incorporating a flashy underline below the tabs saying "click for flights" would seem a possible solution to us.

**Relationships:** N/A

| No.    **Tyler Kidd - 05** | **Problem/Good Aspect:** Good Aspect |
|---|---|
| **Name:** <br><br> Collapsable menus on the "Cart" screen | |

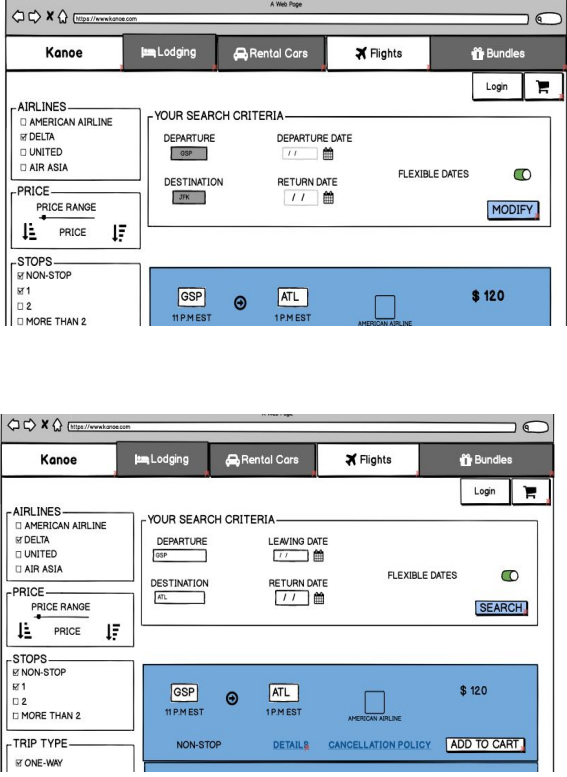| |
|---|
| **Evidence:** |
|  |
| **Criterion:**<br><br>User has a positive reaction |
| **Explanation:**<br><br>User was happy |
| **Severity or Benefit:**<br><br>**Rating:** N/A<br><br>NA – good aspect<br><br>**Justification (Frequency, Impact, Persistence):**<br><br>    *Frequency:* N/A<br><br>    *Impact:* N/A<br><br>    *Persistence:* N/A<br><br>    *How I weighted the factors:* This aspect is beneficial to the user because it lets them hide features they no longer need to see on their screen, which provides more screen space for the features they need while also reducing the amount users need to scroll through to see all the features on the screen. To make this take less clicks/be more convenient for the user, the box would auto-collapse when all fields have been filled out, with the ability to manually reopen them after the fact. |
| **Possible solution(s) and/or trade-offs:** N/A |
| **Relationships:** N/A |

**<u>Redesign Recommendation:</u>**

As you can see from these UAR diagrams, some problems stemmed from not only a lack of functionality in the website, but also a lack of clarity of the order in which one should do said functions. In the event of the former problem (**Reagan #4**), one can simply do what the user asks and add the checkbox to signify that the user wants to take a one-way trip. This would also involve greying out or hiding irrelevant parts of the interface to make it clear what the user needs to fill out. However, in the case of the second problem (**Abhimanyu # 1**), we could add an underline, or we could add a toggle switch (like a checkbox or similar field) on the front page to indicate what the user is searching for, and then bring them to that personalized search field, so the user does not have to click the icons on the top to get where they would like to be on the website.

# Prototyping Limitation Problem UARs

This chapter contains all the problems found in our prototyping test which we thought were the way they were because balsamiq itself wasn't able to give that feel which a real website would. These problems were basically pertaining to transition state perception by the user and dynamically able to tailor content depending upon the user's previous choices. Following UARs elaborate on these problems in greater detail.

| No.      **Abhimanyu # 2** | **Problem** |
|---|---|
| **Name:** User clicks a action button "Modify" but does not  perceives the change in screen state | |
| **Evidence:**<br><br>The user clicks on the "modify" button and is shown the resulting screen with a search section with the search listings from previous search remaining the same for the "Flights search". The user does take a split second more to realise the change.<br><br><br><br> | |
| **Criterion:** User has a negative reaction and says something is a problem. | |

**Explanation:**
The user's goal here was to change his search criteria, so he used the modify functionality provided to do that. When he does that he expects a screen/section where he can do that .In all fairness he does get the screen where he can do that but the user doesn't noticies that screen or change in screen instantly and remarks about it.

**Severity or Benefit:**

**Rating:** <choose one of the following:>
**NA – good aspect**
**1 – cosmetic problem (does not matter too much)**
2 – minor problem (would be nice to solve, but not a high priority)
3 – major problem (a problem that should definitely be solved with high priority)
4 – usability catastrophe (a problem that renders the Web site / app useless)

**Justification (Frequency, Impact, Persistence):**
   *Frequency:* **Low**, I think not many users will be experiencing this situation especially someone who has had exposure for even a couple of instances of booking flights. And even users facing issue realises the change quite quickly. Hence rating it as low.

   *Impact:* **Low**, with the current interface this problem can be overcome by adding a catchy underline just below the tabs to make users of this particular case more drawn to taking notice of the tab options.Also the interface per se does not hinder the user in achieving the task he intended thought this did result in taking more time to get the user where he wanted to.
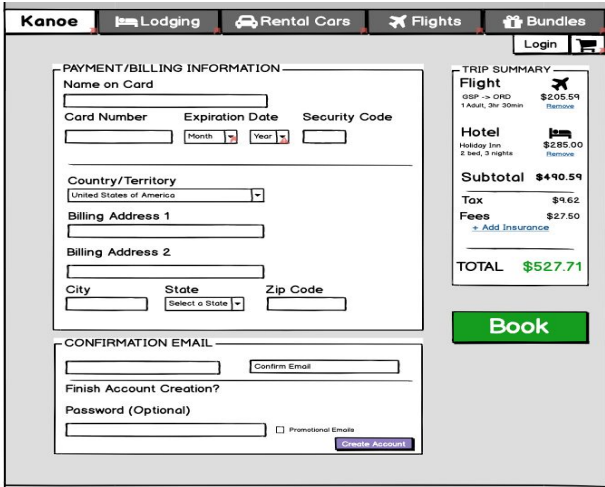
*Persistence:* **Low**, Once the users gets the hang of it , this will not be a persisting issue.

How I weighted the factors:
 Given the fact that all three factors frequency, impact, persistence have been rated low , I would like he overall rating to be low as well because of all the reasons that made me rate all the three factors low.

**Possible solution(s) and/or trade-offs:** Though I think the problem could be attributed to the prototyping tool as when user would do over a real website he would instantly see fields getting editable but I think changing the label on the search button to "Search Again" would further make it clear.

**Relationships:** N/A

| No. | **Abhimanyu # 4** | **Problem** |
|-----|-------------------|-------------|

**Name:** Does not see the point of the "Confirmation Email" section on the checkout page.

**Evidence:**

As the user had logged in having created a account on this website, the user found it unnecessary
To be shown this Confirmation email box. He would not like to fill this fields again.



**Criterion:**

User makes a design suggestion .

**Explanation:**
  The user is looking to complete his  flight booking now and after having filled all his payment credentials he expects the system to not ask him anything more especially something that he has already provided as in his email id. So the user makes a remark about not feeling good to see that and would rather not have it on this screen.

**Severity or Benefit:**

**Rating:** <choose one of the following:>
**NA – good aspect**
**1 – cosmetic problem (does not matter too much)**
2 – minor problem (would be nice to solve, but not a high priority)
3 – major problem (a problem that should definitely be solved with high priority)
4 – usability catastrophe (a problem that renders the Web site / app useless)

**Justification (Frequency, Impact, Persistence):**
 *Frequency:* **Moderate**, I think users who already have a account would all feel the same way.But those who are performorming the transaction with a guest login would appreciate it. Hence dividing the sample 50 percent each I am marking it as moderate.

 *Impact:* **Low**, with the current interface this problem can be overcome by making this section appearance dynamic . Also the interface per se does not hinder the user in achieving the task he intended to do.

*Persistence:* **Low**, Once the users  gets the hang of it , this will not be a persisting issue.
 *How I weighted the factors:*
This problem I would like to rate as Low because the impact and persistence is low and can be easily fixed by making that section dynamic.

**Possible solution(s) and/or trade-offs:** Making the "Confirmation email " section dynamic would certainly solve the issue here.

**Relationships:** N/A

| No. **Beamer # 4** | **Problem/Good Aspect:** Problem |
|---|---|
| **Name:** Confusion on Cart page ||
| **Evidence:** User is confused for a moment on the function of a button, as it seemingly doesn't do anything ||
| **Criterion:** User tries several times before they find the right action ||

**Explanation:**
The user was a bit perplexed at the function of the "Add insurance" button located in the trip summary of the cart page, as clicking it *after* having clicked that she would like insurance seemed to actually *remove* the insurance from the trip.

**Severity or Benefit:**
**Rating:** <choose one of the following:>
NA – good aspect
1 – cosmetic problem (does not matter too much)
2 – minor problem (would be nice to solve, but not a high priority)
**3 – major problem (a problem that should definitely be solved with high priority)**
4 – usability catastrophe (a problem that renders the Web site / app useless)
**Justification (Frequency, Impact, Persistence):**
*Frequency:* I could see this being a frequent problem, because frankly it even caught me by surprise. The actions of the button do not make much sense, but this feels more of a fault of Balsamiq than of the site itself.
*Impact:* The confusion was certainly noticeable, resulting in several seconds of trying to actually add the insurance to their trip.
*Persistence:* It's difficult to say how persistent this issue is, as it is encountered as a one and done thing in this scenario. In a real life situation, however, I could easily see repeat visitors making this same mistake once more.
*How I weighted the factors:* I weighed impact and persistence more heavily in this problem, primarily for the fact that for several seconds there was no progress being made. Or worse – actively hindering progress.

**Possible solution(s) and/or trade-offs:** This is a difficult thing to note, as it was not clear whether this was an issue at the fault of the design, or at the limitations that Balsamiq has as a system. The issue was that the "Add insurance" button links back to a page that didn't have the "Yes, I would like insurance" button clicked, which was the main source of confusion. In the future using Balsamiq we would prefer having pages ready for every scenario, but that unfortunately wasn't feasible for this project.

**Relationships:** N/A

**Redesign Recommendation:**

As one would have realised seeing the problems, the two problems were pretty much pertaining to how a change in transition state is perceived by the user as was in the case of the first UAR in the chapter where on the click of "Modify" the user was show the different page all together with everything the same but just a subtle change in button label to "Search". So the notion to the user being redirected to a completely new page with just this change and everything else remaining the same does take the user little longer in realising and makes him feel little unwarranted.For the second problem that we got (**Abhimanyu # 4**) where the user didn't want

to see the "confirmation Mail" box after he has already logged in. On the other hand if a user has been on the website without a login then it would make all the sense of having that box there. Problem(**Beamer # 4**) is also on the similar lines.These problems we felt users would not feel over a real website as these would be taken care firstly, for the first problem by users not getting directed to a whole new screen but fields in that section getting changed from "read only" to editable ones.For the second issue, "Confirmation Email" box be taken care by cookies and cached data to decide based on user's case to be displayed or not. Hence we thought it would be most appropriate to categorise them in prototyping limitations category as these problems would go away after implementing these prototypes into a real website.

# <u>Conclusion</u>

Most of the problems that we found in the course of our think-aloud testing were in the category of Presentation of Information. This means that the main problems with our design appear to be with how easily the user can understand the page they are viewing. Users were confused by things such as the indirect or confusing wording on the search screens and checkout screens, prefilled date boxes, and how prices of trips or stays seemed to change without any clear reason. Several other problems had to do with functionality or features that our users would like to be implemented in the system. These included things such as the ability to filter searches from the search page. Some things simply weren't obvious to the user because of the way they were designed or how they looked (aesthetically). For instance, the filters on the search results page somewhat blended in and it was not entirely obvious that they were separate from the results themselves. Another user was confused by the cart icon appearing on the cart screen and wondered what this was meant to do. And some of our problems were simply due to the fact that we were restricted in our prototype building process. Since we could not create an actual operational website with a search engine for this project, some functions weren't possible to deliver to our users. Some users complained that the interface was not "dynamic" enough and should be able to accommodate different situations, such as how a page should display depending upon whether or not they are logged in to the website.

Some recommendations that we had for these many issues involved simplifying the system while still making the user prompts as direct as possible. This includes changes such as rewriting the questions on the search screens to simply say "Departure Location" and "Destination Location". We also planned to add some of the features that our users suggested to improve functionality and overall design. These include, but are not limited to: allowing users to filter searches from the search screen, making filters more easily recognizable, removing the cart icon from the cart page, removing the "promotional emails" checkbox from the checkout page, and changing the date selectors to be only one box/calendar button to speedup the date selection process. We would also change the date selection boxes to no longer be prefilled as this seemed to confuse users. There are also other changes to the appearance of the interface that we would change such as making things more distinct from one another (especially on the search results pages). Hopefully, these improvements—and other future improvements to be found in further testing—would make for an easier and happier overall user experience with Kanoe.com.

# **<u>Reflection</u>**

Through our think-aloud tests, we discovered 16 total problems (with no duplicates) and 4 positive aspects within our prototype. While this testing helped us discover many of the issues with our design, further iterations of development and testing would allow us to make our design better and add new features. As a wise man once said, "The biggest room in the world is the room for improvement." However, we should note that perfection is unattainable, because users have different needs and different preferences. The prototyping process took about 5 hours of work per group member, and was accomplished through a combination of virtual meetings and individual work. Our practice occurred during our meetings after the prototype was developed. The think-aloud tests took approximately an hour to an hour and a half of total testing, and synthesizing the UARs took about 3 hours of group work.

Due to the COVID-19 crisis, our access to users for testing was limited. So if we were to repeat the assignment, we would like to have a greater number of users to choose from. It would also be helpful to have met in person which was not possible during this time due to most of us having gone home to different parts of the state or even different states. The virtual meetings that we were forced to interact through limited our ability to efficiently share ideas and work together on our prototype (at least as much as is inevitable when switching from in-person to online meetings). However, this was out of our control and could not be avoided. We worked around this and were still successful in designing the prototype that we wished to create. But if given an ideal do-over, we would certainly have rather met in person.

# **Appendix**

## Full Task Descriptions

Reagan

U01's task was fairly simple: begin on the home screen and perform a search for a flight. The only 2 ways he could choose to do this are searching from the home screen or clicking on the "Flights" tab and searching specifically for flights from there. This task was primarily intended to be a test of the home screen, or the Streamlined Search Interface feature, itself. It was also intended to include a surface-level test of the search results, but not in-depth, as that is covered by other teammates' tasks.

Daniel

U02's task was straightforward as well: beginning from the home screen, perform a search without using any specific criteria to perform a "broad search". From this broad search, proceed to a listing's detail page to view more information about the listing itself. For the purposes of this test that was all that was necessary of the user, but we went on to test the remainder of the procedure (placing an item into the cart, reviewing the cart, and checking out) for the purpose of being thorough in our testing.

Tyler

U03's task was simple: beginning from the cart screen, perform the checkout and information inserting process. As we could not enter any text with the prototyping interface we designed in, the user simply spoke (in general terms) what he would enter into these fields, as well as speaking about that page's interface.

Abhimanyu:

U04's task was confined to just booking of flights to his intended destination point from clemson.Initially user's intent was to go to Atlanta which got changed midcourse to Kansas City.User is looking to book primarily non stop flights and optimising further for least possible priced flights along with preferring to book with his favourite airline carrier. Once user was satisfied with the option he saw after applying all his desired filters, he proceeded with booking that flight.

Malaya

      U05's task is to use the home screen to search for a flight, car, or lodging, with particular emphasis on the calendar design.  The user can do a general search for a particular city, or access one of the site's options through the direct link to that element located at the top of the screen.

## Prototype Link

[Prototype Link](#)

## User Test Videos

[Reagan_Kanoe_User_Test.mp4](#)

[Tyler's User Test Scenario](#)

[Daniel's User Test](#)

[Abhimanyu's user testing](#)

(May require a Clemson email account to view)