

Project 3

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DSGN 1 FA19

Project 3 Rubric Link:

<https://drive.google.com/file/d/16SHMZ7DRA9UM9z2MK2yAcnEINSg6nTJC/view>

Project 3 Spreadsheet Link:

https://docs.google.com/spreadsheets/d/12w9Fs3X2LK1IROzI_I03Lr9KI-YOnK9Aqt5qmFuKxI8/edit#gid=0

Project 3 QUOTES

https://docs.google.com/document/d/1NZdrjUVRIMBQ_GdNWN6fOFleUyKIMopogCIS9mbmuKk/edit?usp=sharing

Slips/Mistakes Studio Slides:

https://d1b10bmlvqabco.cloudfront.net/attach/k0zuvwaein93to/j7y16xux5ty20x/k2dsdsmggi21/Copy_of_DSGN_1_Studio_5.pdf

Graphs:

https://docs.google.com/document/d/1go-MsfdkwSPVau6SW7y_t9NCsAz6j8Dxr6n-SMbUTwU/edit?usp=sharing

This should be at least 7 pages long (not including pictures and figures).

Due TUES, November 12 @ 11:59 PM

Code: 593351

Deadlines:

- Interview by the end of tomorrow
- Input data into data sheet by Friday morning (latest) and start write-up

Tasks:

- Google sheet data
 - Everyone

- Asha makes google sheet
- Layout/ figure labeling
 - Doris
- Infographics
 - Krysia
- Graphs/tables
 - Asha
 - Krysia
- Trade-off graph
 - Asha
- Error analysis
 - Chloe
 - Asha
- Patterns and trends
 - Chloe
- Tradeoff analysis
 - Chloe
- Redesign
 - Angel
-

Constants:

1. Chrome browser
2. UCSD faculty/students

Topic: How do you change or declare your major?

1. Open google chrome
2. What website do they use to find where to change their major/minor?
3. Where do they scroll to?
4. What link do they click?

Interview Questions:

- 1) What browser do you usually use?
- 2) When is the last time you used Google Chrome?
- 3) Have you ever declared or changed your UCSD major online?
 - a) If so how many times?
- 4) Can you show me how you would change or declare your major online?
 - a) Ask them to show you where they navigate to where they would google search/go
 - b) Note the results of the process
- 5) What did you think about that process?
 - a) How long did it take them to access the link?
- 6) What do you think about the design?
- 7) In what ways do you think the design could be improved?

Quantitative data:

Year in college, and age
Major, declared vs undeclared
Time the whole process takes
Number of clicks

Start Point of Interview: from the Chrome browser

Angel

Doris

Chloe

Krystyna

Asha

Everyone

Figures Ideas: screenshots of the website, maybe short videos, other pics?

Data Collection:

- **(15pts)** Describe and justify interview and task methodology (who, what questions, where, how did you collect the data, why you chose the task, and why did you make each decision)
 - Refer to ABOVE preliminarily notes we have
- **EVERYONE (5pts)** Proof of data collection (e.g. link to interview/observation notes, link to recordings, pictures, or summarizing chart) and evidence that each member conducted 3-5 interviews.
 - Place link to SPREADSHEET here
- Include a “Contributions” section about each member’s efforts toward the data collection and paper write up. (See BOTTOM of doc)

Error Analysis:

- **(10pts)** Identify and describe errors users make (slips and mistakes) that you discovered in the interviews and observations
 - Let’s talk about this together

- Describe and justify interview and task methodology (who, what questions, where, how did you collect the data, why you chose the task, and why did you make each decision)

For this paper, we have been researching how various users interact with the UCSD website when tasked with finding the page for declaring/switching majors. We chose TritonLink because many of us had prior heard of people having issues with navigating the TritonLink website due to having many pages and tree lists. We narrowed down our study to focus on navigating to the Major/Minor Tool, since we felt that it is specifically one of the most crucial tasks for a college student and should therefore be designed to be found with ease.

Our first major decision was deciding at which page the user should start, the Google homepage or the main page of the TritonLink portal. After interviewing several people, we realized that starting at the Google Homepage would be more advantageous for our study because it left more room for both data as well as errors to be collected. The interviews that started at the main page of the TritonLink portal did not give enough freedom for the user to explore and find the link they are looking for and instead gave them a narrower group of choices that would often lead to a success very quickly. This was not as realistic for our study because almost all people searching for the major/minor tool start at the Google Homepage, not at the TritonLink portal. Through this trial and error, we saw the value of interviewing users without giving them a hint or leading them in a certain direction.

Once we concluded that the users should start at the Google Homepage, we agreed on interviewing 3-4 people in order to gain a vast amount of data from a wide variety of people. Through this, we were able to get a more representative sample. Our users ranged from people who both have and have not changed their major in the past, people who attend UCSD, people who attend another university, and people who are not currently in any university. Before splitting up to start conducting interviews, we made an excel spreadsheet listing the questions we wanted to ask.

We created a mix of close ended questions, open ended questions, and questions/observations that would lend themselves towards both qualitative and quantitative data. We asked close-ended questions to get an idea of user demographics by including age, year in college, preferred browser, and whether they have used the tool to change majors/minors before. By knowing the demographics, we could more accurately analyze our data later. Then, for qualitative data, we decided to track 3 aspects of the task: the time it took users to navigate to the tool, the number of clicks they used, and the number of pages they visited. In order to track this accurately, we all took screen recordings of our users completing the tasks to count later. We decided these 3 numbers were the most important because they can quantify the effectiveness of a design; the time should be as low as possible, and the number of clicks and pages visited should be ideally low as well for a tool that should be easy to access.

Errors:

Action-Based Slip

One common error was the *action-based slip* that occurs when the user performs the correct action on the wrong object. In this case, the same goal was consistent for all sixteen interviewees: clicking the hyperlink that will lead them to the web page to change their major.

Unfortunately, this simple task when applied to the wrong objects led to undesired results. 9 of the 17 interviewees struggled with clicking a hyperlink near the top of the given web page or at the side bar where different categories are listed rather than scrolling down the web page to find the correct hyperlink (see Figure X). This was an action-based slip because these users had the correct mental model, clicking a hyperlink that will lead to the desired webpage, but instead chose to click on hyperlinks that were near the top and more noticeable but were incorrect. The reasoning for why this situation was a slip rather than a mistake is because the user's mental model was to click on a link that led them to the desired web page but they performed this action incorrectly by applying the right concept to the wrong object.

Users such as Sarthak and Kathy were prone to click on hyperlinks near the top before reading through the entire web page. One of the interviewees, Shelby, said “telling about all the other requirements and then having the link as the last thing instead of [having it as] a big bold tab to the left would be less confusing. Especially because there are several links before that (see Figure X).” The desired hyperlink should be in a location where the user can spot easily. However, on this web page, the desired hyperlink was at the very end of the page, which created a conflict between the *conceptual model* and the user's *mental model* (see image). In this way, the hyperlinks located near the top of the web page were prone to be clicked on more than the ones at the bottom because the users did not take the time to read through an entire page before reaching the hyperlink at the end. Due to this action, the user fails to reach the goal of finding the changing major/minor hyperlink. This slip was a result of the designer's *mapping* that placed the correct link near the bottom and misleading links near the top.

Ultimately, the hyperlinks near the top and in a column to the left of the main body page led to more information on changing major/minor but did not send the user to the actual web page that had the ability to do this. The designer created these hyperlinks to lead to different web pages that they believed would be helpful for the user due to the extensive information, however, for most users, they simply want to change their majors or declare a minor without having to read through, often times, unnecessary information that the users already are informed about. This is evident in that 9 out of 17 of the interviewees would click these hyperlinks and immediately click the back arrow button out of it because they found these web pages to be unwanted information. For the users, their *mental model* of the webpage did not align with the designer's whose goal was to inform the user while the end goal of the user was to simply change or declare a major or minor.

The screenshot shows the UC San Diego TritonLink website. The main navigation bar includes 'CURRENT STUDENTS' and 'UC San Diego'. Below this is a search bar and a 'Find Faculty/Staff' button. The main content area is titled 'How to Declare or Change a Major (Undergraduates)'. On the left, there is a sidebar with a 'Majors/ Minors' section containing links for 'Undergraduate Majors', 'Capped Majors', 'Majors With Pre-major Status', 'Declare or Change a Major', 'Change Graduate Major', 'Declare a Double Major', and 'Declare a Minor'. A red arrow points to the 'Declare or Change a Major' link. The main content area has a heading 'How to Declare or Change a Major (Undergraduates)' and a sub-heading 'About undergraduate majors'. Below this, there is a section titled 'Declare or change your major' with a sub-heading 'First, select your major.' and a list of links: 'Read major descriptions in the General Catalog.', 'Talk with your college advisor.', 'Explore majors by speaking with department advisors.', 'Discuss career options with a Career Services counselor.', and 'Read the Academic Senate policy on Majors (section A)'. A red arrow points to the text '3 different hyperlinks' on the right side of the page. At the bottom, there is a note: 'Be aware of department and college approval requirements.'

Knowledge Based Mistake

Through this study, it was evident that over 50% of the users, 9 out of 17, struggled with a **knowledge based mistake**. The knowledge based mistake occurs when the user performs the action that they had planned but had the wrong mental model due to lack of information and overall knowledge about the design or product. Harry, Sarthak, Lawrence, Jenn, Jillian, Nithya, Kassidy, Kathy, and Crysta all lacked the knowledge of the location of the hyperlink for changing one's major or minor. Although they all had the same goal of finding the specific major/minor tool hyperlink, their actions were wrong due to the lack of comprehension of where exactly they should be looking for the hyperlink. Because of this, they clicked different hyperlinks that led them to other web pages that further confused them. This was a mistake rather than a slip because in this situation, the users were trying to find the link that led them to the major/minor tool but lacked the information to find that location, and thus, incorrectly performed their action.

Through their **Gulf of Execution**, the interviewees clicked on different hyperlinks presented on the web page. However, they were given **feedback** in that the links led them to web pages that were not what they were looking for. Thus, their **Gulf of Evaluation** caused them to come to the conclusion that certain links led to the wrong tab, and they returned to the original webpage. This cycle occurred about three to five times for Sarthak, Jillian, and Nithya, about six to nine times for Harry, Lawrence, Jenn, and Kassidy, and a staggering twenty times for Crysta (see Table). At the core of these failed attempts was lack of knowledge about the location of the link. For users Harry and Kassidy, they struggled with understanding which category the hyperlink for changing a major was under due to their lack of knowledge of what each category represents (see Figure X). According to Kassidy, she states, "honestly, I feel like it directs you to things but what i'm looking for isn't there even though it said it would be. Maybe having more specific tabs that can directly take you to what you are looking for can improve this."



Complete the Undergraduate Declaration or Change of Major using the [Major/Minor tool](#).

- Allow 3 to 5 business days if your request only requires department approval. Allow 6 to 10 business days if your request requires both department and college approval.
- If you are requesting a [Capped Major](#) that's outside of your current department, you will be redirected to the [Capped Majors Application](#) to submit your request.

Questions? Contact the appropriate resource:

- Your [department](#)
- Your [college](#)
- [Office of the Registrar](#), (858) 534-3144
- International Students, contact the International Student Office, (858) 534-3730 once your change of major has been approved.

Figure 2:

- **(10pts)** Correctly classify errors as types of slips or mistakes, and explain your reasoning
- **(5pts)** Come up with patterns/trends from interviews (i.e. repeated errors from different users)
- **(5pts)** Support interview findings with quantitative and qualitative data (**infographics**) (e.g. how often does a certain error happen among interviewees? Why was that certain error committed?)
 - Refer back to spreadsheet



NAVIGATING TO THE MAJOR/MINOR TOOL

**1 MIN
16 SEC**

AVERAGE TIME TO
NAVIGATE TO TOOL

7.7

AVERAGE # OF
CLICKS

5.1

AVERAGE # OF
PAGES VISITED

SAID TO MAKE THE HYPERLINK MORE OBVIOUS:

13/17



SAID THE PAGE HAD TOO MANY WORDS BEFORE HYPERLINK:

5/17



Trade-offs:

We noticed some common *trade-offs* when it came to the UCSD webpage for adding, dropping, and changing students' majors, where we felt the designers chose one attribute of the site to be of higher significance over the other. The *trade-offs* we came up with are listed below:

- Description vs. Priority
- Uniformity vs. Noticeability
- Cleanness vs. Ease of Use

We believe description and priority to be *trade-offs* because if the link to change, add, or drop a student's major is at the top of the page, students are less likely to read the description below that *informs* them of how they can decide on a major that best suits them, as well as the different processes behind choosing a major.

We also noted uniformity and noticeability to be trade-offs. In the case of the Tritonlink homepage, the hyperlink to the "Major/Minor Tool" (Figure 2) is the same color as the sub-heading, which makes it more uniform in regards to the colors and format of the page, but less noticeable to the average user, who typically regards hyperlinks as being light blue. In fact, 13/17 users mentioned that the hyperlink was not *salient* enough. In regards to *My TritonLink*, the designers decided to keep the design uniform in the sense that the tool to change one's major is an option in a dropdown under one of the tabs (Figure X). Because the user has to search for it, the link not very noticeable to the user. One user, Tyler, even described in his interview how he thought that the tool should be on the *My TritonLink* page. He asked for help when being interviewed and was suggested by his interviewer to try a Google search, which ultimately led him to the right place. What Tyler did not realize though, was that link was on the *My TritonLink* page, he just did not recognize the link as the proper tool as he was scrolling through the dropdowns. However, uniformity keeps the design sleek and with minimal links on the page, which can work in favor of the user by reducing their *informational load* when they first enter the page..

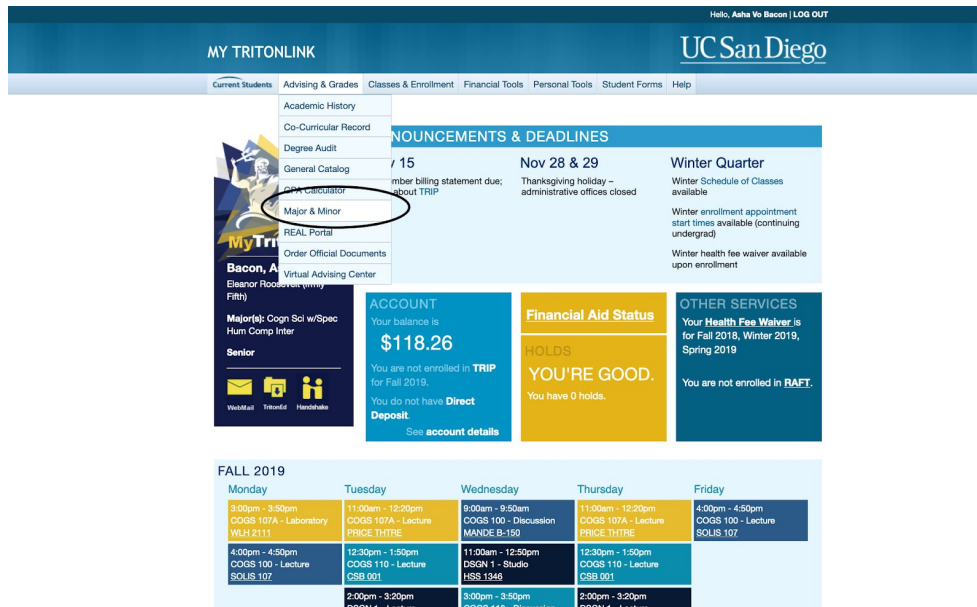


Figure X:

- (5pts) Analyze / identify the design tradeoffs that contributed to errors

Design Space & Redesign:

- (10pts) Map design space of item with chart (include current design, comparable designs, and redesign)
 - The cross chart I'm assuming
 - Try using "insert" then "drawings" then "new"

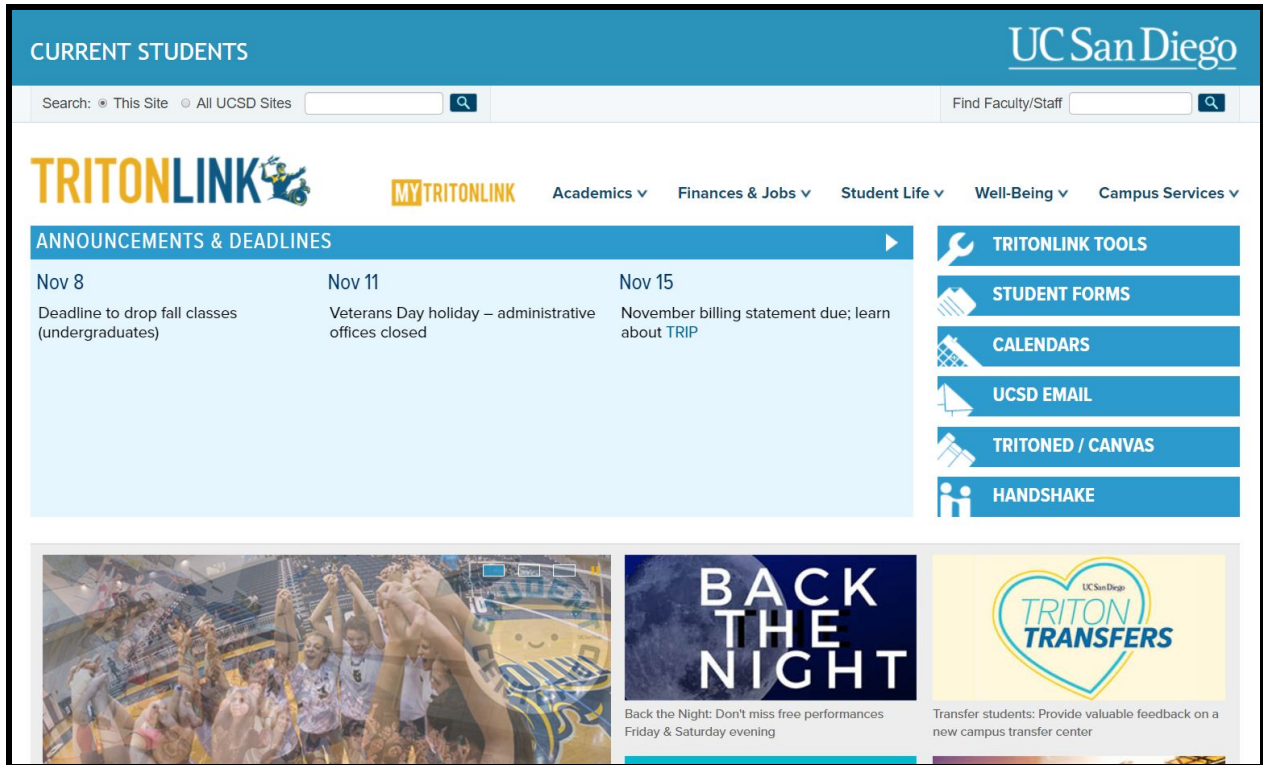


Figure (?): TritonLink Homepage Original Design

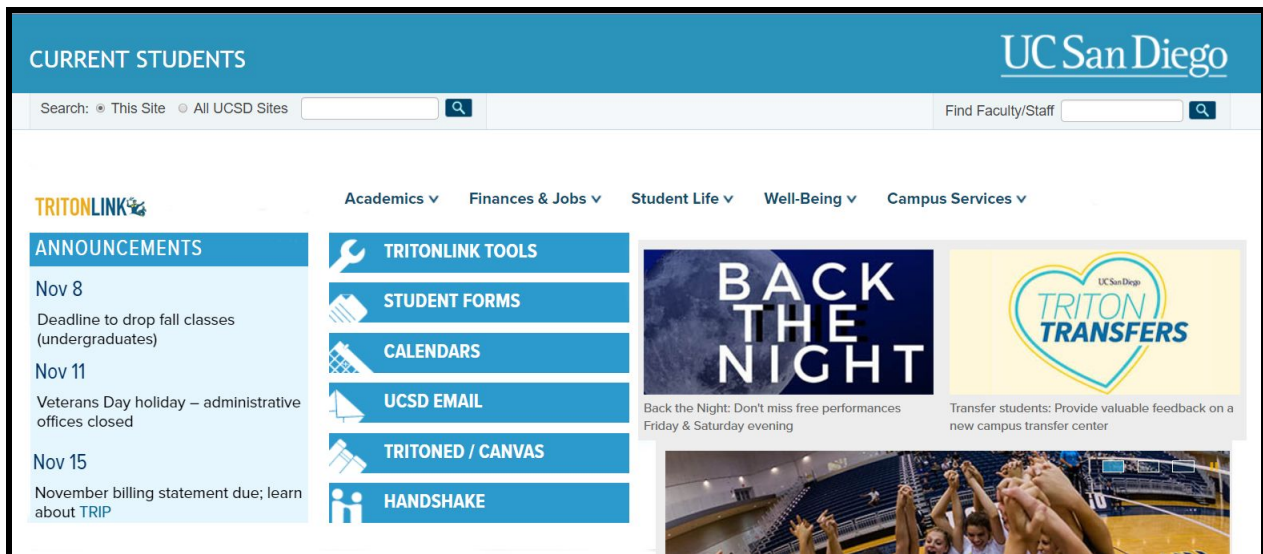


Figure (?): TritonLink Redesign

Based on our interview findings, we identified that multiple users who struggled to navigate to the major/minor tool felt as if the direct link to it could be made more obvious. In addition, most of the users navigated to the page by first Googling for “TritonLink” and then explored the site from there. Users tended to spend the most time on the main TritonLink homepage, clicking through multiple links presented on the site before finally arriving at the

correct one. Based on these patterns, we decided that one possible solution to mitigate errors could involve redesigning the main home page layout for TritonLink in order to streamline navigation to the major/minor tool.

In our redesign, we minimized the “Announcement” section, which was previously taking up the majority of the screen while possessing few useful links. We predicted that this would help to draw the user’s attention to the correct link, which is located under the blue button titled “TritonLink Tools.” In our trials, many of the users would first ignore the line of blue buttons towards the right of the original design, as it was not centered on the page. As seen in Figure 2, it’s not immediately obvious where you’re supposed to click. In the redesign shown in Figure 3, the blue buttons are centered on the page, making the user more likely to engage with them due to them attracting more attention. Because of this, our redesign reduces both *knowledge-based mistakes* and *action-based slips* as it becomes more immediately obvious for a user who has never interacted with the site before to intuitively guess the correct place to click. By removing the necessity of already being familiar with the layout, users are able to more comfortably navigate to the tools they are searching for. This concept can be further exemplified in our research, as the majority of users who did not struggle with the site answered that they had previous experience with changing their major, and thus were familiar enough with the process to remember it for the trial. This suggests to us that bridging gaps in knowledge between the different users of the TritonLink site will help to minimize such errors, and we tried to do so with a more visually-pronounced layout of the home page.

The *tradeoffs* associated with the redesign is that it increases the appearance of clutter on the website. When previously much of the screen was filled with blank space taken up by the “Announcements” section, after shrinking it down and overall condensing the layout of the page, we found that it gives the page a slightly crowded look to it. The *tradeoff* with the redesign, then, is that making the correct links more obvious comes at the expense of the visual aesthetics of the page. Because the buttons now take up a more prominent space in the center of the screen, there is now more content for the user’s eyes to fall open when scrolling through the screen. This may give the appearance of clutter with the increase in visual stimuli. However, we believe that this *tradeoff* is justified, as it will be more beneficial to users to have an easy-to-navigate site as opposed to an aesthetic one.

Human Error or Design Error?:

Start typing here

Critique (Studio & Writing Hub):

- Here we can input the critique that we got from our studio section
- Maybe writing hub critique too if one of us can make it
 - Input proof of attendance (easiest way is to screenshot the email that the tutor person sends you after the meeting, upload the image onto your google drive, and then link it to this doc or upload the image directly onto the doc)

The TAs were able to give us valuable critique on our project. One of the TAs taught us how to use QuickTime Player to screen record our interviews. This was valuable information for our team because we were able to look back at these recordings to take note of the amount of tabs they visited, the comments they made during the process, and the duration of time spent on

the web pages. This was vital information that aided us in collecting data, and without this tool we would have missed information or had to go through different means of recording both their voices and the actual visual process. One of the TA's also told us to be consistent in the laptop we use for interviews. All five of us used our own computers when interviewing others which created a much more consistent test that did not leave room for many outside forces, such as comfortability with particular devices, to skew our data. We were also advised to interview one or two people who were outside of college to get more data from users inexperienced with changing their major. We each were able to get one interviewee who was out of college. The TAs also pointed out that some of our interview questions were slightly leading questions and we were able to alter these questions as to leave more room for our interviewees to explore their ideas independently. Because of that, we were able to gain more insight on

Contributions:

Angel Mai

I interviewed three people, assisted in brainstorming interview questions, drafted a potential redesign based on interview findings, and discussed the tradeoffs between the original and the new design.

Asha Bacon

Start typing here

Chloe Park

I interviewed four people and wrote the error analysis section that focused on the particular errors and patterns and trends that were found in the interviews. I defined the errors and analyzed how they were evident in each situation. I took screenshots of the web page as evidence for my written analysis. I wrote the critique section and proofread the project.

Doris Liu

I interviewed four people and laid out the final layout for the Quotes doc, this Project 3 doc, and added a few relevant columns in the spreadsheet. I read through all the analysis and bolded and italicized all of the terms that we included. I made the doc easier to read and more organized. Finally, I numbered the Figures and matched them to the ones that my teammates mentioned in the parts that they wrote.

Krystyna Olszewska

I interviewed three people, wrote the introduction / data collection section, and organized the spreadsheet. I also made the infographics, to display the data nicely, calculating the averages of clicks used, pages visited, and the total duration of the task.