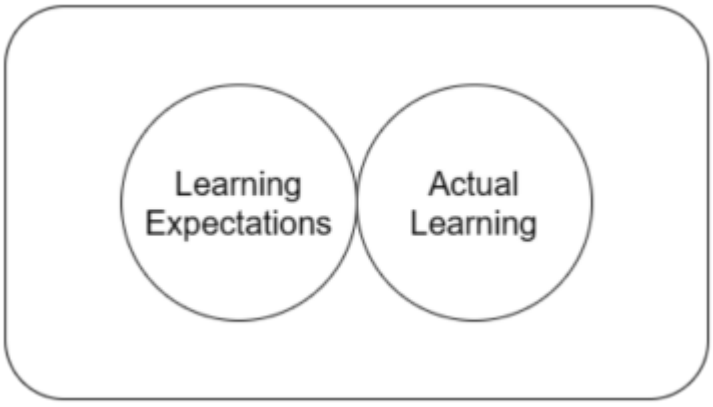
Data Visualization and Storytelling 1: Design Basics

Learning Diary

Table of Contents

Overview

To be very honest, what I expected to learn from this subject and what I actually learned are completely different.



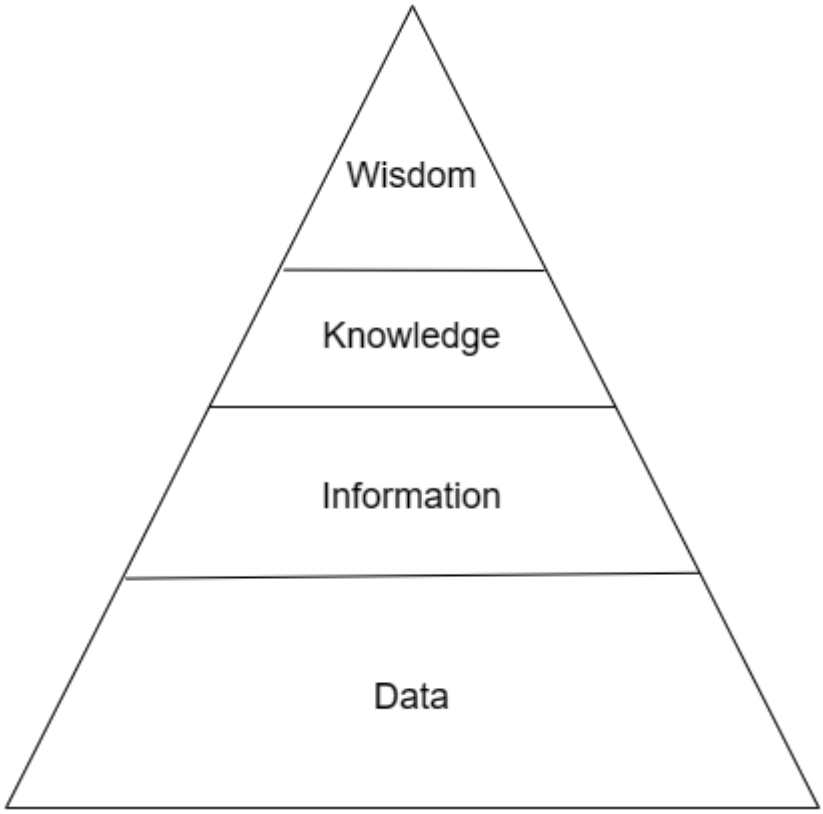
Things I expected to learn in **Data Visualization and Storytelling 1: Design Basics** :

- How to prepare data for visualization.
- What are the different kinds of charts/plots and when to use them.
- Tools for data visualization like PowerBI, Tableau, etc.
- Some best practices for visualizing data.
- Dos and Don'ts of data visualization[1].

The things I actually learned in this subject, my experiences, the things I liked and disliked are described in this document.

Introduction

The primary goal of data visualization is to extract useful information from data, gain knowledge and wisdom from it to make informed decisions.



> John Snow's map showing the clusters of cholera cases in the London epidemic of 1854 is an excellent example of how data visualization can be used to convey an idea and share insights.

There are three major factors to keep in mind while developing a data driven solution:

1. Desirability - Does the solution actually solve the user's problem?
2. Feasibility - Is the solution technically and organizationally doable?
3. Viability - Is the solution financially sustainable?

Class Activities

Class Activity 1

Task:

At first we were asked to draw a toothbrush. After everyone showed their drawings, we were asked to draw an electric toothbrush.

Takeaway:

By defining the requirements clearly, we can make our solution more precise.

Class Activity 2

Task:

We were asked to identify the essentials that students need on campus.

Takeaway:

We had a brainstorming session and different teammates came up with different answers. Then we discussed together and filled in the gaps.

Class Activity 3

Task:

We were shown pictures of 4 different can-openers and we were asked to identify the least and most usable designs. Then we were asked to identify the least and most usable can-opener design based on the **user**.

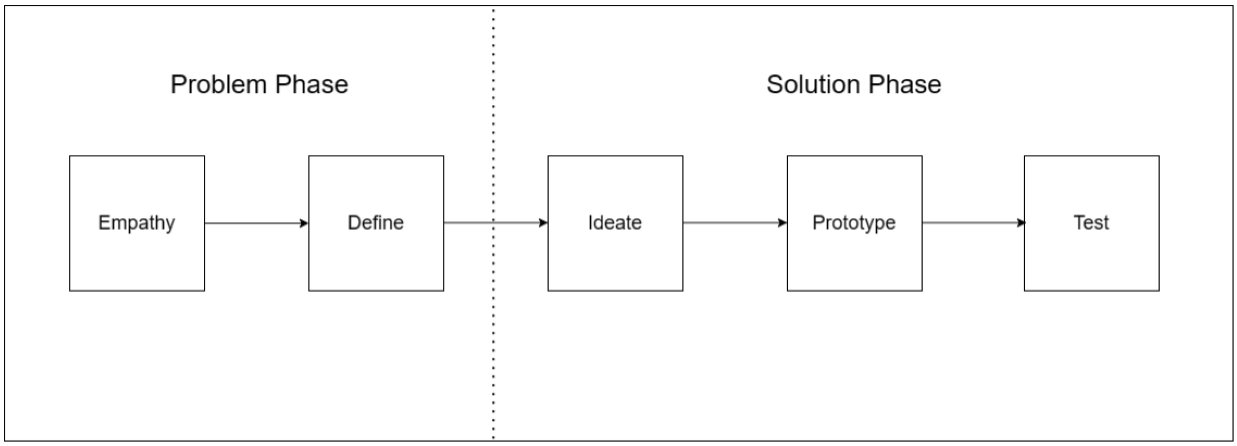
Takeaway:

We should always design our solution keeping in mind the requirements of the user.

Design Thinking

Design Thinking is a *user-centered* approach to solving a complex problem.

The design thinking process consists of the following steps:



Empathy

- To create a desirable solution, it is crucial to understand the needs of the user, and how they think and feel.
- It is important to do things as they do in order to understand their perspective of things, and their pain points.
- Since this is the 'Problem phase', the focus should only be on identifying and understanding the problem and **not on the solution**[2].

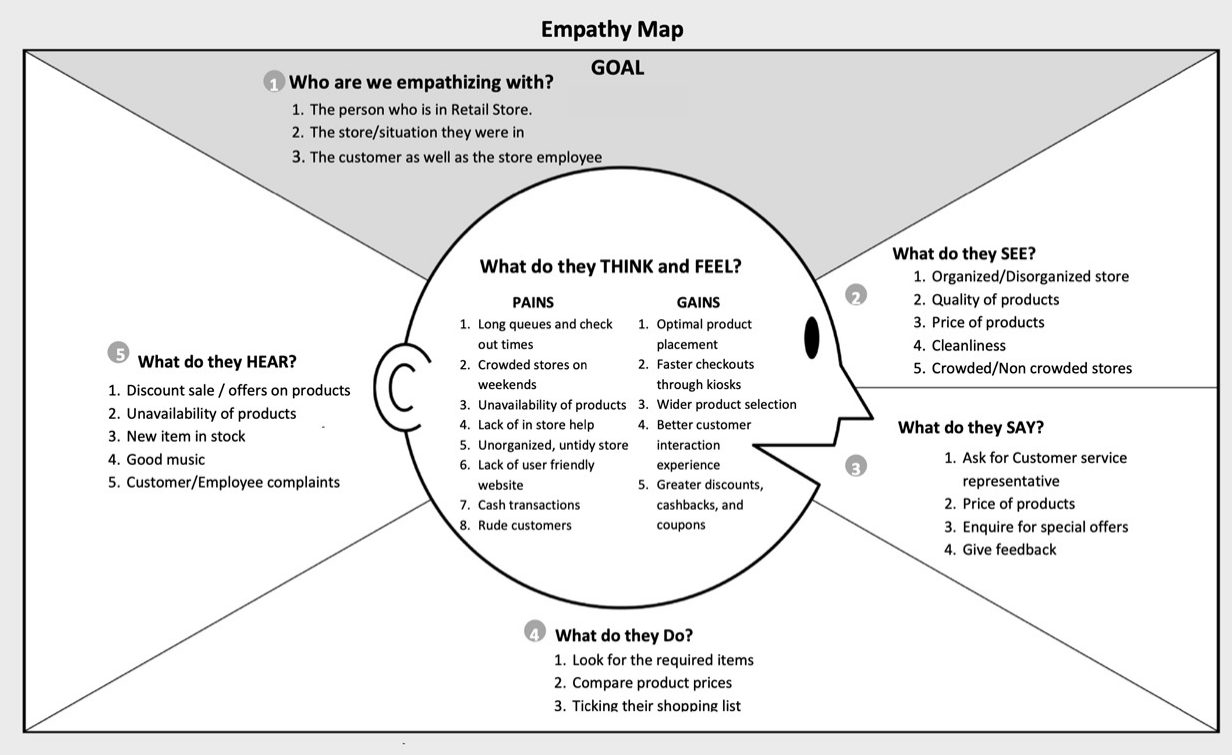
Activity

Task:

Select a domain from the list of given domains, identify users in that domain and interview them to gain empathy and understand their pain points.

Takeaway:

- It was an excellent opportunity for me to step out of my comfort zone and interact with strangers.
- We did our best to ask open-ended questions about their experiences and feelings while actively listening to their stories without drawing any conclusions immediately.
- We created an empathy map where we segregated their responses into things they feel, think, see, say, do, and hear.
- Through this we were able to categorize their responses into pains and gains and hence we were able to understand their pain points better.
- We also learned about the 5 Whys method to recognize the real cause of the problem[3].



Define

- In the define phase we unpacked our findings from the empathy phase into needs and insights and formulated a problem statement.

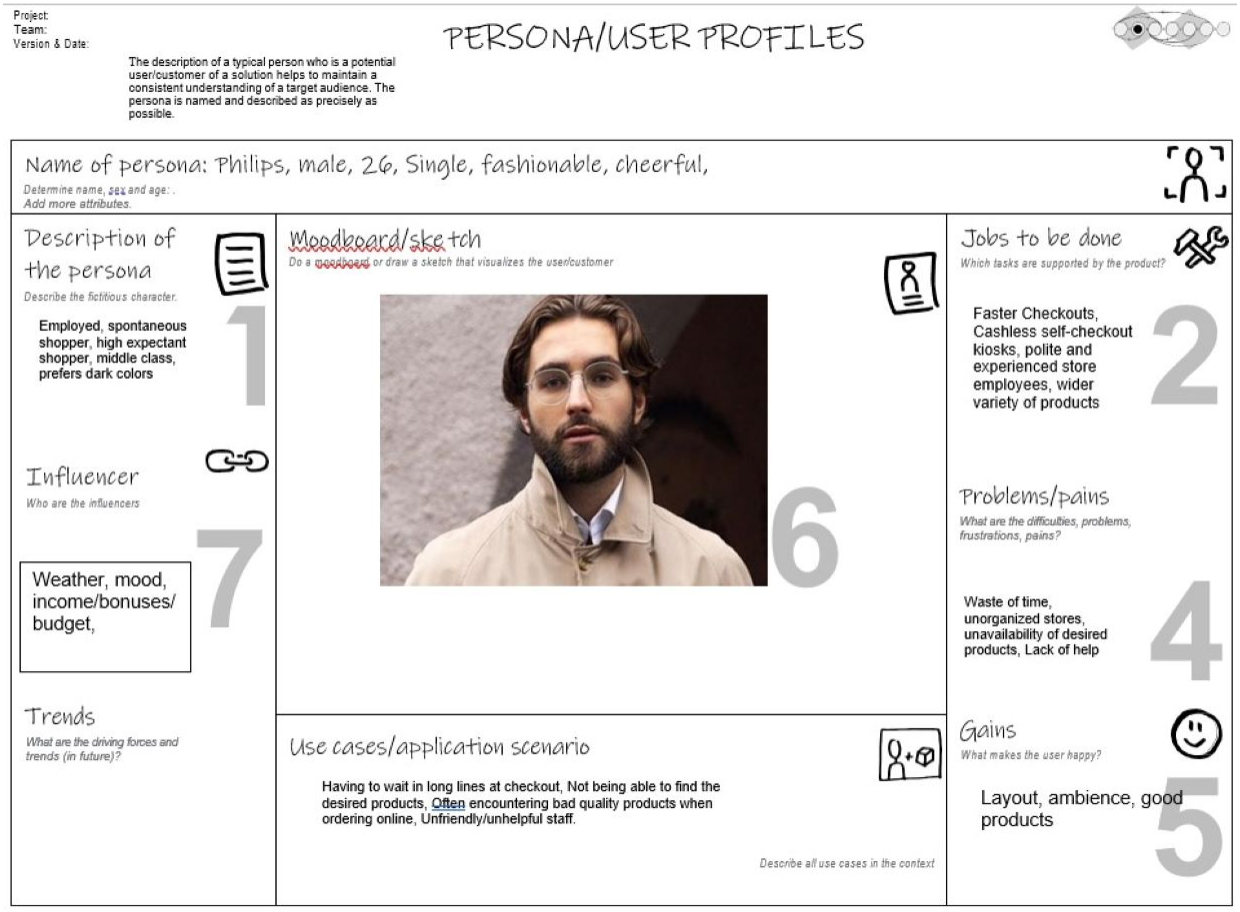
Activity

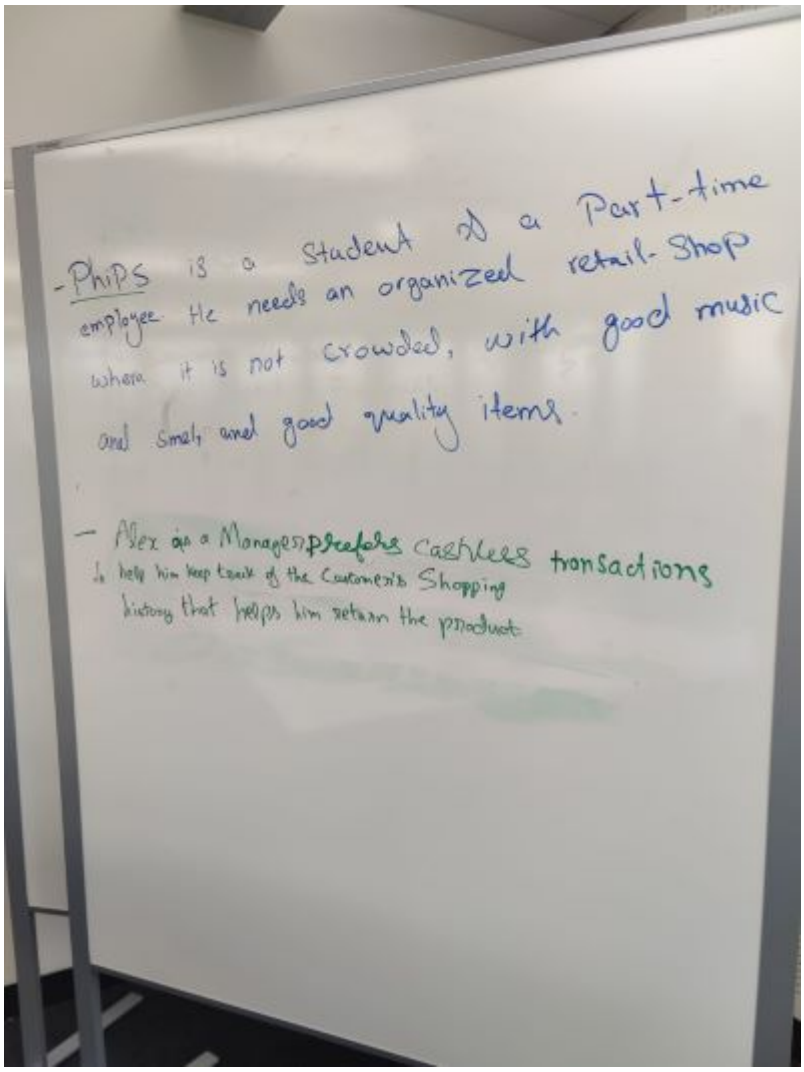
Task:

Create a user persona and come up with a POV (Point Of View).

Takeaway:

- We had to put ourselves in the shoes of the created persona in order to better understand their problems as well as requirements.
- This being the last step in the 'Problem phase', we had to ensure that we define the problem statement from the perspective of the user.
- POV = User + Need + Insight





- User: Philip.
- Need: An organized store.
- Insight: It is crowded.

Ideate

- The ideate phase is the first step in the 'Solution phase' and it brings out our creativity.
- We generated ideas for the problem statement identified.
- The goal was to not judge the ideas or come up with the best one, but to come up with as many ideas as we could, even ones that seemed absurd.

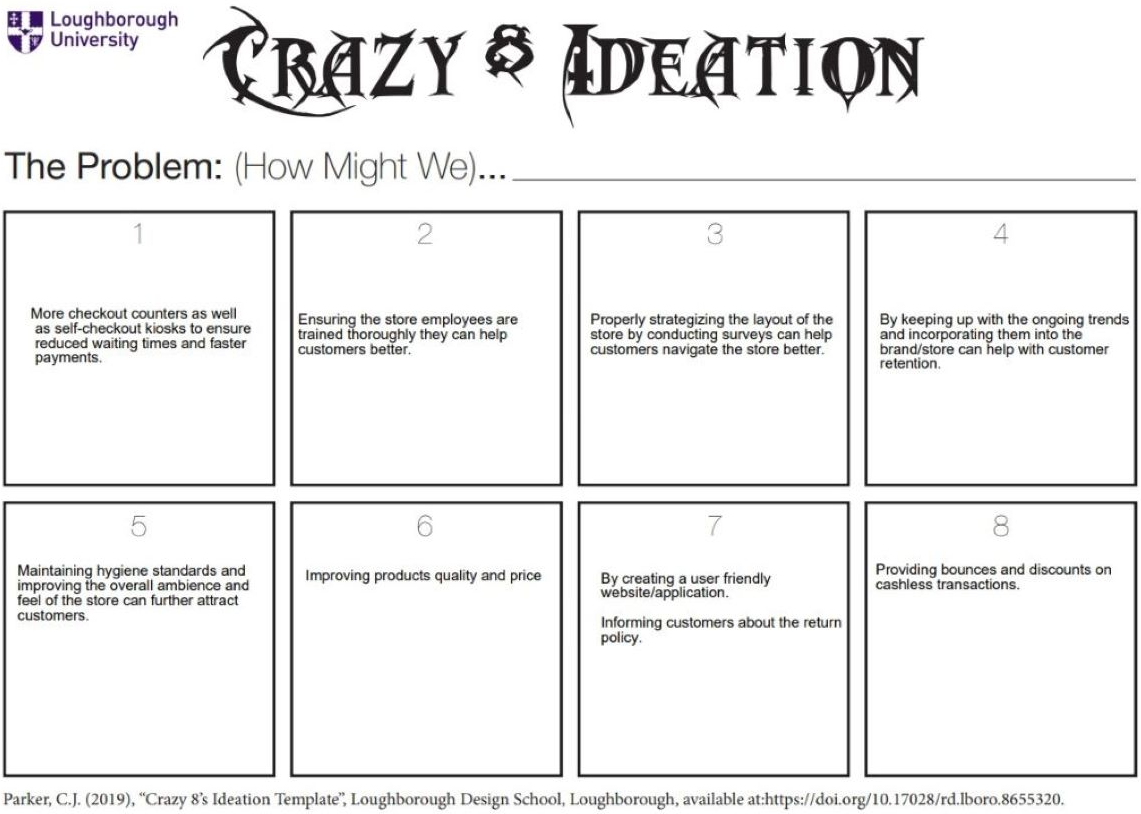
Activity

Task:

Come up with 8 crazy ideas within 10 minutes.

Takeaway:

- It was hard not to be biased when coming up with the ideas.
- I also learned that my teammates could come up with ideas crazier than mine.
- Given the time constraint, we had to work in a very cordinated and disciplined manner.



Dataset Collection

Activity

Task:

Find a dataset that contains the ideas which were collected.

Takeaway:

- We looked for an open source dataset that contains the ideas we collected.
- When we couldn't find such a dataset, we generated one using an online tool.
- Our dataset consists of the following features:
    - Customer ID (Unique ID)
    - Age (Measure)
    - Gender (Category)
    - Amount Spent (Measure)
    - Preferred Payment Method (Category)
    - First Priority (Category)
    - Second Priority (Category)
    - Third Priority (Category)
    - Category (Category)

Prototype

- In the prototype phase we created the initial model of how our solution would look.
- We brought our ideas to life using hand drawn figures, wireframes for the SAS dashboard, and lego figures.

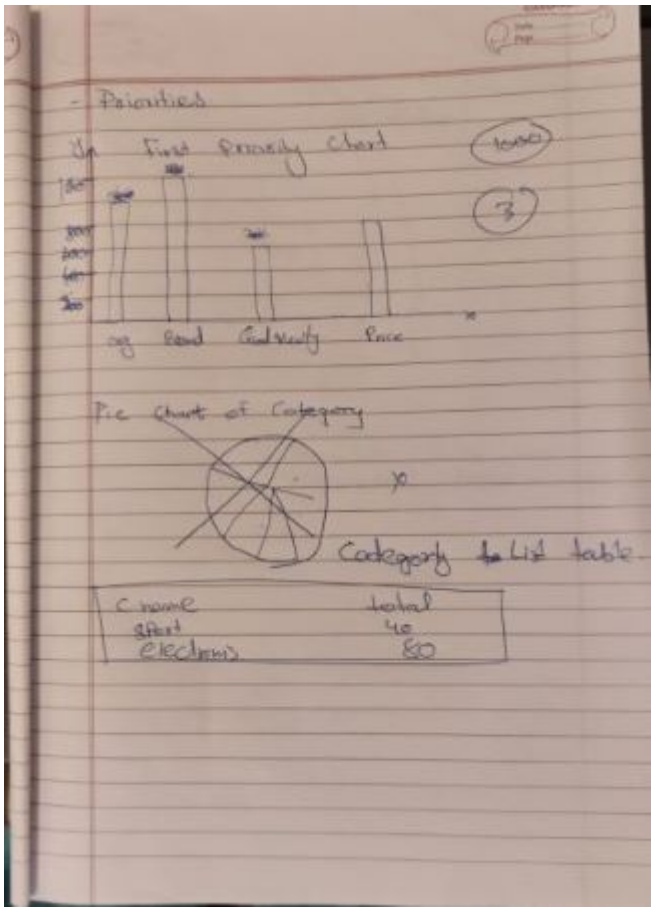
Activity

Task:

Create a prototype solution of the chosen idea.

Takeaway:

- We created preliminary models of our idea to showcase how it looks and works.
- We created wireframes for a mobile application which was designed to enhance a customer's online shopping experience.
- We brainstormed the charts to be displayed in the SAS dashboard.
- We tried to convey our ideas in ways we had never imagined before.



Test

- In the test phase we received feedback from others on what our prototype meant to them.
- From this we could conclude which prototypes would work and which ones wouldn't.

Activity

Task:

Each member of the team pick one of the 'Six thinking hats', roleplay and share their thoughts on the prototype.

Takeaway:

- Being a pessimist it was a challenge for me to play the role of an optimist.
- Everyone was good at playing certain roles but struggled with others.
- We could finalize the design of our SAS dashboard after exchanging inputs.

Yellow
positivity

Green
creativity

Red
emotions

White
data, rationality

Black
negativity, caution

Blue
process, control

Conclusion

- In the *empathy phase* not only did I learn to empathize with the user but also with my teammates. The problem statement was like a bomb; it would result in an explosion of ideas in all directions. But soon after the first activity I leaned to take a step back and listen to my teammates first. Afterwards I would try to come up with my own ideas or add to what they had said.
- In the *define phase* I learned to think more like the user and less like an analyst.
- In the *ideate phase* I learned to let go off my judgements and be unbiased.
- In the *prototype phase* I learned that I could put across my ideas in the most unconventional manner and **they worked**!
- In the *test phase* I learned to play different roles and think differently about the same topic.
- Overall I had a wonderful time working and learning with my teammates at Tech Specs.

1. We had a brief discussion on this topic in class along with some examples. ↩
2. This was really difficult for me to do initially because I was conditioned to always look for a solution. ↩
3. We only did this in a class activity but could not do it when we were conducting the interviews. ↩