

# Model Participation Portfolio Examples

## Computer Science 120, Fall 2021

As you prepare your final participation portfolios, we are sharing (with permission) some excellent examples from your classmates' first portfolios, along with our comments on strong features of these submissions. What we want you to take from these examples are illustrations of the kind of detail, evidence, and reflection we are looking for in the portfolios.

### Example 1

What?

As a sender on the first Active Learning Exercise, I went through the exercise normally with my receiver and he understood the concepts very well. After class, I saw another receiver who had not understood the exercise with his original sender. I stayed late after class to work through the exercise once more with this new receiver and make sure that he understood the concepts and the purpose of the exercise.

So What?

My help enabled this student to understand the Counting Sort algorithm very well. We became friends as a result of this encounter, and we worked together on the Radix Sort algorithm on Pset 1, so I know from the attached texts that he deeply understood the counting sort algorithm and was able to apply that knowledge in future problems. Now, we work together on every problem set.

Now What?

I learned from this experience that putting in extra time to help others can really make a difference for them and contribute to their understanding on every problem they encounter in the future that is related to the one I help them with. I benefit because this helps me to build relationships with other students so that we can all learn better together and support one another.

Notable features of this example:

- Identifying a classmate's need and extending oneself to address it
- Evidence based on future interactions
- Reflection on the mutual benefits of helping classmates

### Example 2

What?

I was a sender for the active learning exercise on deletion of a node in a BST. Before I began, I asked my receiver what they believed would be the most challenging part of the proof. They correctly identified that the difficulty would come from maintaining the BST property and ensuring subtrees were preserved post-deletion.

I asked my partner, "How do you think we might handle deleting a node if it has no children or 1 child?" Finally, when we reached the 2 children case, I asked "Do you think we should replace the node to delete with its direct children, like in the 1 child case?"

So what?

I believe that asking what would be challenging about the process helped prime my partner to outline the case structure for the proof. I also found that asking whether the 2 children case would be similar to the 1 child case enabled my partner to immediately start thinking about alternative approaches. The best evidence of impact was that my partner did a lot of independent discovery for how to design the solution without me having to over-explain.

Now what?

I believe that the process of using guiding questions to point my partner in the right direction proved useful for allowing them to think critically about how to design solutions, which I think better allowed them to anticipate edge cases. There was a moment during the 2 children case where my partner was very stuck, and I think I should have provided more hints in that case (perhaps through even more guiding questions).

Notable features of this example:

- Concrete and specific
- Evidence of impact by observing classmate
- Reflection about what worked well and what could be improved

## Example 3

What?

I engaged in the Active Learning Exercises on September 9 as a Receiver. I attached my reflections below.

So what?

For this Active Learning Exercise, I worked with classmates X and Y in a group of three. During the discussion, I focused extensively on different edge cases that I thought "broke" the algorithm. They mentioned that my examples helped the discussion focus on correctness and other conditions that may be required for the algorithm. This led to better discussion and critical thinking, which helped improve his understanding and had a positive impact. I also gave them meaningful feedback on which parts of their explanation were confusing or clear, which will hopefully help him improve too.

Now what?

X and Y did also mention that sometimes my edge cases and detailed objections were very niche and detracted from the overall flow of the algorithm explanation. Reflecting, I should have been more deliberate to only bring up important exceptions central to the algorithm, which I aimed to do in following weeks. Additionally, I realized that my intuition for understanding an algorithm quickly needed more work so that I can better contribute to discussions, which I will work to continue building.

Notable features of this example:

- Concrete and specific
- Evidence of impact through constructive (positive and negative) feedback from peers
- Reflection on what worked and didn't work well, conscious effort to modify approach going forward

## Example 4

What?

I enjoy going to Salil's Office Hour to ask algorithm questions or questions that relate back to my research at Harvard. We had really good discussions about how we can think about coming up with better algorithms, randomness, and pseudorandomness, and what does it mean to be random and how do we prove that the random is purely random.

So What?

Salil introduced me to the idea of Quantum Randomness, where researchers use quantum mechanics to come up with truly random numbers, which is really exciting. We also talked about how randomness relates back to privacy applications, and about how local sensitive hashing can be applied back to the research I am currently doing at Harvard. Seeing how algorithms apply to daily life and my research as well as connecting different domains of sciences increases my passion for algorithms.

Now What?

I have learned that never be afraid to ask questions and engage with professors outside of class. When I share how useful and interesting algorithms can be to my friends, they are in awe that an algorithm can have its beauty beyond its theoretical proofs. I look forward to participating in more office hours and learning beyond the textbook.

Notable features of this example:

- Concrete and specific

- Engagement driven by curiosity, connecting the course material to one's other interests
- Reflection on benefits of approaching faculty (there's nothing to fear!)