

- *What stood out to you as the most important things you learned about computer programming this quarter? Why do you think they're important?*

Having had only a little formal education in computer programming dating back to high school and first undergrad, the concepts covered in CS161 were largely new experiences for me. I learned the most from the coding exercises and found that I really do enjoy sitting down in front of IDE and writing a program – particularly the logic and core functionality as opposed to the syntax and setup. The topics that stood out the most to me were the use of classes and functions and pointers/passing by reference.

For example, in assignment 9, I remember particularly enjoying my time in front of the computer when I figured out the proper syntax for a vector of pointers to a class (Figure 1, line 23), and was able to put the new-to-me “->” operator in to use (Figure 1, line 30).

```
23  double meanValueFor(std::vector<Quadratic*> quads, double forX)
24  {
25      double valFors = 0,
26      meanVal = 0;
27
28      for (int i = 0; i < quads.size(); i++) //uses vector size as upper bound
29      {
30          valFors += quads[i]->valueFor(forX); //calls method from Quadratic, sums valueFor
31      }
32      meanVal = valFors / quads.size(); //computes average of valFors
33      return meanVal;
34  }
```

Figure 1. meanValueFor function from Assignment 9.

- *What topics do you still find confusing? What can you do to get a better grasp on them?*

I learn best by performing a task, which is probably why I enjoy tackling the homework coding assignments right away and absolutely dread studying for the tests (which involve lots of memorization). Therefore, the syntax relating to pointers and passing by reference still remains very difficult for me. I need more practice and will be able to master properly passing and returning variables or accessing their location in memory, but only through many repetitions.

For example, I have a particular struggle in keeping straight the functionality of the ‘&’ and the difference between passing by reference and getting the address. In exam 2, question 7, I

was convinced that `'class.addMember(&person3);'` would pass `person3` by reference, but instead it gets the address of `person3`. It will take me many more hours of working with this type of code to master the concept, but I will get there.

- *What did you learn this quarter about how taking online courses works for you?*

This was my very first quarter of taking online classes and I found that I liked the freedom of the schedule, but I will need to continue working on mental focus and working efficiently. This will become especially important as I begin taking three classes at once in the fall. For the most part, I am treating full time online school as a “9 to 5” job, where I am working on school work during the day, and preserving my evenings and weekends for personal time. At times though, I have found it tough to stay on task during the day, which has caused some later evening work sessions. I will continue to focus on mental discipline!

As far as not being in face to face contact with peers and instructors, I did not find this to be a detriment. With Piazza and email, I was usually able to find the help I needed. I am curious to see how this will work for more difficult courses in the program, but I do not feel that the “remoteness” component of online learning will be a detriment to me.

- *How can you generalize your experience in this course in a way that will help you in future courses?*

Staying ahead of the weekly modules was extremely valuable for me, because it enabled me to not have to rush through any assignments at the last minute and do quality work. Because of this positive experience, for all future courses in the program I will begin working on the weekly modules right away. As soon as the modules open, I will perform a cursory look at the readings, lectures and homework to quickly assess what I think may be a potential stumbling block. I will then do the reading and lectures early in the week and if I am still confused about any elements, I will have time to reach out via email or Piazza to receive help well before the assignment or quiz is due. This process of early module review will help me stay ahead of schedule and maximize my chances for overcoming a struggle and will leave the potential for free time at the end of the week. This will also help motivate me to stick to a rigorous, full time schedule during the early part of the week.

- *How has this course helped crystallize your ideas about what a career that involves computer programming might be like?*

I learned to strongly value the strategy of reaching out to a wide variety of resources for assistance and time saving techniques when tackling a coding assignment. I found that at least half of the time, when I had a question, someone else had asked a similar enough question on

Piazza that I could piece together my own answer. I also referred to the book quite often to find examples of proper implementation of a new method.

Finally, outside resources like Stack Overflow proved to be very helpful to see different methods of code implementation. Furthermore, Stack Overflow's questions and comments sections were extremely helpful. This allowed me to see what types of questions were often being asked about a certain element of programming and I learned a lot by reading the various answers that were provided by more experienced programmers.