Student #1

COP 4516 Individual Contests Reflection

Just like what we did in class, I'll look over the previous contests and reflect on my performance. The online judge isn't giving me access to any of the previous contests' scoreboards, so I'll do my best to remember how many times I submitted and such. I noticed that when we were doing this in class today, I didn't actually recall most of the problems by name, so I have pulled up my code to reference as well.

Contest 1: Looking back on this contest, I think I really struggled with the basics. I started with the second-easiest problem (although it was still easy), and I didn't really look at the other problems before I jumped into it. For "upwards" I struggled with figuring out how to sort an array, which took me much longer than it should have. I have since looked up how to sort both an Array and an ArrayList, which has been useful in several other contests. For passwords and hexagon, I found that working out the solution on paper and getting the math figured out before coding really helped. For "hexagon", I made a seven-layer nested for loop, which definitely wasn't ideal. As contests get more difficult, this strategy will probably be less beneficial, but I think it is good to be able to recognize when it's easy enough just to have nested for loops rather than figuring out function calls with all sorts of parameters.

Contest 2: In this contest, again, I didn't really master the art of sorting lists, so for "polling" I created a HashMap, then converted the data into an ArrayList to get the maximum values, and then converted it to an Array to sort it alphabetically. Definitely not ideal, so I'll need to master using a Comparator to really make things easier, especially when problems become more complex. I think the thing that really tripped me up on "balloons" was how the input file was organized. All of the previous problems had the number of test cases up front, but this one had a series of '0's to indicate the end of the input. Luckily, I figured this out during the contest. This is a small twist that some problems have that I just have to keep in mind in the future.

Contest 3: This week was supposed to be the week of trees, but I think I didn't end up really using a tree data structure for any of these problems. I think "treesales" is a good example of how a large and intimidating problem isn't always that bad, as it was just managing a few commands to modify a HashMap. I think the same applies for "monkey", which could be done in a single, pass through the string.

Contest 4: This is the first contest (if I remember correctly) where I didn't solve all of the questions during the class period. The motivation of getting to leave class early if I solve all the problems is a real motivator, to be honest. The problem that I didn't solve during the contest is "puzzle". I wrote up a solution and didn't really think about the runtime, because I didn't have any issues with runtimes on any of the previous problems. Once I got a solution working, I just submitted. When I saw I got a TLE, I thought I had an infinite loop or something, I didn't really think about approaching it differently until I looked at the numbers and runtimes. With only a few minutes left in the contest, I figured out that there was a lot of repeated work with my solution, and I tried to make small modifications to reduce that. In the end, I had to largely modify my code so it would solve for all of the solutions first, and then just look up the answers for each test case. My reflection here is that I should consider runtimes before implementing the solution!

Contest 5: Yikes! This contest totally wrecked me. I only solved one problem, and I think that was largely due to the fact that I wasted so much time trying to get "news". I got the initial test cases pretty easily, and I was able to implement a few corner cases, but as a got "Wrong Answer" multiple times, I was continually able to find gaps in my solution where corner cases could slip through. I sunk an incredible amount of time on trying to patch up my solution, but it turns out I was really on the wrong path, and I needed to consider a different approach. I think that if I find myself in a situation like this again, I need to be less hesitant to totally scratch what I have and start over with a different approach. I also got too caught up in the "lines cannot cross" part of cables to get anywhere close to a solution. Turns out that it didn't even matter.

Contest 6: After a depressing contest 5, I was glad that I was able to get back on track last week. On this contest, I totally nailed the "get the first one out of the way superfast" goal, and I completed "game" in just a few minutes. Only other thing notable is that I am not really strong on Dijkstra's, and it took me a while to work through the algorithm in order to incorporate it into "routes". I think it would be a good idea for me to really study these graph algorithms and get a good understanding of when they're useful.

UCF Saturday Practice: This contest was really good practice since there were many problems to solve during the large chunk of time. I was pretty happy with my performance. It seemed like most of the problems didn't require any special knowledge of unique algorithms or anything. I was expecting that I would be totally lost, but I'm glad that wasn't the case. One thing interesting in this contest was that "barbells" was much more difficult than I thought. I knew how I wanted my solution to work, but I struggled with storing the data along the way. I ended up using a HashMap that mapped an Integer to an ArrayList of "PlateSet" objects. The PlateSet objects contained another ArrayList of Integers. I found that I really needed to take the time to draw out a lot of the problems in this set to figure out how I wanted to implement a solution.

All in all, I've really enjoyed the class so far! I'm excited for the upcoming contest/exam, and I'm looking forward to the team-based portion of the class as well.