## A02 – C++ Collections – Reflection

For part 1 I had to research mapping for hard mode, I had some issues with figuring out how to properly use it. I then realized I still had my editor set to an older version of the language that was prohibiting me from using more modern uses of maps. After that it was more simple to get it to work. Also trying to wrap my head around the DNA structure of it all and what I needed to do was a little confusing at first but then I read it through a dew more times and I understood. Part 1A took about 30 minutes or more just because of the research. Then for part 1B was breezy since I didn't have to do any input validation again. I just made a a function that looped through one of the strings and compared the same indexes of the string and added to a counter if they weren't equal. Took about 10 minutes. For part 1C it was also pretty simple since I just had to copy the work from part A and B. So I did that, and just had some extra functionality to fit into the part 1C requirements, only took about 15 minutes. Part 2B took a little while since I didn't know exactly what I was planning to do for this. I wanted to challenge myself a bit so I took the harder of the two options. I had to plan out wat sort of system I was going to do for this, and then worked through the program for a while. I had to do a bit of trial and error of what would work and what didn't. I first got the players input working and displaying the board for X only. Then I worked on functions to check if the move was valid and where that position in the array is if it was valid. Then I had to make the computer's randomized movements also check those same things. Then finally a way for the game to check if the player or computer won, or if they just tied. Part 2 took me about 2 hours more or less.