Journal Report 10

11/18/19-11/26/19
Michael Huang
Computer Systems Research Lab
Period 1, White

Daily Log

Monday November 18

I studied the graph, breaking it up into 6 classifications based on how many 2s 1s or 0s there were.

Tuesday November 19

I looked into the solution set which gives 40/124 for -2,-1,0,1,2. Using this data, I was able to see if I could find any gimmicks or things that always go together which would be useful to my bounding.

Thursday November 21

I decided to try adding an additional zero. Adding one more zero gives $64/208 = 0.3077$, which is better than what is in the literature

Timeline

Date	Goal	Met
11/11	Prove a lower bound for the result for the 26 variable inequality	No, I realized that in most cases this would not be necessary. It was too large a problem with a very unlikely chance of having meaningful results
11/18	Hand-draw and analyze the symmetries for -2,-1,0,1,2. This is a graph with 124 vertices.	No, I did not actually draw this graph. But, I did analyze the graph and mentally classify/ map out edges
11/25	See what happens when we add more 0s to this set.	Yes, I found one data-point for when we have 2 zeroes. This gives us a better result than the literature.
12/2	Try to find a bound using inequalities for the number of 0s.	
12/9	Prove the bound for the optimal number of 0s to have.	

Reflection

To be completely honest, I didn't get as much work done as I would have liked. A ton of my brain power this week was dedicated towards STS and PUMaC Power Round. (We did well at PUMaC!).

For my project, I feel like we're on good pace. I looked into the actual vertice types in the graph and I will try to classify them similarly to how I did with just 1s and 0s. Under this classification, we would have 9 groups as opposed to just 3. There is a lot of inherent symmetry, but studying this configuration will probably be immsensely difficult just due to the large size of the graph.