CSC 220 - HW 4 Reflection Questions

1. Analyze your results, when does it make sense to use the various approaches?
2. How did your speed compare with cuBLAS?
3. What went well with this assignment?
4. What was difficult?
5. How would you approach differently?
6. Anything else you want me to know?

[Pair Programmed with Eva Gittardi]

1)
The Matrix Multiply CPU approach decreases in speed as the thread size increases. However, it doesn't appear to be the slowest approach. Its speed varies across thread sizes in comparison to the other approaches. It might still be best to use this approach with smaller thread sizes.

The Matrix Multiply GPU approach is the slowest of the 4 approaches, so it would work better on a smaller thread size (such as 50).
The Tiled Matrix Multiply GPU approach works the best on thread sizes of 500 or more.

The cuBLAS Matrix Multiply approach also decreases in speed as the thread size increases, so it works best on small thread sizes such as 50 or 128.

2)
For small thread sizes, it was faster than the other approaches, but fell behind once the thread sizes grew.

3)
The general CPU and GPU approaches were straightforward to implement and provided a greater understanding of the differences between CPU and GPU implementations of matrix multiply.

4)
The Tiled and cuBLAS approaches were a bit more challenging. I struggled to understand the idea of breaking up a matrix into smaller subsets known as the tiles for matrix multiplication. Additionally, I was making implementing cuBLAS a bit more complex than it had to be. For both of these approaches though, the slides and resources provided were incredibly helpful to get my implementations to work.

5)
I believe I wrote this on the last homework assignment too, but I think it would be really beneficial for me to review the slides a bit more carefully before even starting the homework.

The slides always prove to be incredibly helpful on all of the implementations and help me understand the concepts behind them as well.

6)
Thank you so much for all of the support on all of the assignments, you are the GOAT! I really appreciated all of the time you provided both in your office and in class both for the assignments and for chatting/debriefing after the election.