Java Based Computer Memory Latency Simulator
Pat Baumgardner, Adam Dachenhausen, Shah Syed

Progress Update:

  We have simple arrays in all of our components, and working on data transmission between them. However, we introduced user input prompts, and general structure to hold all of our components.

  Currently, the simulator is composed of a user defined amount of hard drives, ram sticks, and cpu cores, as well as sizes for the two former items. We will then give the user options on how to move data around. For instance, the user might want to download a 1GB file and save it on the disk, or run a program from the disk that is 476MB. These will then be timed and reported to the user (or to us for statistical analysis).

Updated Timeline:

  We should be on track to keep our bigger milestones.

  11/15/20 - Have a working simulator (in addition to what is in the proposal, we also have to add our statistics gathering, and a user interface of some sort)

  11/21/20 - Have the paper written

Paper Outline:
- Abstract (quick paragraph about what we are doing, and why)
- Simulator Details (including how to run it, and any design features that may seem unusual)
- Explanation of Statistics Gathered (as well as what and why)
- Summation of Actual Data and Simulated Data
- Discrepancies in the data, and why
- Conclusion, what we learned, further investigations

Annotated Bibliography:

Kasavajhala, Vamsee. *Solid State Drive vs. Hard Disk Drive Price and Performance Study*. 2011
  This is a broader overview of different types of hard drives and their performance, so it will aid in that data collection, as we can change parameters to make our hard drive act more like the ones in this report. More importantly though, this contains data about different workloads, which will be useful in determining if our simulator behaves correctly in different situations, and allows us to determine why or why not.

Tyson, Jeff. *How Computer Memory Works*. How Stuff Works
  This is a great resource for really detailed information about how all of our components work together. It also provides detailed information about the components in general.

Umoh, Glory. *MEMORY MANAGEMENT IN COMPUTER SYSTEM*. 2014

      While this is a very short paper, the author does provide a lot of definitions that may be helpful for us to use.

Western Digital. *Western Digital WD Blue 3.5 HDD Data Sheet*. 2018

      The WD Blue drive is one of the most commonly used hard drives. This is a good resource to model our hard drive off of, as well as comparing our data to.