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### Choosing Threads

I chose to use 4 threads in my project. This is because most computers have 4 cores, which makes for solid performance assuming that the user is also running other programs in the background. Using something like  $N^2$  threads (where  $N$  is the number of cores) can increase performance, but often times will decrease performance because too many cores are being utilized by things like google chrome and an email client on the user computer. You also don't want to use a high amount of resources and starve the user's computer because your application is not the most important thing – when thrashing starts occur, every running program suffers.

Ideally, the number of threads should be calculated by taking into account the number of cores on the host computer, and the percentage of CPU being currently used. If the CPU starts to reach 80% percent, less threads should be used. If 90 percent utilization occurs, severely less threads should be used, unless given a high priority by the user. I did not implement this because it would have been too much work to meet the project goals and requirements.