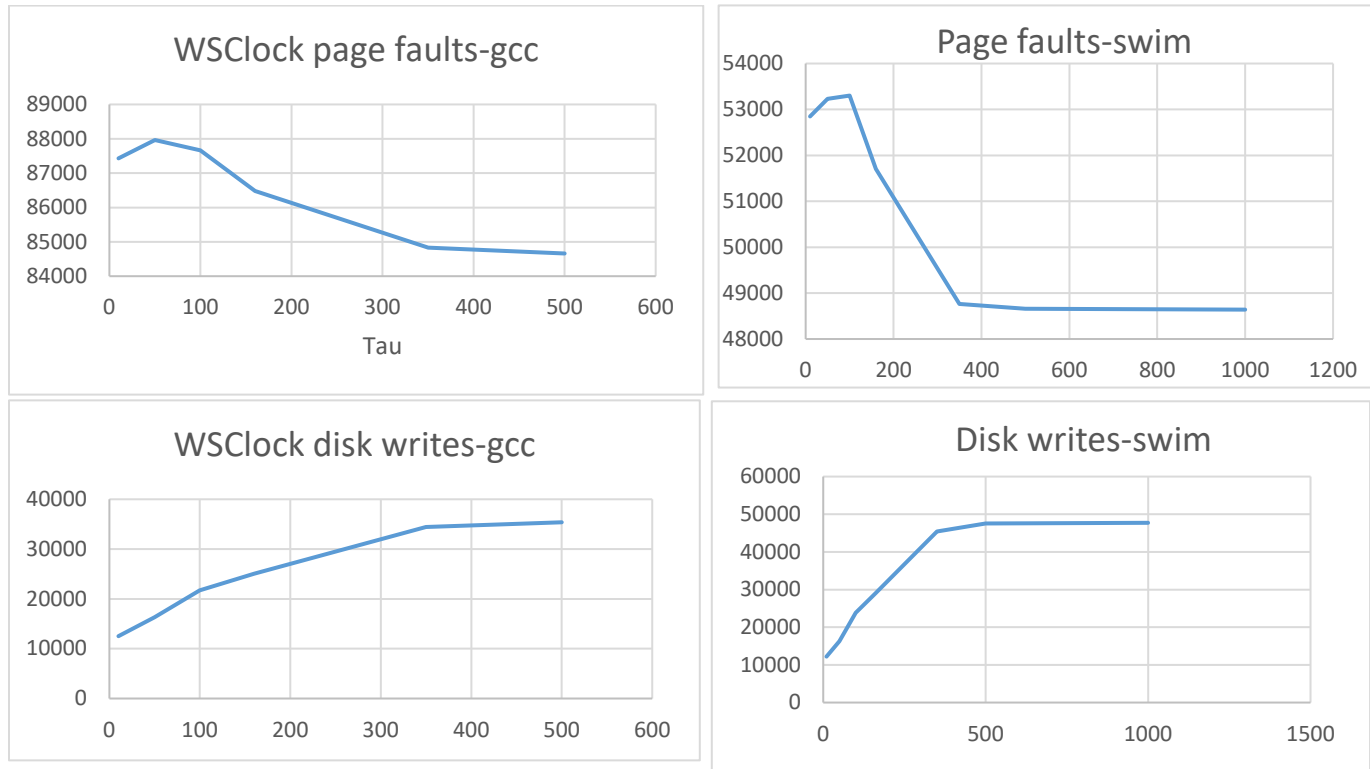
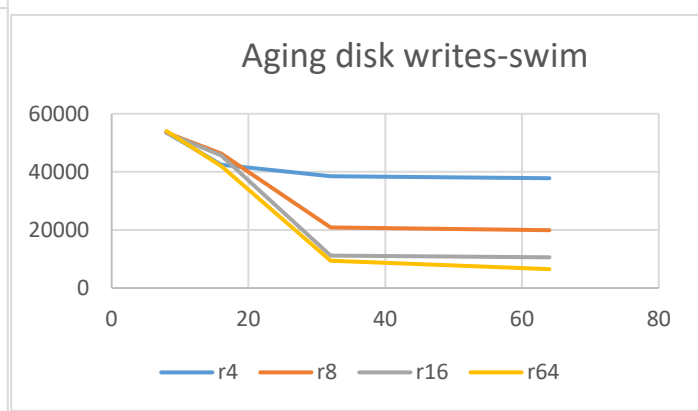
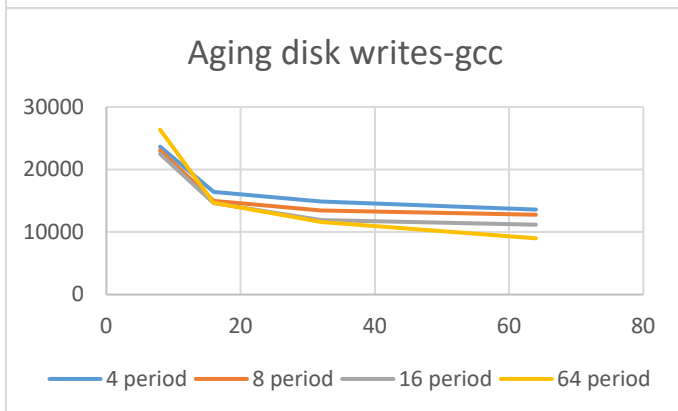
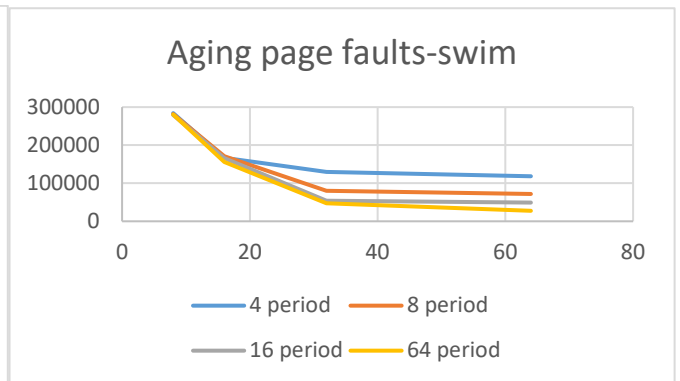
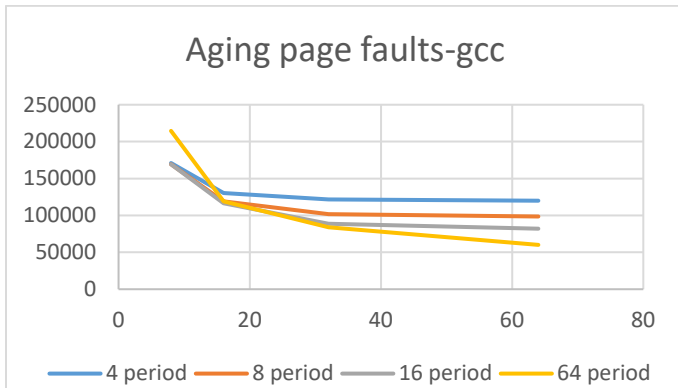


The below four graphs shows different performance of tau for wsclock. For all cases, 32 frames are available. The result shows that when tau increases, the page faults decreases; on the other hand, however, disk writes increases. This is because when we allow larger working set, we are more likely to allow more dirty pages to be flushed to disk. Therefore, to find a balance between page faults and disk writes, I use 350 as tau for running the following experiments.



The following shows the performance of different refresh time of aging. The x-axis corresponds to different number of frames, and each color corresponds to a refresh time. 64 is the best refresh time when more than 16 pages are available while 16 is better when less than 16 pages. This is probably because increasing the refresh time allows more flexibility for old pages, but when the number of frames is limited, allowing old pages will cause new pages to be swapped out which might be used in near future. In reality, since there will be much more frames available, so I choose 64 as my refresh time.



The final four graphs shows the performance of 4 algorithms. OPT is no doubt the best algorithm because it has perfect knowledge of future pages. However, in reality we cannot know the future events, and also storing future timestamps will require huge amount of memory. Clock and WSClock are relatively close to each other, because in reality it is hard to determine a good τ time that fits all processes. Therefore, it meets my expectation that clock are wsclock are having similar performance. If I were to choose to implement the replacement algorithm in Windows, or Mac OS, I would probably choose aging. From the graph, aging is slightly better than clock. Aging is just like another form of working set. It includes some time awareness of when pages are being referenced, and in the same time, eliminates a lot of unnecessary flushes to disk—the problem of wsclock. Therefore, I think in reality, aging the best way to go.

