CSC443 Assignment 1 Part 1 Report

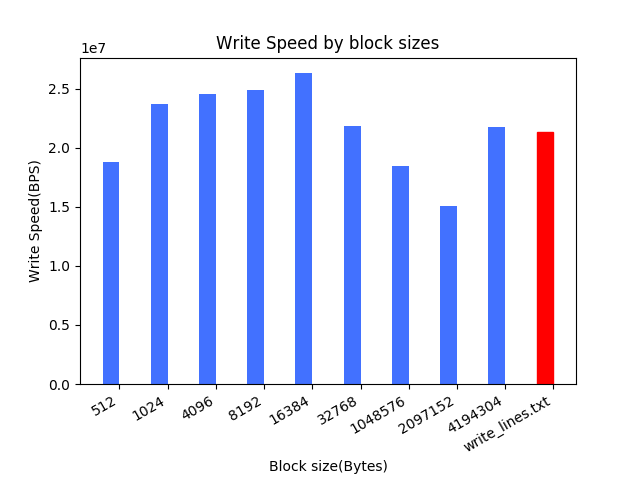
Fangzhou Yu

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Experiment 1



my Linux OS system block size 1024 bytes



The speed for writing in lines is 20.322MBPS.

Q1: Optimal block size to my experiment is?

A1: 16KB

Q2: Does it correspond to the system disk block size?

A2: No

Q3: Is there a block size when further increase does not contribute to better performance?

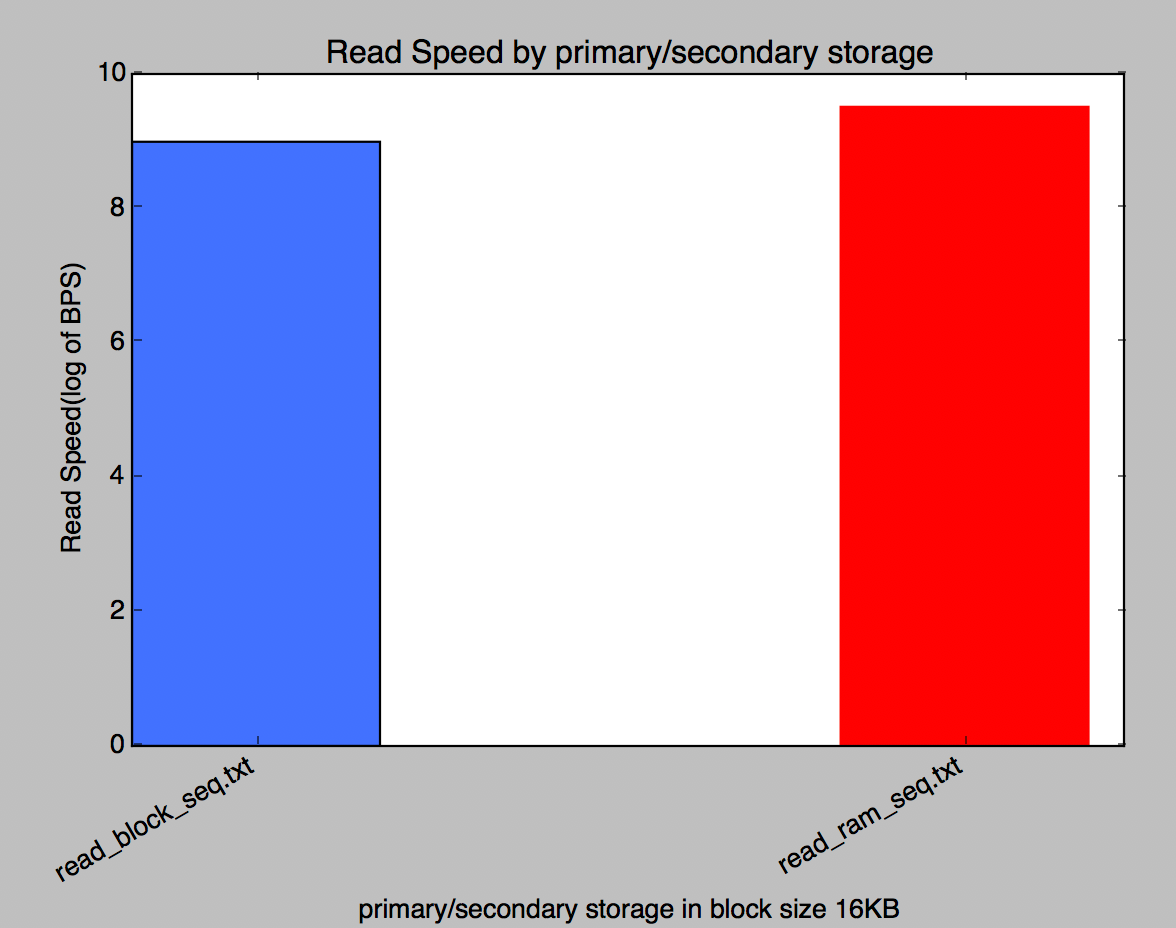
A3: 16KB

Summary of Experiment 1:

As we can see from the bar chart, process writing in lines is slower than process writing in blocks. Process writing in blocks is more efficient. From the lecture, we learned that using block to write data to disk can reduce disk I/O and it will be more efficient. The results we got shows that point, process writing in blocks doing more work in memory, but process writing in lines has a lot of disk I/O actions.

The optimal block size we got for our experiment is 16KB which is different than the system block size. Because the block size used by OS system is not optimal. 16KB is the better block size to use in this case.

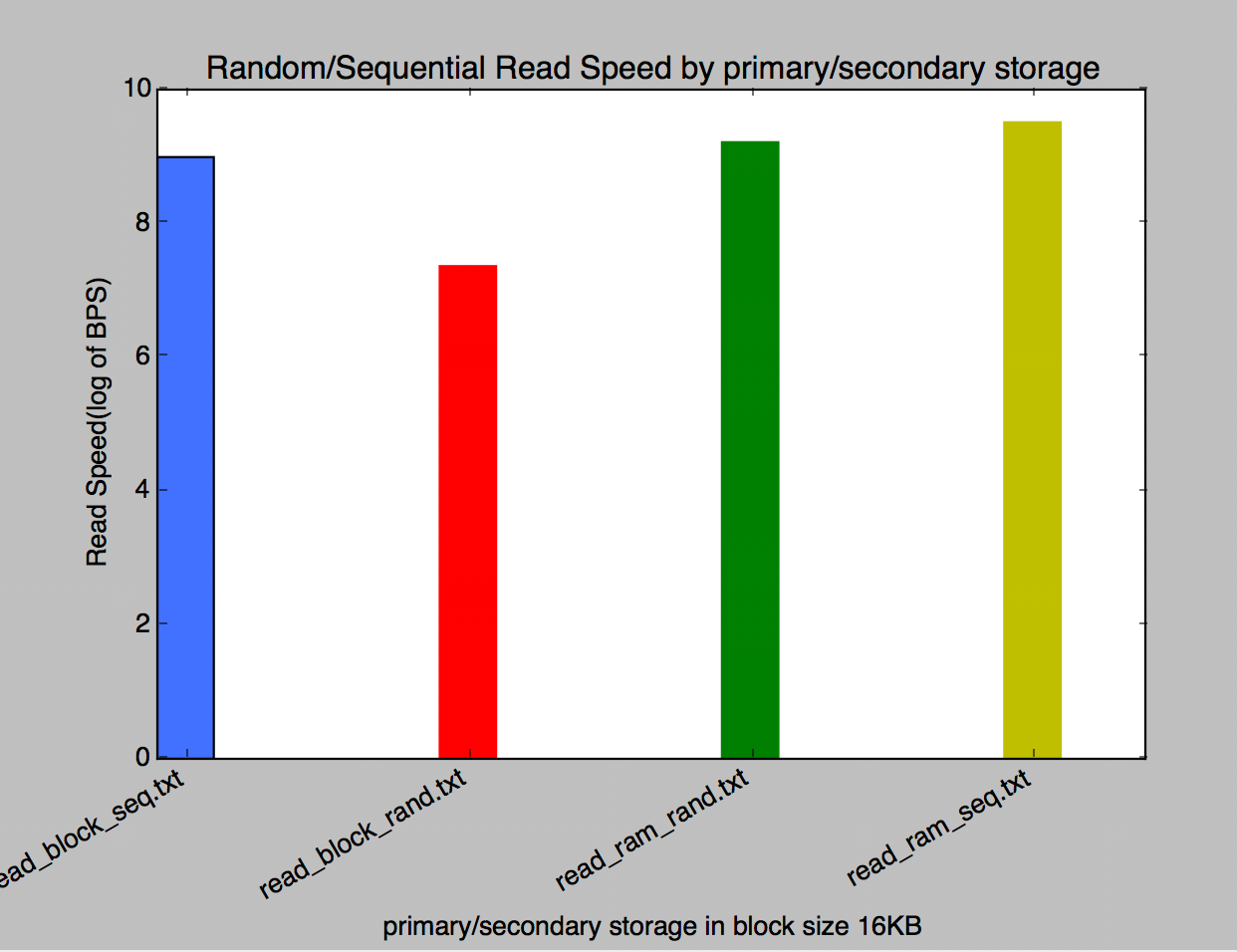
Experiment 2



Q: What is the ratio of sequential read rate for secondary storage and for RAM? Does it correspond to the ratio discussed in class? If not, what do you think is the reason?

A: The ratio discussed in class is around 10^8.8/Sec (sequential RAM) and around 10^7.6/Sec (sequential DISK). The ratio we got from the data is different, around 10^8.1/Sec(sequential DISK) and 10^8.7/Sec (sequential RAM).

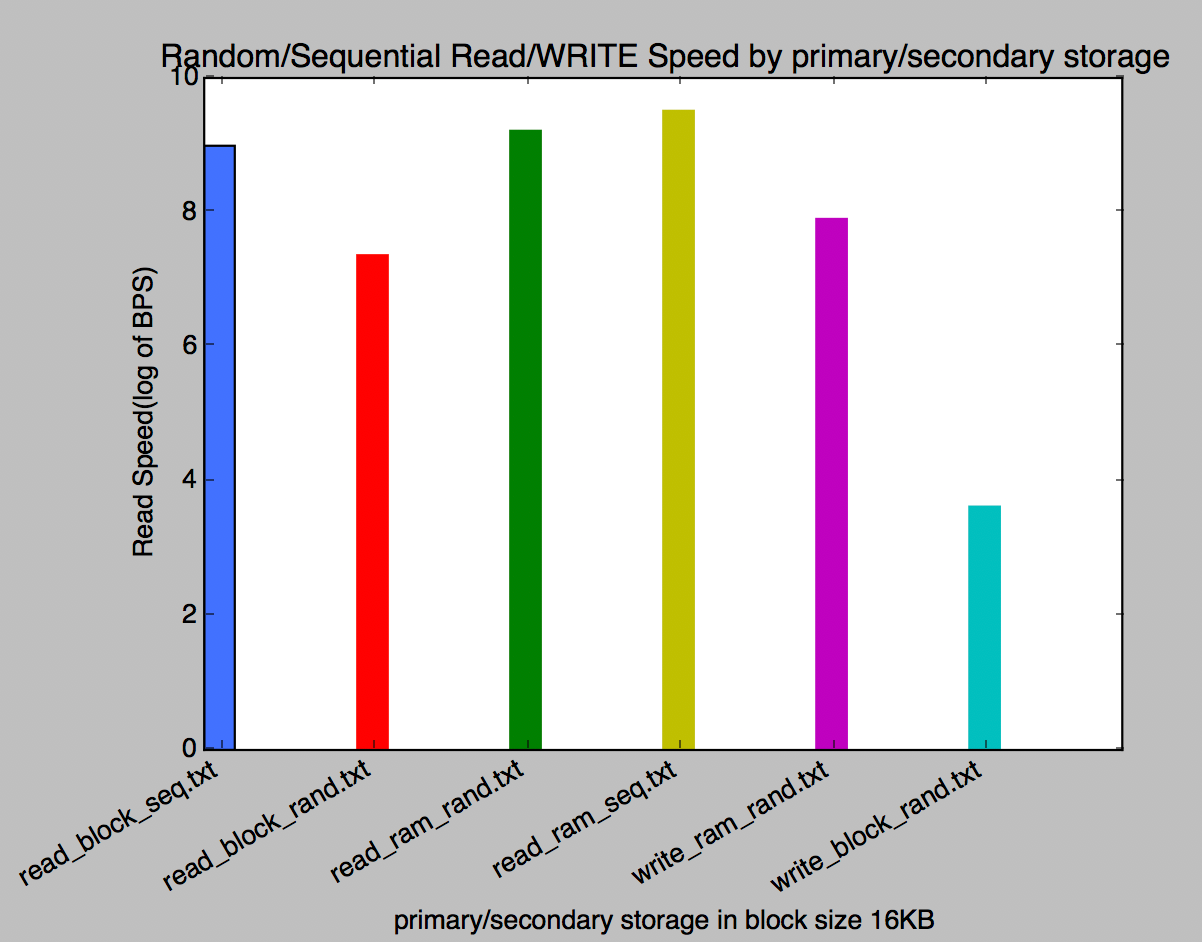
Part 2



Discuss differences in speed and make a conclusion about reading rates (sequential and random reads) for different memories.

Read from memory sequentially is always the fast one, and then is read from disk sequentially, read from memory randomly can be faster than read from disk sequentially in large block size. Read from disk sequentially is always the slowest one.

Experiment 3



From the plot, we can clearly see that read is always faster than write.