OS HW4

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- 11.2

	Sequential	Random
Contiguous	Works well, it just need a traversal through the contiguous blocks.	Works well, you can easily determine the adjacent blocks containing
Linked	Acceptable, just simply follow the link.	Poor, since it needs to follow the links until the file accessed is found.
Indexed	Works well, you just need to sequentially access the indexes.	Works well, it's easy to find the block occupied by the file.

- 11.8

  8K/4 = 2K

  12*8K + 2K*8K + 2K*2K*8K + 2K*2K*2K*8K = 64 TB

- 12.3

  FIFO order:

  2069, 1212, 2296, 2800, 544, 1618, 356, 1523, 4965, 3681

  Sorted: 2150

  356, 544, 1212, 1523, 1618, 2069, 2296, 2800, 3681, 4965

a. FCFS

position	2150	2069	1212	2296	2800	544	1618	356	1523	4965	3681	total
moved		81	857	1084	504	2256	1074	1262	1167	3442	1284	13011

Total moved distance: **13011**

b. SSTF

position	2150	2069	2296	2800	3681	4965	1618	1523	1212	544	356	total
moved		81	227	504	881	1284	3347	95	311	668	188	7586

Total moved distance: **7586**

c. SCAN

Toward 4999

position	2150	2296	2800	3681	4965	4999	2069	1618	1523	1212	544	356	total
moved		146	504	881	1284	34	2930	451	95	311	668	188	7492

Total moved distance: **7492**

Toward 0

position	2150	2069	1618	1523	1212	544	356	0	2296	2800	3681	4965	total
moved		81	451	95	311	668	188	356	2296	504	881	1284	7115

Total moved distance: **7115**

d. C-SCAN

Toward 4999

position	2150	2296	2800	3681	4965	4999	0	356	544	1212	1523	1618	2069	total
moved		146	504	881	1284	34	4999	356	188	668	311	95	451	9917

Total moved distance: **9917**

Toward 0

position	2150	2069	1618	1523	1212	544	356	0	4999	4965	3681	2800	2296	total
moved		81	451	95	311	668	188	356	4999	34	1284	881	504	9852

Total moved distance: **9852**

- 12.10

It depends on the disk amount in the RAID system.

a. A RAID Level 5 comprising of a parity block for every set of four blocks spread over five disks can support 4 to 5 operations simultaneously. A RAID Level 1 comprising of two disks can support 2 simultaneous operations. Of course, there is greater flexibility in RAID Level 1 as to which copy of a block could be accessed and that could provide performance benefits by taking into account position of disk head.

b. RAID Level 5 organization achieves greater bandwidth for accesses to multiple contiguous blocks since the adjacent blocks could be simultaneously accessed. Such bandwidth improvements are not possible in RAID Level 1.

- 12.12

Frequently updated data should be stored on RAID Level 1 disks, while data that is more frequently read as opposed to being written should be stored in RAID Level 5 disks since it reads fast but writes slow.