CISC 221 Assignment 5

Jacob Roe - 20351389

March 28, 2024

1. (a) The best case would be that the blocks are mapped sequentially and are on the same cylinder, we can then seek the data once.
   Average seek = 4ms
   Average rotation = 2ms
   With the file size being 2MB, and the block size being 512B, the block count = 2MB/512B = 4000, so 1000 blocks per track, and will need 4 rotations to read all data.
   Transfer = Max rotation * 4 = 16ms
   We then get Access = 22ms

   (b) When blocks are random we get:
   Access = 4000 * (Average seek + Average rotation) = 24s

2.

Cache	m	C	B	E	S	t	s	b
1	32	1024	4	4	64	24	6	2
2	32	1024	4	256	1	30	0	2
3	32	1024	8	1	128	22	7	3
4	32	1024	8	128	1	29	0	3
5	32	1024	32	1	32	22	5	5
6	32	1024	32	4	8	24	3	5

3. (a) Addresses 0x08A4, 0x08A5, 0x08A6, 0x08A7
   Addresses 0x0704, 0x0705, 0x0706, 0x0707

   (b) Addresses from 0x1238, 0x1239, 0x123A, 0x123B