

(6 p) Given a file system that contains 100 files of 1Kb, 900 files of 4Kb and 500 files of 6Kb; running on a disk whose time to read/write 1 block is 1 ms, compute the disk utilization and the time needed to read all the files for the following block sizes: 0.1 Kb, 0.5 Kb, 1 Kb, 4 Kb, 8 Kb, 16 Kb.

[HINT: Compute the number of blocks needed for each file based on its size and for each block size (floor (size/block size)). Once you have the number of blocks, compute reading time (basically divide by 1000 to get seconds) and disk utilization (multiply blocks by block size)]

(6 p) Given a file system that contains 200 files of 1Kb, 100 files of 4Kb and 250 files of 6Kb; running on a disk whose time to read/write 1 block is 1 ms, compute the disk utilization and the time needed to read all the files for the following block sizes: 0.1 Kb, 0.5 Kb, 1 Kb, 4 Kb, 8 Kb, 12 Kb.

[HINT: Compute the number of blocks needed for each file based on its size and for each block size (floor (size/block size)). Once you have the number of blocks, compute reading time (basically divide by 1000 to get seconds) and disk utilization (multiply blocks by block size)]

(6 p) Given a file system that contains 200 files of 1Kb, 300 files of 2Kb and 550 files of 4Kb; running on a disk whose time to read/write 1 block is 1 ms, compute the disk utilization and the time needed to read all the files for the following block sizes: 0.1 Kb, 0.5 Kb, 1 Kb, 2 Kb, 8 Kb, 16 Kb.

[HINT: Compute the number of blocks needed for each file based on its size and for each block size (floor (size/block size)). Once you have the number of blocks, compute reading time (basically divide by 1000 to get seconds) and disk utilization (multiply blocks by block size)]