

MIDWESTERN STATE UNIVERSITY
DEPARTMENT OF COMPUTER SCIENCE
CMPS 4103- Introduction to Operating Systems
Fall semester 2022

SOLUTION

Student name: _____

Assignment #5 – File Systems - due date 11/15

Problem The initial values in a FAT table are shown below (All values decimal, -1 indicates end of file).

0	-1		6	-1	
5		-1		-1	
10					
15					
20					

- a) Not counting the directory found in block zero, how many files are already in the disk and which blocks belong to each of those files?

There are 4 cells with value -1 (end of file), since the first one is the directory, the other 3 represent files). To find the blocks, just follow the linked list in a reverse way. Starting from the -1 values.

Cell number 3, not referenced anywhere, so this file has one block, block 3.

Cell number 6, referenced on cell number 2, so this file has two blocks, blocks 2 and 6.

Cell number 8, not referenced anywhere, so this file has one block, block 8.

- b) Assuming that the system allocates free blocks starting at the lowest-numbered available free block, and after writing a file A the table resulted in:

0	-1	4	6	-1	5
5	-1	-1		-1	
10					
15					
20					

Which blocks belong to file A?

First eliminate the cells already there before file A was written. To find the new blocks just look at the remaining ones

Cell numbers 1, 4 and 5 are new so file A has 3 blocks, blocks 1, 4, and 5.