HW11

11.3

a. Yes. Make a list consisting of all the blocks on the disk and then remove all the blocks already in use in existing files.

b. Reading the contents of the small local file /a/b/c involves 4 separate disk operations:
(1) Reading in the disk block containing the root directory /
(2) & (3) Reading in the disk block containing the directories b and c
(4) Reading in the disk block containing the file c.

c. One possible scheme is to keep the pointer on disk, replicated in several places. Then only a massive disk failure would cause it to be lost (in which case probably a lot of data is lost as well).

11.6

a. Let z be the starting file address (block number).
(1) Contiguous: LA / 512 = Q ..... R
block to be accessed: Q + starting address
displacement: R
(2) Linked: LA / 512 = Q ..... R
Block to be accessed is the Qth block in the linked chain of blocks in the linked chain
displacement into block = R + 1
(3) Indexed: LA / 512 = Q ..... R
Get the index block into memory.
Physical block address is contained in the index block at location: Q
displacement into the desired physical block: R

b. (1) Contiguous: 1
Linked: 4
Indexed: 2