CSC 139 Operating System Principles

11/27/2019 In-class Group Assignment

1. Suppose we have the multilevel indexed file scheme as described in class, so that an inode contains the following fields:

int first\_twelve[12]

int \*single\_indirection;

int \*\*double\_indirection;

int \*\*triple\_indirection;

Please interpret each of these ints as a physical offset of a block on disk.

1. Give an expression for the offset of the 5th block in the file (from block 0).
2. Give an expression for the offset of the 15th block in the file (from block 0).
3. Assuming that the blocks are 8192 bytes long, ints are four bytes long, and an indirection block contains 2048 ints, give an expression for the offset of the 5000th block in the file (from block 0).
4. I claim that accessing the 5000th block is O(1). Why?
5. What is the largest possible file on that computer (assume the disk is large enough)?