Jingjing Rong & Ning Xie

OS Lab 4 Report:

5. What is the maximum number of blocks (in a file) that the above inode can support? (10)

   The maximum number of blocks in a file is 12 + 100 + 100*100 = 10112.

6. Explain, succinctly, how does your program locate the address of a given block number in the inode? Answer this for the following three cases: (10)

A. Block number is from 0 to 11.

B. Block number is from 12 to 111.

C. Block number is >= 112.

A. The super_block.txt and all the individual data txt files that the direct blocks are pointing to reside in one directory that's named after the input file. For example if input file is named "input_file1.txt", then the directory is "input_file1_dir". The program first scans the path "input_file1_dir\super_block.txt" to get the specific data file name from a line in the "super_block.txt" file based on the block number. Then the program scans that specific file with that file name to get the data.

B. The file that contains the indirect block that pointer 12 is pointing towards also resides in the input file directory ("input_file1_dir" for example). Its file name is "level1_indirection.txt". Hence, the program will first scan the path "input_file1_dir\level1_indirection.txt" to get the specific file name from a line in the "level1_indirection.txt" file. With that specific file name, the program scans the data file to get the data.

C. The file that contains the double indirect block that pointer 13 is pointing towards also resides in the input file directory ("input_file1_dir" for example). Its file name is "level2_indirection.txt". The program first scans the path "input_file1_dir\level2_indirection.txt" to find the specific path name that corresponds to a single indirect block file within the 100 single indirect blocks. Then the program scans that single indirect block file path to get a specific data file name and then it will scan that file name to get the data.

7. What naming convention do you use for naming the files containing the input file blocks? (You should explain how do you name the files pointed by the direct block pointers in the inode? Similarly, how do you name the files pointed by the **single indirect block** and **double indirect block**?) (5)

The files pointed by the direct blocks in the inode are named directly as "One.txt"(1st), "Two.txt"(2nd), "OneZero.txt"(10th), "ThreeTwo.txt" (32nd) and "OneOneZero.txt" (110th), etc. Whereas the file pointed by the single indirect block is named as "level1_indirection.txt" and the file pointed by the double indirect block is named as "level2_indirection.txt".