Creed Allen Sam Nelson
Lab 3 Part 2

TORUN:
Compile: gcc -std=c99 filesim.c -o filesim
Run ./filesim [inputfilename]

DESIGN
The methods described in the assignment all work in a similar fashion. They open the file system and use: seek, fwrite and fread operations to manipulate the files and their contents.

- The first 128 bytes are the availability of blocks.
- The rest of the first block contains 16 inode structures (48 bytes each) that hold relevant file info.
- The rest of the blocks contain data pointed to by inodes that have been allocated the block.

Below is a brief description of how the methods operate.

Delete:

1. Locate the availability bytes and loads them into a 128 byte array.
2. Fread through inodes until the file name[8] is located.
3. Note the block pointers of the file to delete.
4. Create a new, empty inode to write into the spot containing the inode to delete, used = 0.
5. Set the availability of name's block pointers to 0 and rewrite the availability array.
6. Close the file.
   Note: We elected not to delete block contents in file deletion. Since there is no reference to this block and any new write will overwrite the existing data anyways.

Create:

1. Load the availability array in using fread to get the first 128 bytes.
2. Fread through inodes until the first inode with used = 0 is found.
3. Create an inode allocating it the first (size) blocks with availability = 0 in the availability array.
4. Mark these blocks as unavailable.
5. Write the inode and availability back to the file.
6. Close the file.

Read/Write

1. Locate the inode and find the byte index of the blockNum.
2. Read/Write the buffer passed to the method.
3. Exit the file.

Ls:

1. Iterate through the inodes that have names and print the names.
2. Close the file.

Main:

1. Iterates through lines in the input file provided to the file system.
2. Uses a switch to determine what method each line should call.
3. Performs the desired operation.
4. Stops when no new lines are encountered.