Cluster Inconsistency

The program traverse the direntries in the image. It gets the filename from the dirent and makes recursive calls to *follow_dir()* to get the files. The file's starting to end cluster position is set to be used in the clusters array. This is done for all the files using *follow_dir().* The program then iterates the clusters array and checks if the free clusters in the array are not free in fat entry. If it finds a cluster with the matching condition, it prints the cluster number. Another loop iterates the clusters array and checks for the same matching condition. If it finds a cluster, it creates a dirent in the filesystem for the lost file and calls *follow_dir()* to update the clusters array

Length Inconsistency

The program traverse the direntries in the image. It gets the filename from the dirent and makes recursive calls to *scanForWrongFileLength()* to get the files. It gets the length of the file's starting cluster to end from *getLength()* and compares this to its size in direntry. If they are different then the clusters from the starting to end is freed and starting cluster is to set to be the start of cluster flag.

Functions in doc_scandisk.c

1. *main()* - calls *scandisk* passing the filename to be checked
2. *scandisk(filename)* - checks for unreferenced clusters and files with inconsistent length
3. *scanForWrongFileLength()* - traverses the directories and files and compares the length to check for inconsistencies
4. *scanfForUnreferencedClusters()* - finds inconsistent clusters and fixes them.
5. *follow_dir()* - traverses the directories and files and sets the used clusters in the clusters array
6. *checkIfUnreferenced()* - checks if the status of the cluster in clusters array is different in the fat entry
7. *getName()* - returns the name of a file or directory
8. *createFile()* - creates a file entry in the filesystem image for the lost file
9. *getLength()* - returns the length from the given to cluster to the end of the file
10. *create_dirent()* - taken from dos_cp.c
11. *write_dirent()* - taken from dos_cp.c