As with any filesystem, there exists the possibility that errors will be introduced. In Linux, these errors are resolved using a File System ChecKer (fsck). Each fsck is custom designed for the file system type so that it can examine everything to make sure it is consistent.

For this homework, I would like you to design a file system checker for our file system. You should call it csefsck. It will have to do the following:

1. ~~The DeviceID is correct~~
2. ~~All times are in the past, nothing in the future~~
3. ~~Validate that the free block list is accurate this includes~~
   1. ~~Making sure the free block list contains ALL of the free blocks~~
   2. ~~Make sure than there are no files/directories stored on items listed in the free block list~~
4. ~~Each directory contains . and .. and their block numbers are correct~~
5. ~~Each directory’s link count matches the number of links in the filename\_to\_inode\_dict~~
6. ~~If the data contained in a location pointer is an array, that indirect is one~~
7. That the size is valid for the number of block pointers in the location array. The three possibilities are:
   1. size<blocksize if indirect=0 and size>0
   2. size<blocksize\*length of location array if indirect!=0
   3. size>blocksize\*(length of location array-1) if indirect !=0

Provide the code in a SINGLE C++ file uploaded to newclasses on or before the due date. Your code will be inspected closely for cheating and any cheating will result in a zero grade and be reported to university administration.