System Programming – Project 4
(2015-2016 Fall Term)

Using FUSE, implement a file system that will make a photo collection easier to navigate. The file system will analyze a directory which contains photo files with IPTC tags and display a hierarchy of these files based on their keyword and country tag values.

- The top-level directory will contain two-directories: SUBJECTS and KEYWORDS.
- The SUBJECTS directory will display a subdirectory for every subject used in the «Subject Reference» tags of the original photo files. Note that a photo file can have multiple Subject Reference tags.You can find example values for subject references on this page: http://cv.iptc.org/newscodes/subjectcode. A subject directory will list all photo files that have that subject reference tag.
- The KEYWORDS directory will display a subdirectory for every keyword by collecting data from the «Keywords» tags of the original photo files. Again, a photo file can have multiple Keywords tags. A keyword directory will list all photo files that have that keyword tag.
- The file system will not keep any photo files on its own, it will only provide an interface for the underlying directory.
- You can assume that the underlying directory does not have any subfolders.
- Any changes to the tags in the original photo files will be instantly visible through the FUSE-based file system.
- Copying a photo file to a keyword/subject folder in the FUSE-based file system will add that keyword/subject tag to the original photo file.
- Deleting a photo file from a keyword/subject folder in the FUSE-based file system will delete that keyword/subject tag from the original photo file.

For reading IPTC tag data, you can use the following library:

http://libiptcdata.sourceforge.net/

This library contains a utility called `iptc` which can be used to manipulate the tags of photo files.

Please read the following carefully!

- Each member of the group must make a submission, even though the submitted files may be the same for all group members.
- Group members will be graded individually based on their performance in the lab session and the submitted group project. Students who are not present during the lab session will not receive a grade for the project, even though they may have made a submission through the Ninova system.
- Any form of cheating or plagiarism will not be tolerated. This includes actions such as, but not limited to, submitting the work of others as one's own (even if in part and even with modifications) and copy/pasting from other resources (even when attributed). The submitted work should be the product of the group itself; collaboration or code sharing between different groups will also be regarded as plagiarism. Serious offences will be reported to the administration for disciplinary measures.
- Your code should not contain any leftover code you might have copy-pasted from other resources. For example, references like “rofs” and “hello” should not be part of your submitted homework.