

# MOSS File System Simulator

## Project 4

1. Enhance the file system simulator to include a new method, `Kernel.chown()`, which, given the name of a file, a uid, and a gid, sets the file's uid and gid to the values given. Note that only the owner of a file (or the super-user) may change the gid of a file. Only the super-user may change the uid of a file. To test your new method, write two new programs `chown.java` and `chgrp.java` which accept a uid or gid (respectively) and a list of file or directory names.
2. Enhance the file system simulator to include a new method, `Kernel.chmod()`, which, given the name of a file and a mode, sets the file's mode to the value given. Note that only the owner of a file (or the super-user) may change the mode for a file, and that only the 9 low-order bits of mode are affected. To test your new method, write a new program `chmod.java` which accepts a mode value (000..777) and a list of file or directory names.
3. Enhance the file system simulator to include a new method, `Kernel.link()`, which, given two path names, creates the second path as a (hard) link to the first path. `link()` should find the inode number for the first file, and then write a directory entry for the second path which references the same index node. Don't forget to increment `nlink` on the index node. To test your new method, write a new program, `ln.java`, which, given two path names, performs the `link()` operation. Assume that creating a link to a directory is not allowed.