

# Activity X - Filesystem

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## Inode and filesystem.

1. Create a text file **"test.txt"** containing the string "hello". Put this file in a folder named **mydir**. Make a symbolic link and a hard link from test.txt to test.s and test.h respectively ( Use **"ln -s test.txt test.s"** and **"ln test.txt test.h"** ). Please also make a link from folder **mydir** to **mydir.s**.
2. To show the information, use the **ls (ls -li)** command or the **stat (stat and stat -f)** command to display the information of a regular file, a directory, and a symbolic-linked file. For each one, show inode, underlying filesystems, and blocks.
3. Edit the file **"test.h"** by duplicating the string "hello" for 1024 lines. Display the information about the file **"test.txt"** again.
4. Use ps to determine the pid of your shell process. In **"/proc"**, pick a folder with that number. Explore files in that folder (using **stat -f, ls -li**, etc). In particular, go to folder **"fd"**. What does the file in there suggest?

Answer the following questions in myCourseVille.

- a. What is the name of the filesystem used by your system? Please also briefly explain its features (eg. maximum number of files and file size limitation)
- b. What will happen if you change the permission of the file test.txt? Does the permission affect both test.s and test.h?
- c. What is the difference between symbolic link and hard link?
- d. Is it possible to create a hard link for a directory? If not, Why is it (not) possible? Please provide your analysis.
- e. What is the block size of your filesystem? When will a new block be allocated to a file? Please explain.
- f. In **"/proc"**, what is the filesystem there? What does the content suggest? What are files in /proc/[pid]/fd? Please explain.