CS241 #32 – Files #4

**Review:**

**> File permissions and directories**

For a directory what does the execute bit imply?

**> What am I describing and where is this useful?**

"Even though directory has rwx only the owner can rename or delete a subdirectory."

*I logged in therefore I am* , Descartes 1637

My process has a uid and euid.

If I run it under sudo which one has changed?

If I set the setuid bit which one has changed?

int main() { // who am i?

struct passwd \*pw;

pw = getpwuid(getuid());

printf("getuid: %d, Hello %s,\n", getuid(), pw->pw\_name);

pw = getpwuid(geteuid());

printf("geteuid(): %d, You are effectively %s,\n", geteuid(), pw->pw\_name);

printf("Opening file %s...\n", filename);

FILE\* f = fopen(filename,"r");

if( !f ) quit("fopen failed");

if( stat(filename, &s) !=0 ) quit("stat failed");

size\_t size = s.st\_size;

char\* buffer = malloc(size);

size\_t bytesread = fread(buffer, 1, size, f);

fclose(f);

fwrite(buffer, 1, bytesread, stdout);

free(buffer);

}

#!/usr/bin/env bash

OTHERUSER=$1

if [[ "$OTHERUSER" == "" ]]; then

echo 'Specify username e.g. sshd (Linux)'

exit 1

fi

sudo chown "$OTHERUSER" secret.txt

sudo chmod 400 secret.txt

sudo rm a.out 2>/dev/null

gcc hal.c

sudo chown "$OTHERUSER" a.out

ls -al

How do I create directories and symlinks in code?

Which of the following will fail to create a directory or symbolic link?

1. int main() {
2. mkdir("dir1", 0700);
3. mkdir("dir1/subdir", 0700);
4. mkdir("dir2", 0600);
5. mkdir("dir2/subdir", 0700);
6. mkdir("dir3", 0500);
7. mkdir("dir3/subdir", 0700);
8. symlink("dir1/subdir","quick1");
9. symlink("dir2/subdir","quick2");
10. symlink("dir3/subdir","quick3");
11. return 0;
12. }

**> How do I mount and unmount a filesystem?**

How is /etc/fstab used ?

**> What is a loop back filesystem?**

**> What does a process contain? (Version 2)**

virtual memory

threads, pid, ppid

open file descriptors (files,pipes,sockets)

uid, euid

pwd

meta information (Total CPU time. Running status)

constraints (ulimits)

thread & process priority

umask

**> What is RAID? Why is it necessary?**

Making filesystems resilient:

RAID

"Redundant Array of Inexpensive Disks"

> **Quiz 4 Review  
Barriers; Reader Writer; Producer Consumer; Deadlock. Dining Philosophers; RAG. fseek;ftell;pipes. Threads, Locks, CVs.**

**VM (TLB;dirty bit;MMU; page offsets). Reading on a pipe. SIGPIPE**