

# Lab #3: File Permissions and Directory Information

**Due Date:** October 24, 2016 2355 hours

The project developed in Lab #2 will be extended by this one. Using `stat` and `getpwuid` you will need to open each file within a child process and determine the following: the home directory of the user. If the user is the owner, the user is in the same group as the owner, or if the owner is outside of the user group. After that information is printed, then print the combination of file permissions that apply to this file: read, write, execute. Samples: `fileaccess.c` and `getid.c` are examples of `stat` & `getpwuid`. man pages and any good UNIX textbook will go into more detail on both of these structures.

## Program requirements:

1. The program should take either filenames or wildcards (\*.c for example) as input
2. Create as many child processes as there are files on the command line
3. For each child process:
  - a. Print if you have owner, group, or general permissions.
  - b. Print what type of permissions you have: read, write, execute
  - c. Print the home directory of the user for that file
4. The parent process should wait for all the children to finish and then print "done"
5. 5% Extra Credit: instead of Moodle, submit your assignment via <https://education.github.com/> (MUST be private, invite swrsz) Make sure your full name is included in the comments. I'll send an email to all individuals who I have shared Github access 1 day before the assignment is due informing them I will retrieve their program from Github.
6. 10% Extra Credit: Your print output may occasionally be garbled. How would you fix this? Do not use delays or make child processes wait in any way. Only parents should wait.
7. 10% Extra Credit: If no filename is specified on the command prompt, use `dirent` to retrieve all files in the current folder. This is excellent practice for the lab final.

## Hint:

```
if (getuid() == buf.st_uid)
if (getgid() == buf.st_gid)
```

You will also see much of this code on the lab finals. Knowing how to use man pages and UNIX structures is critical to doing well on these tests. Memorization & practice also help.

```
$ ./p3 ..
File: ..
Directory: /home/users15/sew25545
You have general permissions: read execute
Done!
```

```
$ ./p3 *.c
File: fileaccess.c
Directory: /home/users15/sew25545
You have owner permissions: read
```

```
File: program2.c
Directory: /home/users15/sew25545
You have owner permissions: read write execute
Done!
```