**HW-2B:**

**There are 10 questions in this Homework.**

* **Edit programs in your Unix/Linux OS and show the outputs that you see along with the source codes. There are some \*.txt files associated with some of the source codes. Correlate the \*.txt files with the corresponding source code and run the source codes.**
* **Also provide a brief description of what each code is doing.**

1. **Type of file**

#include <stdio.h>

#include "apue.h"

int

main(int argc, char \*argv[])

{

int i;

struct stat buf;

char \*ptr;

for (i = 1; i < argc; i++) {

printf("%s: ", argv[i]);

if (lstat(argv[i], &buf) < 0) {

/\* err\_ret("lstat error"); \*/

continue; }

if (S\_ISREG(buf.st\_mode))

ptr = "regular";

else if (S\_ISDIR(buf.st\_mode))

ptr = "directory";

else if (S\_ISCHR(buf.st\_mode))

ptr = "character special";

else if (S\_ISBLK(buf.st\_mode))

ptr = "block special";

else if (S\_ISFIFO(buf.st\_mode))

ptr = "fifo";

else if (S\_ISLNK(buf.st\_mode))

ptr = "symbolic link";

else if (S\_ISSOCK(buf.st\_mode))

ptr = "socket";

else

ptr = "\*\* unknown mode \*\*";

printf("%s\n", ptr);

}

return(0); }

Run commands:

**./a.out /etc/passwd /etc /dev/log /dev/tty \** > **/var/lib/oprofile/opd\_pipe /dev/sr0 /dev/cdrom** /etc/passwd: regular  
/etc: directory  
/dev/log: socket  
/dev/tty: character special /var/lib/oprofile/opd\_pipe: fifo  
/dev/sr0: block special  
/dev/cdrom: symbolic link

1. **File\_access.c**

#include "apue.h"

#include <fcntl.h>

int

main(int argc, char \*argv[])

{

if (argc != 2)

printf("usage: a.out <pathname>");

if (access(argv[1], R\_OK) < 0)

printf("access error for %s", argv[1]);

else

printf("read access OK\n");

if (open(argv[1], O\_RDONLY) < 0)

printf("open error for %s", argv[1]);

else

printf("open for reading OK\n");

exit(0); }

~

**~ Output:**

**./a.out a.out**read access OK  
open for reading OK  
$ **ls -l /etc/shadow**

1. Umask

#include "apue.h"

#include <fcntl.h>

#define RWRWRW (S\_IRUSR|S\_IWUSR|S\_IRGRP|S\_IWGRP|S\_IROTH|S\_IWOTH)

int

main(void)

{

umask(0);

if (creat("foo", RWRWRW) < 0)

err\_sys("creat error for foo");

umask(S\_IRGRP | S\_IWGRP | S\_IROTH | S\_IWOTH);

if (creat("bar", RWRWRW) < 0)

err\_sys("creat error for bar");}

Output:

$ **umask**002  
$ **./a.out**$ **ls -l foo bar**

1. **Open and unlink**

#include "apue.h"

#include <fcntl.h>

int

main(void)

{

if (open("tempfile", O\_RDWR) < 0)

err\_sys("open error");

if (unlink("tempfile") < 0)

err\_sys("unlink error");

printf("file unlinked\n");

sleep(15);

printf("done\n");

exit(0);

}

Output:

ls -l tempfile

df /home

./a.out &

1. Exercise 4.2

怎么添加、修改、提升权限，需要写一个案例

1. Exercise 4.3
2. Exercise 4.4
3. Exercise 4.8
4. Exercise 4.9

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