

## [2017 Network system programming Homework3]

### ● Purpose

Learn how to implement some of the functionality for the **ls** command. Learn how to implement some of the functionality for the **mv** command.

### ● Part 1

1. Rename `mysls_[your student ID].c`

< Example. `mysls_[your student ID].c` → `mysls_M043040006.c` >

2. Write a command called `mysls` that lists the contents of specified directory.

Usage: `./mysls [option] [directory]`

It reads the current directory and displays all entries except "." and "..", or the specified directory if given as an argument. Print each entry on a separate line, and do not worry about formatting because `ls` does it. Because the following exercises also read a directory, you might have a function do the listing, as:

```
void list_directory(dir)
{ char *dir;
  ...
}
```

In addition, your `mysls` command must support the follow two options: (1) Support the **-F** option, which acts like `ls -F`. Print the file type symbol after the file name.

Use the man page or the real `ls -F` to determine symbols.

(2) Support the **-R** flag. This flag causes `mysls` to recursively process directories.

Hint: Use `getopt`.

Warning!! : You can't just call `exec()` to do this homework.

3. Sample output:

```
jth@jth-VirtualBox:~/Desktop/M043040006_SP_HW3/part1$ ./mys
/home/jth/Desktop/M043040006_SP_HW3/part1 :
makefile
A
B
mys_M043040006.c
mys
```

Option :

```
jth@jth-VirtualBox:~/Desktop/M043040006_SP_HW3/part1$ ./mys -F
/home/jth/Desktop/M043040006_SP_HW3/part1 :
makefile
A/
B/
mys_M043040006.c
mys*
jth@jth-VirtualBox:~/Desktop/M043040006_SP_HW3/part1$ ./mys -FR
/home/jth/Desktop/M043040006_SP_HW3/part1 :
makefile
A/
B/
mys_M043040006.c
mys*

/home/jth/Desktop/M043040006_SP_HW3/part1/A :
a.c
b
c/

/home/jth/Desktop/M043040006_SP_HW3/part1/A/c :
d

/home/jth/Desktop/M043040006_SP_HW3/part1/B :
```

Specified directory:

```
jth@jth-VirtualBox:~/Desktop/M043040006_SP_HW3/part1$ ./mys A
/home/jth/Desktop/M043040006_SP_HW3/part1/A :
a.c
b
c
```

## ● Part 2

1. Rename `mymv_[your student ID].c`

< Example. `mymv_[your student ID].c` → `mymv_M043040006.c` >

2. Write a command `mymv` that acts as the `mv` command does.

Usage: `./mymv file1 file2` //This command renames file1 to file2

`./mymv file1 directory` //This command renames file1 to directory/file1      Rename the first argument to the second one. If the second argument is a directory that exists, the first argument is renamed into that directory (the `rename` system call does not do this automatically). For safety, if the second argument already exists, ask the user to confirm before overwriting (act as "`mv -i`").

Warning!! : You can't just call `exec()` to do this homework.

```
jth@jth-VirtualBox:~/Desktop/M043040006_SP_HW3/part2$ ls -R
.:
dir  fileA  makefile  mymv  mymv_M043040006.c

./dir:
jth@jth-VirtualBox:~/Desktop/M043040006_SP_HW3/part2$ ./mymv fileA fileB
jth@jth-VirtualBox:~/Desktop/M043040006_SP_HW3/part2$ ls
dir  fileB  makefile  mymv  mymv_M043040006.c
jth@jth-VirtualBox:~/Desktop/M043040006_SP_HW3/part2$ cp fileB fileA
jth@jth-VirtualBox:~/Desktop/M043040006_SP_HW3/part2$ ls
dir  fileA  fileB  makefile  mymv  mymv_M043040006.c
jth@jth-VirtualBox:~/Desktop/M043040006_SP_HW3/part2$ ./mymv fileA fileB
mymv: overwrite 'fileB'?Y
jth@jth-VirtualBox:~/Desktop/M043040006_SP_HW3/part2$ ls
dir  fileB  makefile  mymv  mymv_M043040006.c
jth@jth-VirtualBox:~/Desktop/M043040006_SP_HW3/part2$ ./mymv fileB dir
jth@jth-VirtualBox:~/Desktop/M043040006_SP_HW3/part2$ ls -R
.:
dir  makefile  mymv  mymv_M043040006.c

./dir:
fileB
```

### ● Part 3

1. Add code to the lookup2.c file to do a binary search through a file of fixed length records. After the file has been edited, type make or make isam\_lookup. When you get the prompt, type isam\_lookup fixrec.
2. Files provided :
  - A. makefile
  - B. main.c
  - C. lookup2.c
  - D. fixrec
  - E. dictionary.h
3. Sample output

```
jth@jth-VirtualBox:~/Desktop/M043040006_SP_HW3/part3$ ./isam_lookup fixrec
What word do you want : work
work : The curse of the drinking classes.
What word do you want : word
word : Not Found!
What word do you want : ^C
jth@jth-VirtualBox:~/Desktop/M043040006 SP_HW3/part3$
```

### ● Rule

1. Please use **C** language in this homework and run your program on **Ubuntu 16.04**.
2. Please provide Makefile to compile your homework!! Otherwise, you will get **ZERO**.
3. **Do not copy others' homework!!!**
4. If you have any question, please send email to [sp\\_ta@net.nsysu.edu.tw](mailto:sp_ta@net.nsysu.edu.tw), but TA does not help to debug.

### ● Upload

1. Please compress your homework into **zip** or **tar** archive.
2. Naming rules: "StudentID\_SP\_HW3.zip". For example:  
M043040006\_SP\_HW3.zip

3. Upload your homework to NSYSU Cyber University.
4. **Deadline: 2017/11/03(Fri.) 23:59; if it is overdue, you will get ZERO.**