[2018 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.

Rule

1. Please use C language in this homework and run your program on Ubuntu 18.04.
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, but TA does not help to debug.

TAs email: net_ta@net.nsysu.edu.tw

Lab: Network & System Laboratory-EC5018 (11:00 ~ 17:00)

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: 2018/10/23(Tue.) 23:59

Part 1

1. Rename myls_[your student ID].c

   < Example. myls_[your student ID].c →myls_M043040006.c >

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

   Usage: ./myls [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;
         ...
   }
   ```

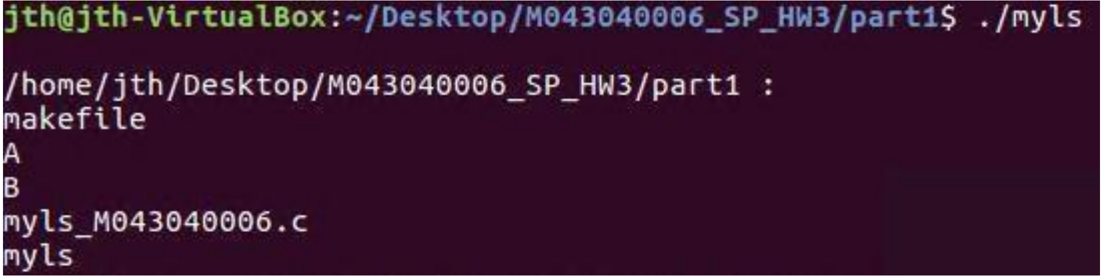
   In addition, your myls command must support the follow two options: (1) Support the -F option, which acts like ls -F. Print the file type symbol after the file name. Use the man page or the real ls -F to determine symbols.

   (2) Support the -R flag. This flag causes myls to recursively process directories.

   Hint: Use getopt.

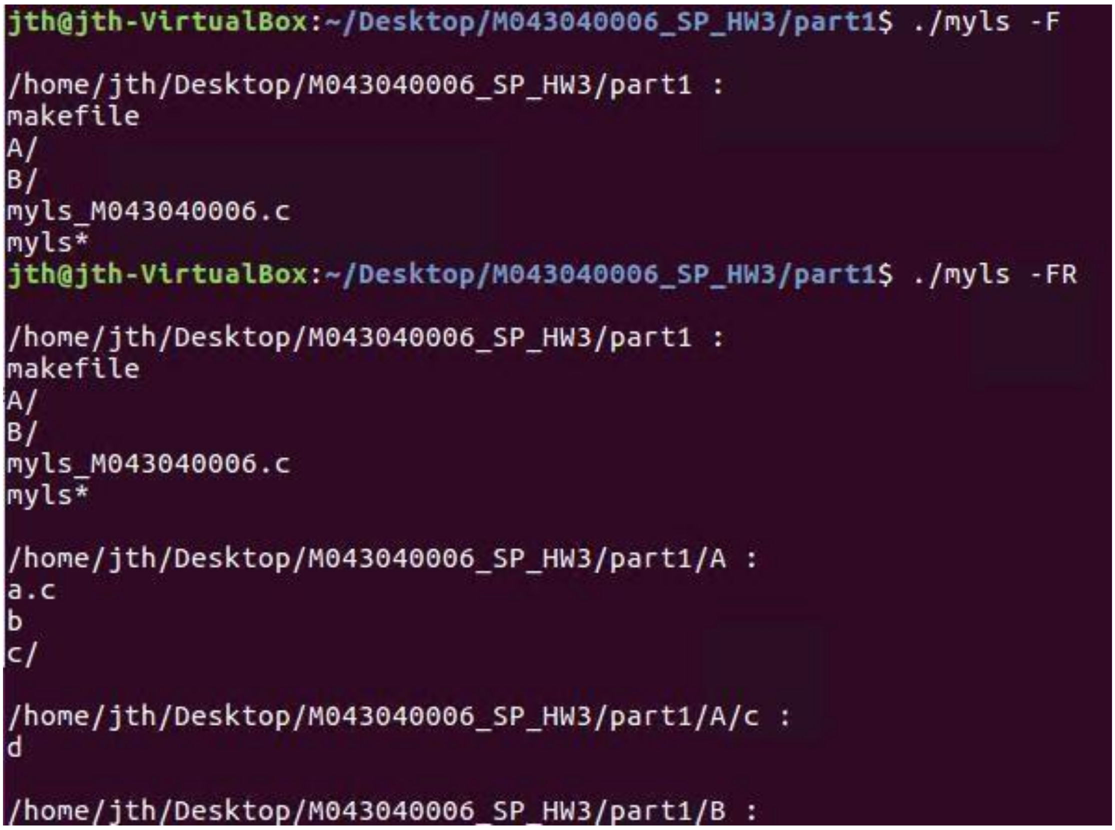
   Warning!! : You can't just call exec() to do this homework.

Sample output:



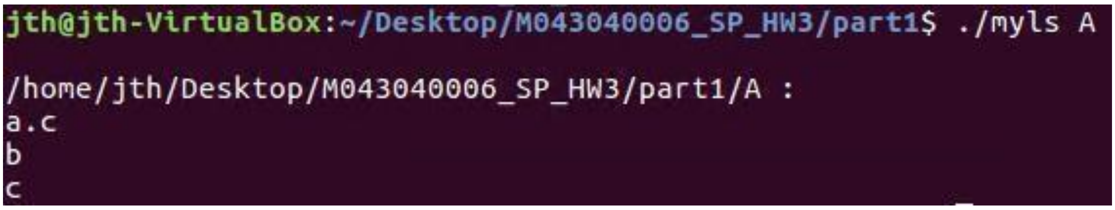
```
jth@jth-VirtualBox:~/Desktop/M043040006_SP_HW3/part1$ ./myls

/home/jth/Desktop/M043040006_SP_HW3/part1 :
makefile
A
B
myls_M043040006.c
myls
```

Option :



```
jth@jth-VirtualBox:~/Desktop/M043040006_SP_HW3/part1$ ./myls -F

/home/jth/Desktop/M043040006_SP_HW3/part1 :
makefile
A/
B/
myls_M043040006.c
myls*
jth@jth-VirtualBox:~/Desktop/M043040006_SP_HW3/part1$ ./myls -FR

/home/jth/Desktop/M043040006_SP_HW3/part1 :
makefile
A/
B/
myls_M043040006.c
myls*

/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$ ./myls 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 >

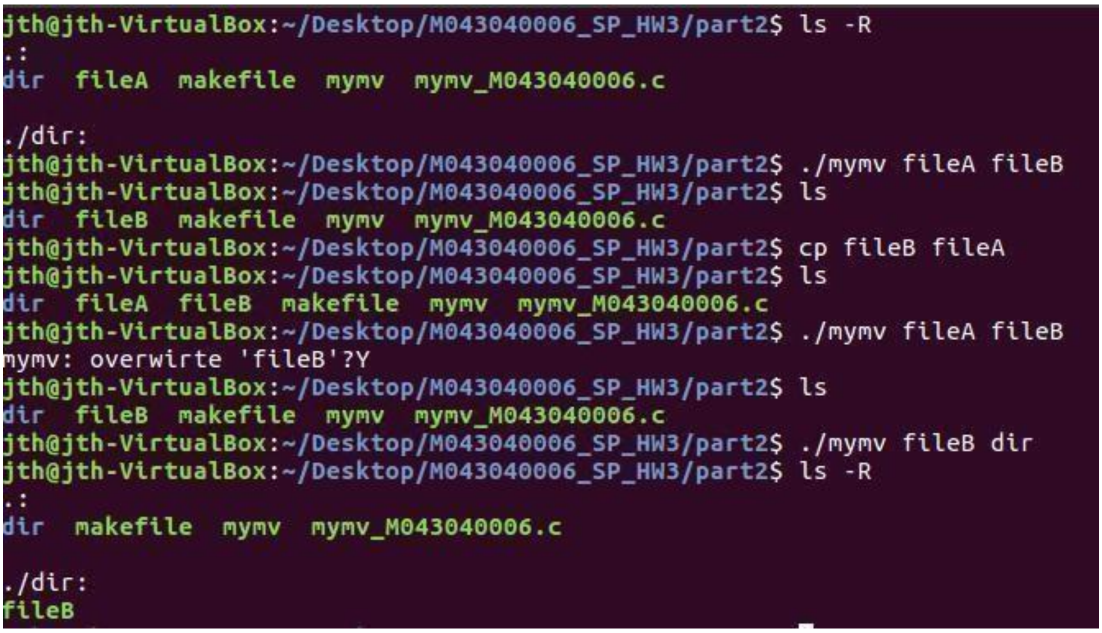
2. Write a command mymv that acts as the mv command does.

Usage: ./mymv filel filel2 //This command renames filel to file2

./mymv filel directory //This command renames filel to directory/filel

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").

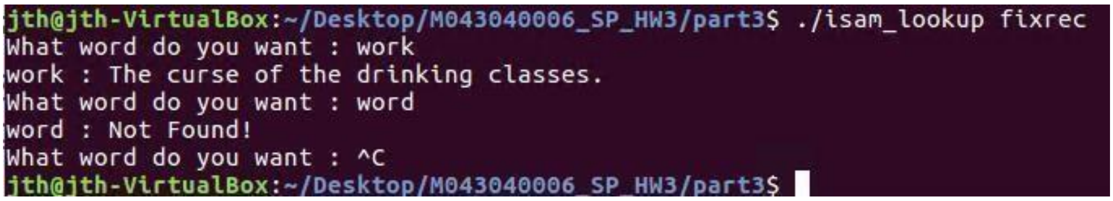
Warning!! : You can’t just call exec() to do this homework.



```
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: overwirte '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$ 
```