【2021 Network System Programming Homework 1】

Rules:

1. Please use C languagein this homework and run your program on Ubuntu 20.04

2. Please provide Makefileto 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 or come to EC5018, but TA does not help to debug.

Upload:

1.Please compress your homework into zipor tararchive. 2.Naming :**SP_HW1.zip**

3. Upload your homework to NSYSU Cyber University.
4. Deadline: 2021/10/11 23:59 ; if it is overdue, you will also get ZERO. Homework:

1. The *tee* command reads its standard input until end-of-file, writing a copy of the input to standard output and to the file named in its command-line argument. (We show an example of the use of this command when we discuss FIFOs in Section 44.7.) Implement *tee* using I/O system calls. By default, *tee* overwrites any existing file with the given name. Implement the *-a* command-line option (*tee -a file*), which causes *tee* to append text to the end of a file if it already exists. (Refer to Appendix B for a description of the *getopt()* function, which can be used to parse command-line options.)

2. Write a program like *cp* that, when used to copy a regular file that contains holes (sequences of null bytes), also creates corresponding holes in the target file.

Sample Output:

1.

```
huangrhung@huangrhung-x550vb:~/桌面$ ./hw1-1
kkowkoasdskasodk sadkolwo
kkowkoasdskasodk sadkolwo

^C
huangrhung@huangrhung-x550vb:~/桌面$ ./hw1-1
asdqwedw
asdqwedw
asdwq
asdwq
^C
huangrhung@huangrhung-x550vb:~/桌面$ ./hw1-1 test.txt
qwerqwerqwer
qwerqwerqwer
^C
huangrhung@huangrhung-x550vb:~/桌面$ cat test.txt
qwerqwerqwer
huangrhung@huangrhung-x550vb:~/桌面$ ./hw1-1 test.txt
sssssssss
sssssssss
^C
huangrhung@huangrhung-x550vb:~/桌面$ cat test.txt
sssssssss
huangrhung@huangrhung-x550vb:~/桌面$ ./hw1-1 -a test.txt
sdqwerqwersadwqr
sdqwerqwersadwqr
dfjklewjfkjew
dfjklewjfkjew
^C
huangrhung@huangrhung-x550vb:~/桌面$ cat test.txt
sssssssss
sdqwerqwersadwqr
dfjklewjfkjew
```

2.

```
huangrhung@huangrhung-x550vb:~/桌面$ ./hw1-2 file1.txt file2.txt
huangrhung@huangrhung-x550vb:~/桌面$ cat file2.txt
sadasdasdqweeqwerqwerrqqweeqweerwqerqwer
huangrhung@huangrhung-x550vb:~/桌面$ cat -v file2.txt
sa^@^@^@^@^@dasdasd^@^@^@^@^@^@^@^@^@^@^@^@qweeqwer^@^@^@qwerr^@^@^@qqwee^@^@^@^
@^@qweerwqerqwer^@^@^@^@^@^@^@^@^@^@^@^@^@^@^@^@^@^@^@^@^@^@^@^@^@^@^@^@^@^@^@^@^@
^@^@^@^@^@^@^@^@^@^@^@
huangrhung@huangrhung-x550vb:~/桌面$
```