Lab #2. More Linux Commands & Hands-on Linux Command-line Tools

- The TLCL book is publicly available at: http://sourceforge.net/projects/linuxcommand/
- HGU CSEE Standard on assignments:
  - Submitting assignments or program codes written by others or acquired from the internet without explicit approval of the professor is regarded as cheating.
  - Showing or lending one's own homework to other student is also considered cheating that disturbs fair evaluation and hinders the academic achievement of the other student.
  - It is regarded as cheating if two or more students conduct their homework together and submit it individually when the homework is not a group assignment.
- When you report the lab results to the TA, s/he may ask your answers to the following questions.

1. Read Chapter 6 of TLCL (pages 54-67) carefully and exercise all commands in the textbook thoroughly on the Peace server. Be prepared to answer each of the following questions and to explain how you find your answer.

a) *Cheolho* would like to list all files under /dev in long format and store the results as a txt file, with name *ls_dev.txt*, under her home directory. If there is an existing file with the same name, she wants to keep the existing one and append the new results to the end of the file. How does she write a command?

ls -l /dev >> ~/ls_dev.txt

b) *Gahyeon* is testing a program called *simul* and collect all error messages coming from it in a separate local file, *simul.err*. Provided that she only wants to keep the error messages from the current program run, how does she write a command?

./simul 2> simul.err

c) *Duhwan* is planning to run a system benchmark overnight, and would like to collect all the output and error messages in file *nerdbench.log*. Provided the executable is accessible at */usr/bin/nerdbench*, how does he write a command?

/usr/bin/nerdbench > nerdbench.log 2>&1

d) Commanding "`cp ./.* tgt_dir`" would raise error messages as the following, saying that it cannot copy directories:

```
$ cp ./.* tgt_dir
cp: ./. is a directory (not copied).
cp: ./.. is a directory (not copied).
```

hidden file 복사하기

cp ./.* tgt_dir 2> /dev/null

Modify the command to suppress the error messages.

Explain what is going to happen if you give the following command in the command line.

e) $ ls /bin /usr/bin | sort | uniq -d

/bin 과 /usr/bin에 있는 것 중 중복된 파일들을 (한번만) 나열

f) $ ls -1 /usr/sbin | wc -l

ls -1 한줄씩 표현 할 수 있도록 나열
즉 /usr/sbin에 있는 파일들과 디렉토리들을 한줄씩 line space를 주고 출력을하는데
wc -l counting the line
몇줄인지 세아려보아라
즉 /usr/sbin에 있는 디렉토리와 파일들이 몇개 있는지 출력

g) $ cat /etc/group | grep x | sort

/ect/group에서 x가 들어가 있는 줄들을 정렬해서 출력해라

2. Read the following sections from the textbook:

- **Chapter 12 of TLCL (pages 141-161)**
- **The "'Configuring vim For Script Writing" part of Chapter 24 (pages 369-370)**
- **Chapter 19 of TLCL (pages 251-272)**

(You may prefer the following video tutorial: https://youtu.be/4KwsijqA7tQ)

Be prepared to answer each of the following questions and to explain how you find your answer.

Open *vim* on a Linux terminal. On the other hand, open a Bible and turn to Psalm chapter 1.

a) Type in (insert) verses 1 through 3 on *vim*.

b) Make three empty lines. Then, type in verses 4 through 6 on *vim*.

c) Using the cut and paste functions, relocate verses 4 through 6 before verses 1 through 3. Now your version of Psalm 1 is displayed in the order of verses 4-6 and then 1-3.

3yy 3dd

d) Using the copy (yank) and paste functions, repeat version 1, 3 times. You may use the visual mode that is activated by hitting 'v'.

yy, 3p

e) Using the copy (yank) and paste functions, repeat version 2, 10 times.

yy, 10p

f) Using the copy (yank) and paste functions, repeat version 3, 20 times.

yy, 20

Download sched.txt using wget and the command below and open it using *vim*.

```
$ wget https://raw.githubusercontent.com/charmgil/HGU-OSSL/master/sched.txt
```

Answer the following questions. Make sure to be able to come up with proper *vim* commands.

g) Find and count all occurrences of "meet" in the file.

:%s/meet//gn

h) Replace all "am" to "AM" (lowercase to uppercase); Replace all "pm" to "PM".

:%s/\v(am|pm)/\U&/g

i) Switch (swap) all "AM" to "PM", and vice versa.

:%s/\v(AM|PM)/\=submatch(0)=='AM'?'PM':'AM'/g

Watch *An introduction to regular expressions in Vim* on YouTube (**https://youtu.be/4KwsijqA7tQ**) and answer the following questions.

j) Find all whitespace in sched.txt using regular expression.

/\s :%s/\s//gn

k) Find all words ending with "ing".

:%s/\<w*ing\>//gn /\w*ing\>

l) Find all 2-digit numbers and take the summation of all. Note that the summation part should be done manually.

/\d\d
/\d\{2}
/[0-9][0-9]

뒷부분까지 완벽
/\d\d\>
/\d\{2}\>
/[0-9][0-9]\>

앞뒤까지 완벽
/\<\d\d\>
/\<\d\{2}\>
/\<[0-9][0-9]\>