

# Final Exam Group B

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**NOTICE:**

Please rename filename to "Student ID\_finalB". For Example: 4109056026\_finalB  
 Please remember to export to PDF before uploading it on iLearning.

**If you do the following, you will get 0:**

1. Leave the class room before the end time
2. Use cell phone or any other devices
3. Open course slides, webpages, or previous homework
4. Take the exam paper
5. Cheating

**If you do the following, you will lose 10 points:**

1. Upload your answer file to the wrong group in iLearning 3.0
2. Filename is not correct
3. Forget to convert docx to pdf

**WARNING:**

Don't use semicolon (;) or && if the question requires only one-line command.

Don't use the error message returned by the command as the answer to the question.

1. Create the following content, and complete the below questions. (The field Separator is Tab, and the word separator is space in Kind.txt)

Kind.txt

```
SunScreen      Anessa
SunScreen      Elixir
Cosmetic       Pair
Snack   White_Almond_Chocolate
Snack   Pocky_Strawberry
Snack   Pocky_Matcha
```

Price.txt

Anessa	1680
Elixir	6100
Pair	1280
White_Almond_Chocolate	220
Pocky_Strawberry	180
Pocky_Matcha	195

Number.txt

```
Anessa 1
Elixir 1
Pair 1
White_Almond_Chocolate 3
Pocky_Strawberry 2
Pocky Matcha 2
```

七有底線

- a) Use **one-line command** to merge the files into the files named "JapanExcel.txt" LIKE the below image. Then, show the content of "JapnaExcel.txt".

Anessa	SunScreen	1680	1
Elixir	SunScreen	6100	1
Pair	Cosmetic	1280	1
White_Almond_Chocolate	Snack	220	3
Pocky_Strawberry	Snack	180	2
Pocky_Matcha	Snack	195	2

ANS:

(You should type command and screenshot the result)

- b) Use **one-line command** to show the number of types I bought from Japan (based on the first column of Kind.txt.) **NOTICE: If types are duplicated, they can only be counted once.**

ANS:

(You should type command and screenshot the result)

- c) Sort the contents of "JapanExcel.txt" in descending order by price (which is the third column), and display the top three lines. (You can just consider using character to compare, not real number.)

ANS:

(You should type command and screenshot the result)

2. Regular expressions (regex or re) are powerful tools for pattern matching in text processing and data retrieval, using special characters and symbols to define search patterns. Please explain the following commands which include regular expressions.

a)

```
ls -a | egrep '.+\..*'
```

ANS:

(You should type explanation)

b)

```
:s/.\\..\\...//g\\//g
```

(in the command mode of the vi editor)

ANS:

(You should type explanation)

c)

```
egrep "[^0-9SNsn]$" info.log
```

ANS:

(You should type explanation)

3. I have created my own website where people can fill in their personal information to join my upcoming graduation party. Besides classmates and friends from the same year, you have also invited some juniors and even some students from different departments. It will be the last crazy night of eating, drinking, playing board games, and chatting until dawn before facing life as a graduate student at NTHU. The collected information is stored in a CSV file called "partySheet.csv", as shown below. It uses the comma (,) to separate every field, and the next line symbol to separate everyone's information. Please complete the following questions.

SHIH-YU,4109056026,edmondyang1104@icloud.com  
YUAN-LIN,4109056043,yuanlin@yahoo.com.tw

- a) I want to ensure how many people have written their student ID correctly according to the following rules :

- 1. The student ID starts with 41. [0-9][0-9]
- 2. Followed by 8 digits (0-9).
- 3. The entire student ID must not contain any other symbols.
- 4. You should consider that email may meet the above rules.
- 5. You can consider that every field wouldn't contain the comma (,).

Use **one-line command** to show the number of correct student ID in "partySheet.csv".

ANS:

(You should type command only)

- b) I want to know who does not share my good taste in using Yahoo as their email address. The rules for an Yahoo email address are as follows:

- 1. The email address must end with "@yahoo.com.tw".
- 2. You need to consider carefully about some specific characters have another meaning.

Use **one-line command** to show the number of people who doesn't use Yahoo address in "partySheet.csv".

ANS:

(You should type command only)

- c) Use **one-line command** to show the contents of "partySheet.csv" sorted in reverse order from the 5<sup>th</sup> line (= don't show top 4 lines).

ANS:

4. (You should type command only)

File sharing in Unix systems involves the distribution and access of files across different users and systems. It allows multiple users to collaborate and share resources efficiently. Now, complete the following questions.

- a) How to establish a hard link and a soft link to the file named "Letter of Invitation"?  
(You need to create a hard link named "letter.hard" and a soft link named "letter.soft".)

ANS:

(You should type command only)

- b) If I removed the file "Letter of Invitation", What happens with the hard link and the soft link?

ANS:

(You should type answer only)

- c) Use **one-line command** to show the number of soft link file in the folder "/etc".

ANS:

(You should type command and screenshot the result)

5. Use **one-line command** to show the last 12 lines of all current terminal sessions and background processes (including those executed by root).

ANS:

(You should type command and screenshot the result)

6. Use **one-line command** to show the top 17 filenames and directory names that do not contain a dot (.) or a hyphen/dash (-) under the "/usr" folder, including all subdirectories at all levels.

ANS:

(You should type command and screenshot the result)

7. Gzip (GNU zip) is a popular file compression utility in Unix and Unix-like operating systems. It is used to reduce the size of files for efficient storage and faster transmission over networks. Now, please tell me two different ways to uncompress the file named "secret.gz".

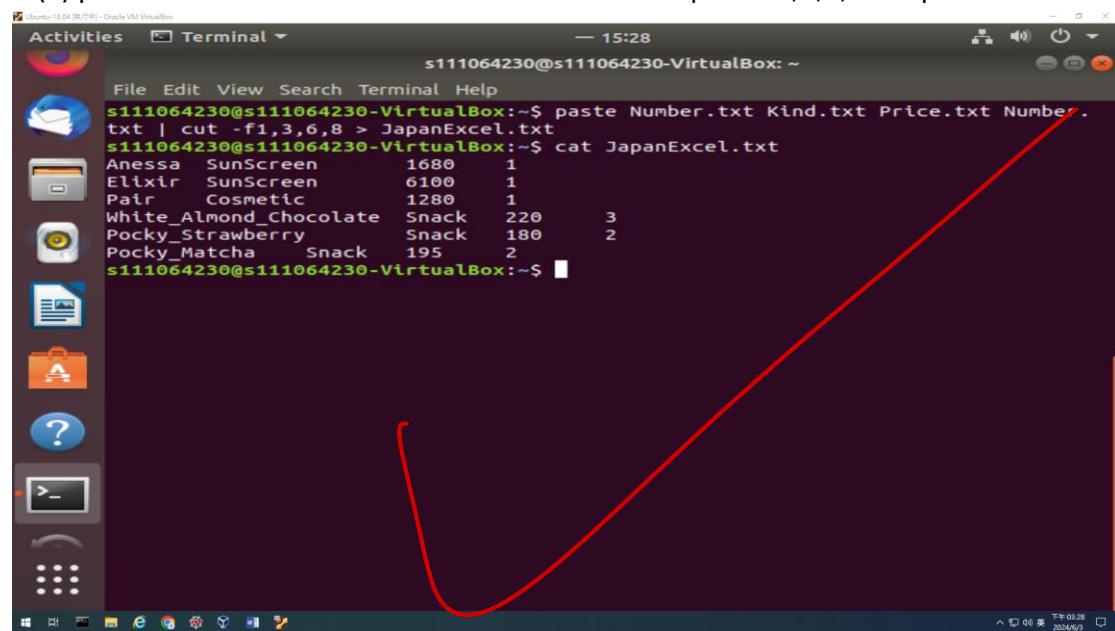
ANS:

(You should type command only)

4111064230 蔡程安

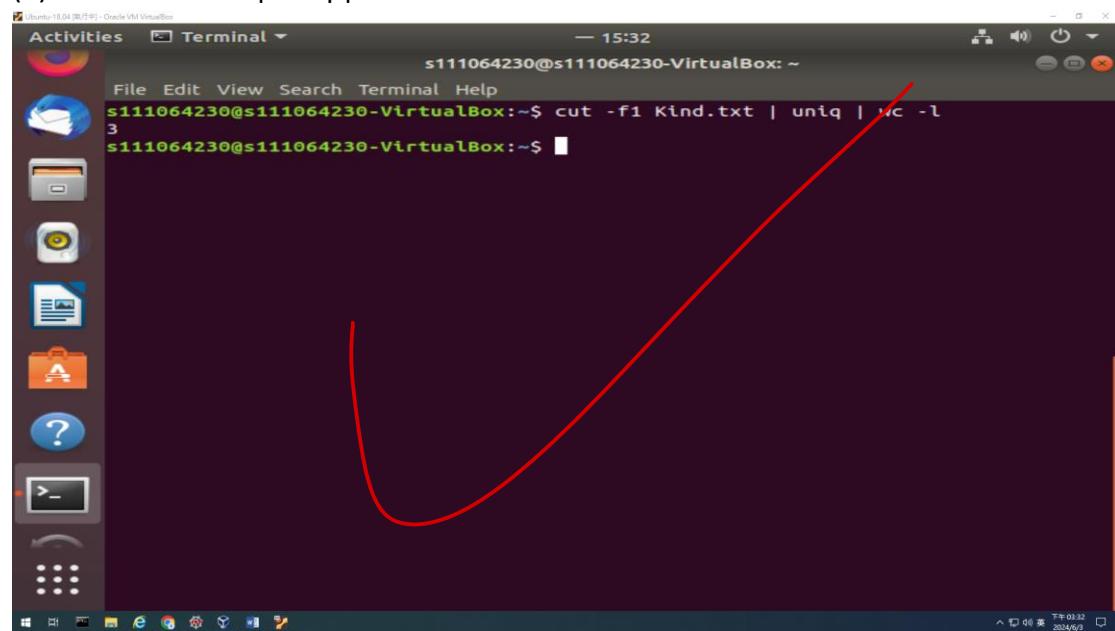
Q2/

1.(a) paste Number.txt Kind.txt Price.txt Number.txt | cut -f1,3,6,8 > JapanExcel.txt



```
s111064230@s111064230-VirtualBox:~$ paste Number.txt Kind.txt Price.txt Number.txt | cut -f1,3,6,8 > JapanExcel.txt
s111064230@s111064230-VirtualBox:~$ cat JapanExcel.txt
Anessa SunScreen      1680    1
Elixir SunScreen      6100    1
Pair Cosmetic          1280    1
White_Almond_Chocolate Snack   220     3
Pocky_Strawberry      Snack   180     2
Pocky_Matcha          Snack   195     2
```

(b) cut -f1 Kind.txt | uniq | wc -l



```
s111064230@s111064230-VirtualBox:~$ cut -f1 Kind.txt | uniq | wc -l
3
s111064230@s111064230-VirtualBox:~$
```

(c) sort +2 -3 -r JapanExcel.txt | head -3

```

File Edit View Search Terminal Help
s111064230@s111064230-VirtualBox:~$ sort +2 -3 -r JapanExcel.txt | head -3
Elixir SunScreen 6100 1
White_Almond_Chocolate Snack 220 3
Pocky_Matcha Snack 195 2
s111064230@s111064230-VirtualBox:~$ █

```

2.(a) pipeline 前為列出所有檔案和資料夾，包括隱藏的檔案和資料夾，再將

~~/2~~ output 傳給 egrep 作 input，最終列出 filename 是任意數量[any character]和.~~any character~~組合而成結尾的

[any character]

~~/2~~ (b) 將 cursor 所在的行所有[any character].[any character].[any character]替換成  
/g/

~~/5~~ (c) 將 info.log 中以 character 作結尾的行列出

?

~~/6~~ 3.(a) cut -d"," -f2 | egrep ^41 | egrep -v [a-z] | egrep -v [A-Z] “wc -l”

~~/3~~ (b) cut -d"," -f3 | egrep -v \@yahoo\.com\.tw | wc -l

?

(c) sort -r partySheet.csv | head +5

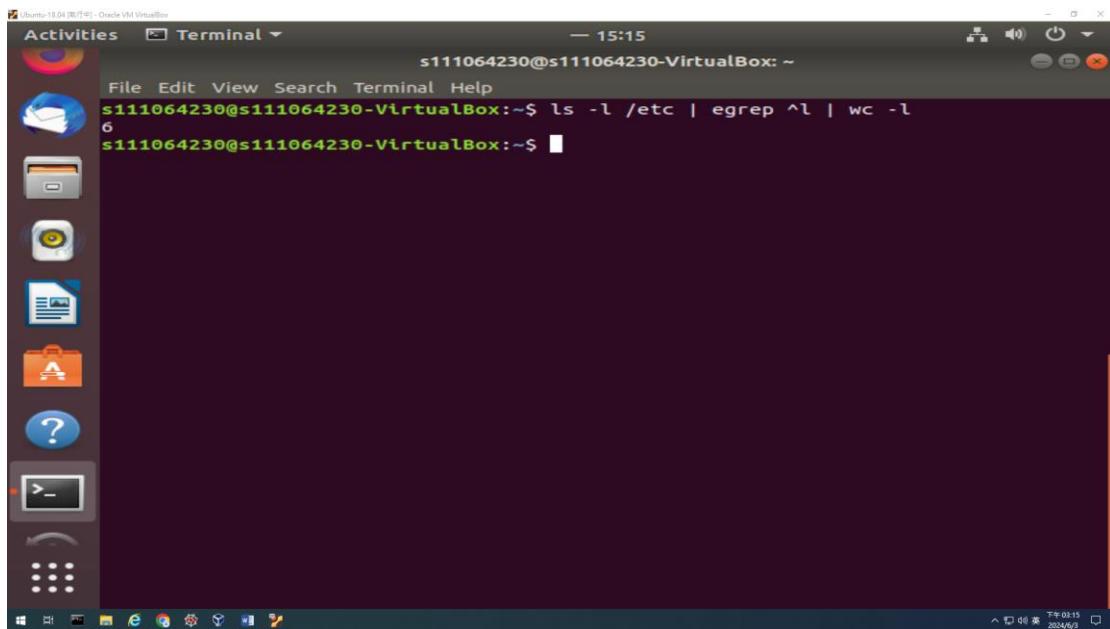
只考慮排除字母

4.(a) In “Letter of Invitation” letter.hard

In -s “Letter of Invitation” letter.soft

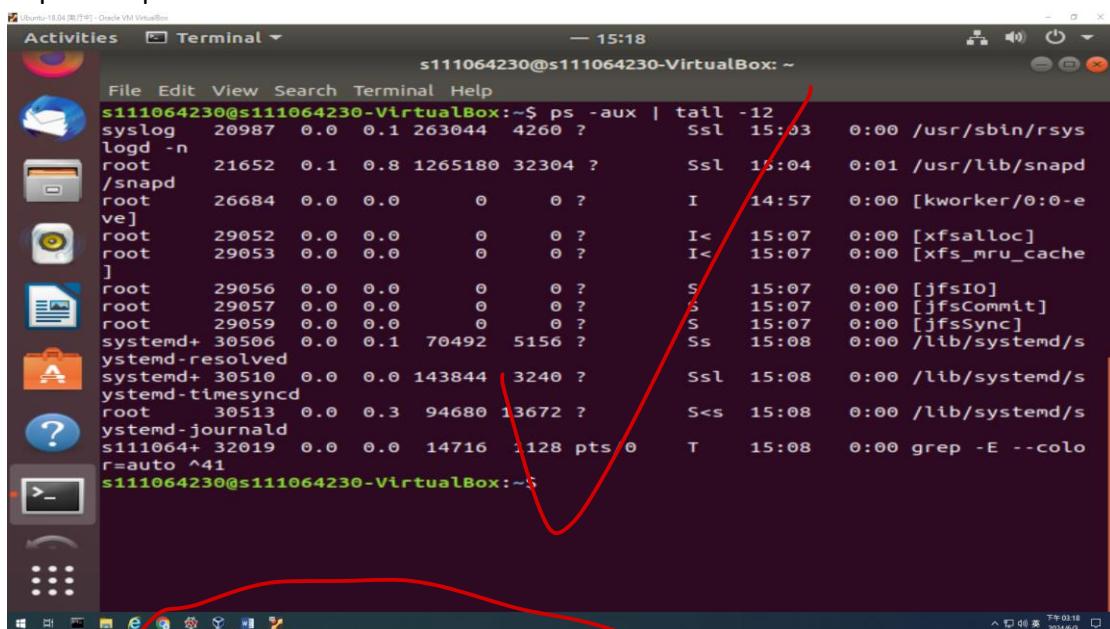
(b) hard link will remain and it's contents is same as original file and soft link can not open because original file is deleted

(c) ls -l /etc | egrep ^l | wc -l



```
s111064230@s111064230-VirtualBox:~$ ls -l /etc | egrep ^l | wc -l
6
s111064230@s111064230-VirtualBox:~$
```

5. ps -aux | tail -12



```
s111064230@s111064230-VirtualBox:~$ ps -aux | tail -12
syslog    20987  0.0  0.1 263044 4260 ?          Ssl  15:03   0:00 /usr/sbin/rsys
logd -n    21652  0.1  0.8 1265180 32304 ?          Ssl  15:04   0:01 /usr/lib/snapd
/snapd
root      26684  0.0  0.0      0      0 ?          I     14:57   0:00 [kworker/0:0-e
ve]
root      29052  0.0  0.0      0      0 ?          I<   15:07   0:00 [xfsalloc]
root      29053  0.0  0.0      0      0 ?          I<   15:07   0:00 [xfs_mru_cache
]
root      29056  0.0  0.0      0      0 ?          S     15:07   0:00 [jfsIO]
root      29057  0.0  0.0      0      0 ?          S     15:07   0:00 [jfsCommit]
root      29059  0.0  0.0      0      0 ?          S     15:07   0:00 [jfsSync]
systemd+ 30506  0.0  0.1  70492  5156 ?          Ss    15:08   0:00 /lib/systemd/s
ystemd-resolved
systemd+ 30510  0.0  0.0 143844  3240 ?          Ssl   15:08   0:00 /lib/systemd/s
ystemd-timesyncd
root      30513  0.0  0.3  94680 13672 ?          S<s  15:08   0:00 /lib/systemd/s
ystemd-journald
s111064+ 32019  0.0  0.0  14716  1128 pts/0        T     15:08   0:00 grep -E --colo
r=auto ^41
s111064230@s111064230-VirtualBox:~$
```

6. ls /usr | egrep -v "-" | egrep -v "." | head -17

7. gzip -d secret.gz

gunzip secret.gz

只考慮 /usr 裡面