

# Homework 10

## 1 - 2 is a Question Group

1. (10%) Create a new file named “All Star” with following content and create a hard link for the file named “All Star.hard”, and change its (“All Star.hard”) content with following content.

Filename	Content
All Star	hey now you're an all star get your game on, go play hey now you're a rock star get the show on get paid
All Star.hard	hey now use the l-star no reloading, just aim hey now throw an arcstar get a stick and win games

ANS:

```
(command)
cat > "All Star"
input :
hey now you're an all star
get your game on, go play
hey now you're a rock star
get the show on get paid

<ctrl+d>cat
ln "All Star" "All Star.hard"
cat > "All Star.hard"
input :
hey now use the l-star
no reloading, just aim
hey now throw an arcstar
get a stick and win games

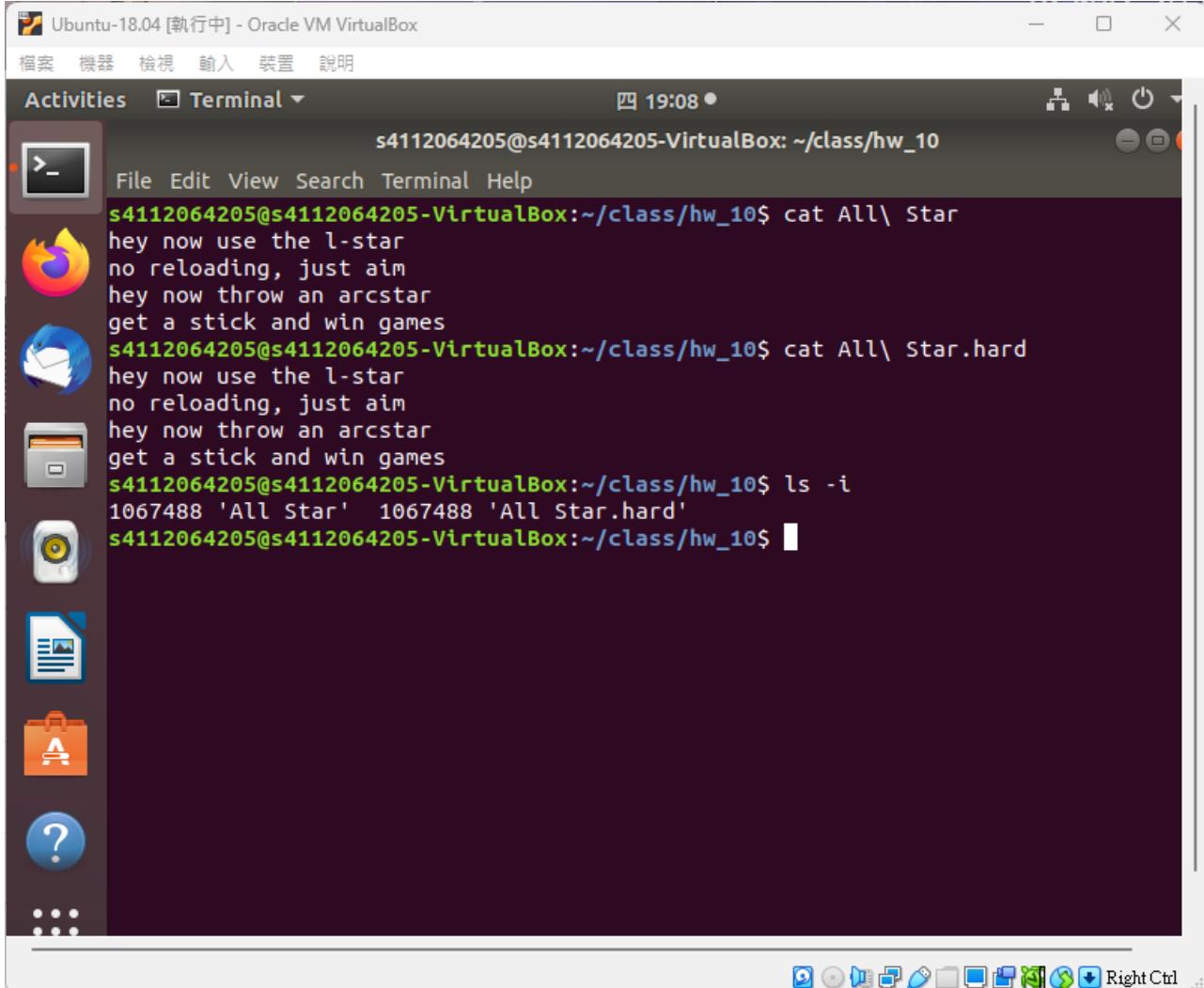
<ctrl+d>
```

2. (20%) Show the content of “All Star” and “All Star.hard”. Then, show the inode number of the file “All Star” and “All Star.hard”.

ANS:

```
(command)
cat "All Star"
cat "All Star.hard"
ls -i
```

(screenshot)



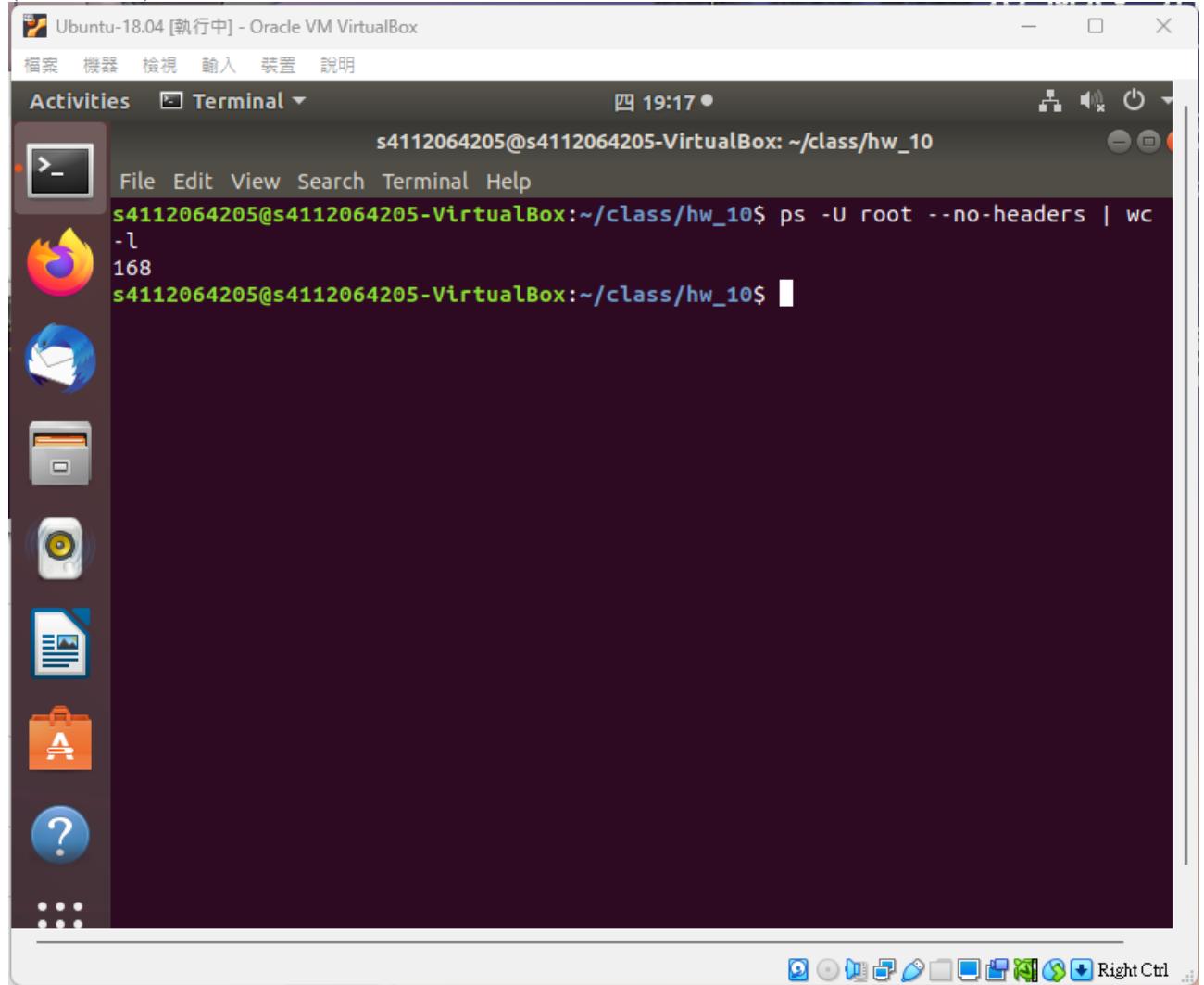
3. (20%) Use one-line command to show the number of all processes started by “root” user.  
(Exclude the header line “PID...”)

ANS:

(command)

```
ps -U root --no-headers | wc -l
```

(screenshot)



4. (10%) Regular Expressions (re) can be used in any text processing context, even within the vi editor. The following are examples of substitution syntax, explain in as much detail as possible.

- :s/\..h/.H/
- :\$s/\...\.\\.\\V\\V/g

ANS:

a. 在目前游標所在的行中，搜尋第一個出現的 .h 替換成 .H 。

b. 在檔案最後一行，搜尋所有出現 .XX.X. 形式的字串(X 為任意字元)，並替換成 \\V \\V 。

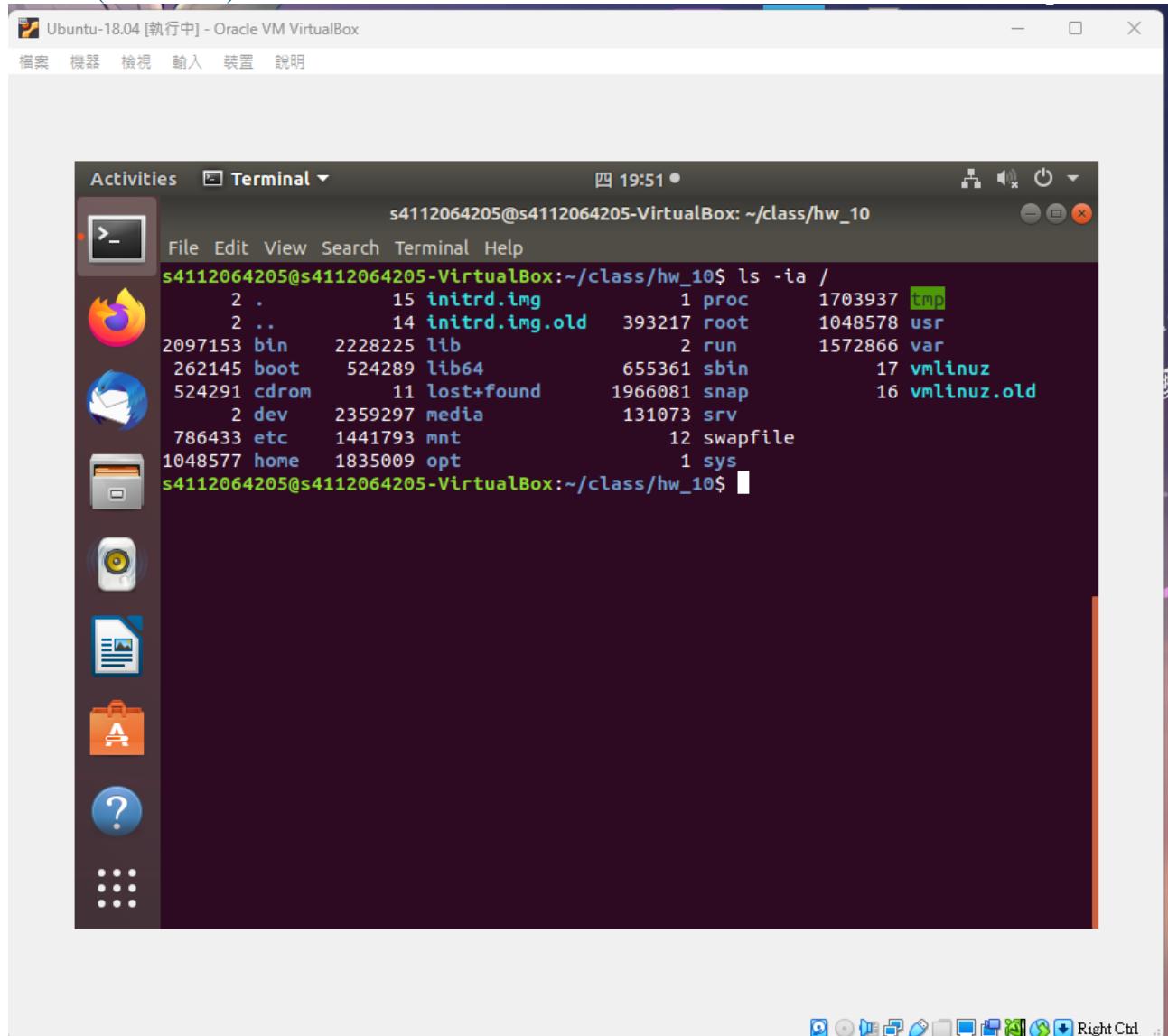
5. (20%) List only the filename (or folder name) and corresponding inode number in the root directory (**not under, and including the hidden files**)

ANS:

(command)

`ls -ia /`

(screenshot)



```
s4112064205@s4112064205-VirtualBox:~/class/hw_10$ ls -ia /
2 .          15 initrd.img      1 proc      1703937 tmp
2 ..         14 initrd.img.old  393217 root      1048578 usr
2097153 bin    2228225 lib      2 run      1572866 var
262145 boot   524289 lib64     655361 sbin      17 vmlinuz
524291 cdrom  11 lost+found   1966081 snap      16 vmlinuz.old
2 dev        2359297 media     131073 srv
786433 etc    1441793 mnt      12 swapfile
1048577 home   1835009 opt      1 sys
s4112064205@s4112064205-VirtualBox:~/class/hw_10$
```

6. (20%) Clone the repository and enter the hw10/ directory:

```
git clone https://gitlab.com/aidslab902/unix-class.git  
cd unix-class/hw10
```

Run a pipeline that extracts all occurrences of user=xxx, counts each user's frequency, sorts the counts in descending order, redirects the output to result1, and then displays its contents

EXAMPLE:

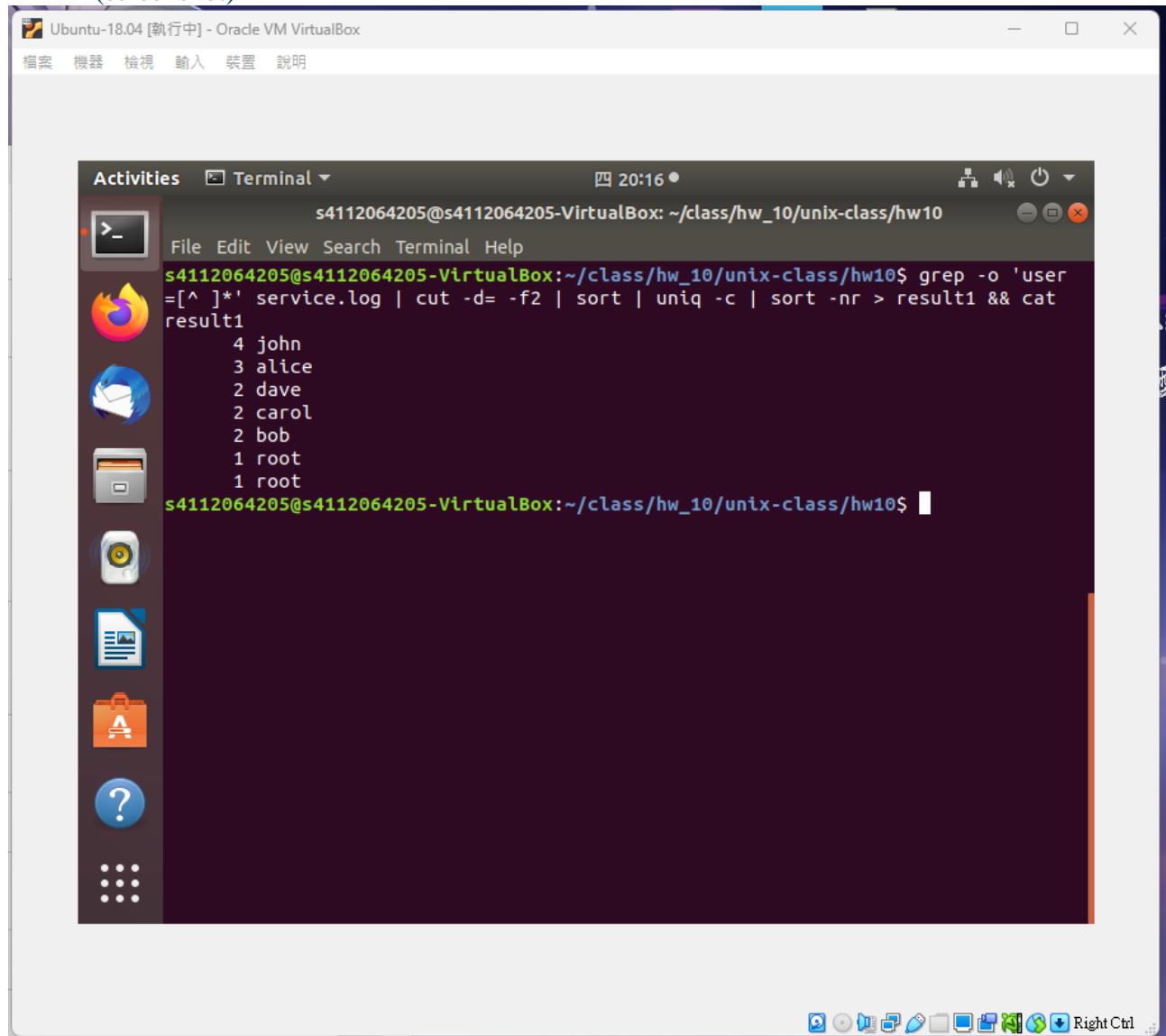
```
4 john  
3 alice  
2 dave  
2 carol  
2 bob  
1 root  
1 root
```

ANS:

(command)

```
grep -o 'user=[^ ]*' service.log | cut -d= -f2 | sort | uniq -c | sort -nr > result1 && cat result1
```

(screenshot)

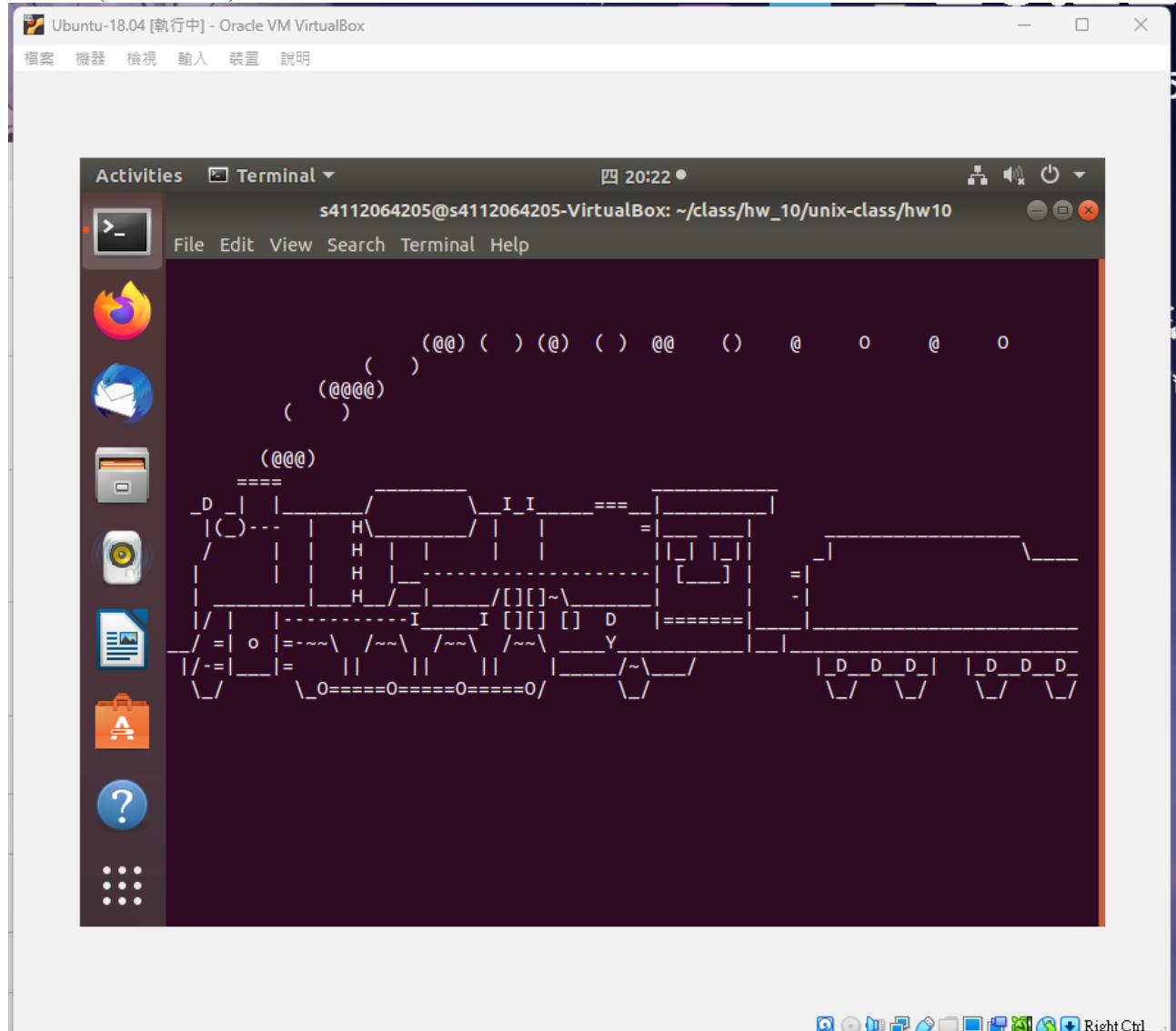


## Bonus

7. (3%) Do you know the command “sl”? “sl” is a fun command-line program primarily used on Unix and Unix-like systems to display an animated steam locomotive. This program was originally designed as a humorous way to "punish" users who accidentally type “sl” instead of “ls”, a common command for listing directory contents. You should use “sudo apt-get install sl” first. Then, you can use “sl” now. You can just screenshot the train only.

ANS:

(screenshot)



8. (2%) Create the below files “name\_A”, “name\_B”, “student\_id” with following content. Then, use **one-line** command merge top 3 files to the file named “student\_info”. (You can just screenshot about merging files.)

\* The student\_id is just a random number and has no further special meaning.

Filename	Context
name_a	Mika Mari Nagisa Kisaki
name_b	Yuuka Alice

	Noa Himari
student_id	489841 523710 417518 482424 435001 437090 539314 552542
student_info	Mika 489841 Mari 523710 Nagisa 417518 Kisaki 482424 Yuuka 435001 Alice 437090 Noa 539314 Himari 552542

ANS:

```
(command)
paste <(cat name_A name_B) student_id > student_info
(screenshot)
```

