

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 1-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 1-star
no reloading, just aim
hey now throw an arcstar
get a stick and win games

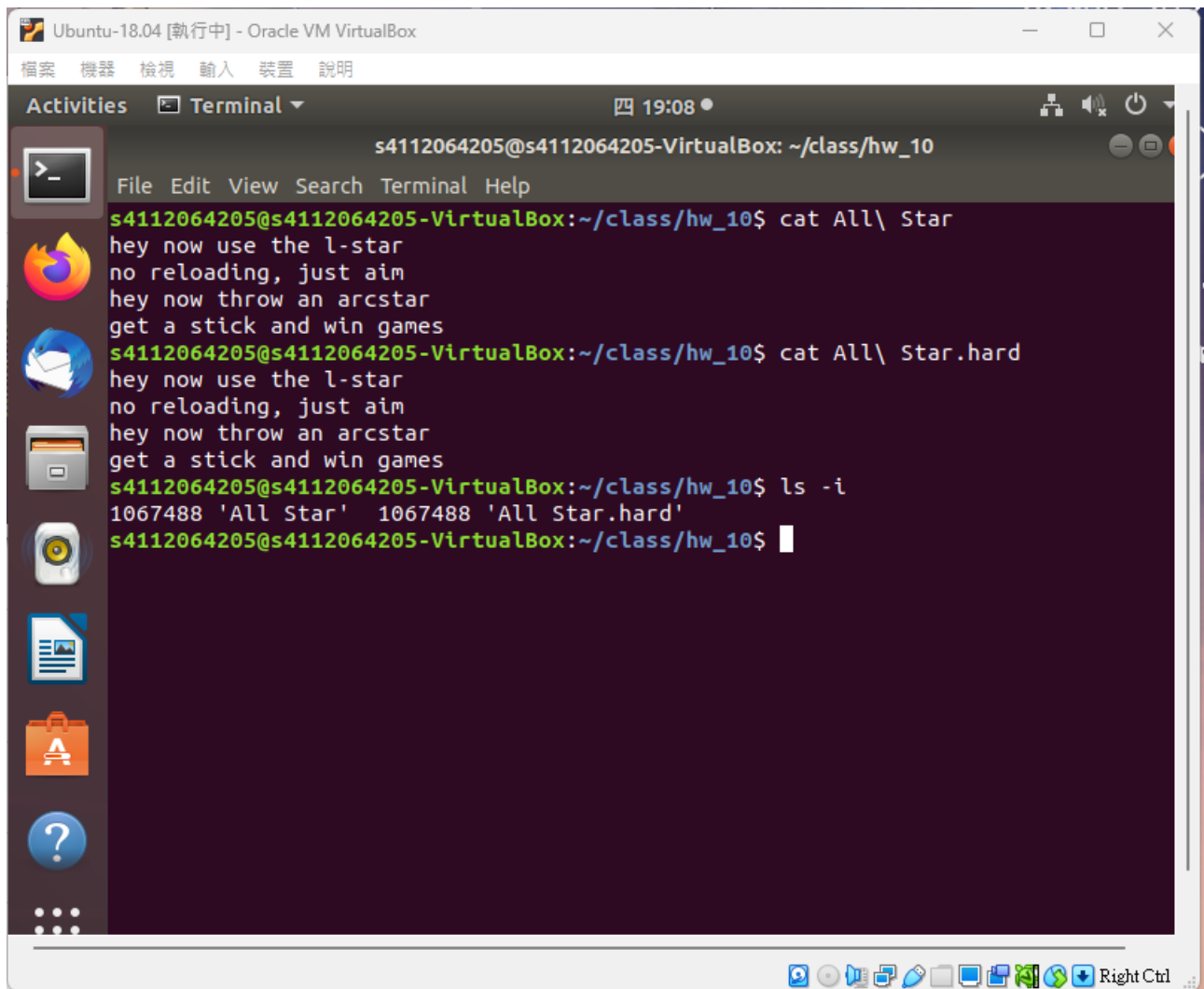
<ctrl+d>
```

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)



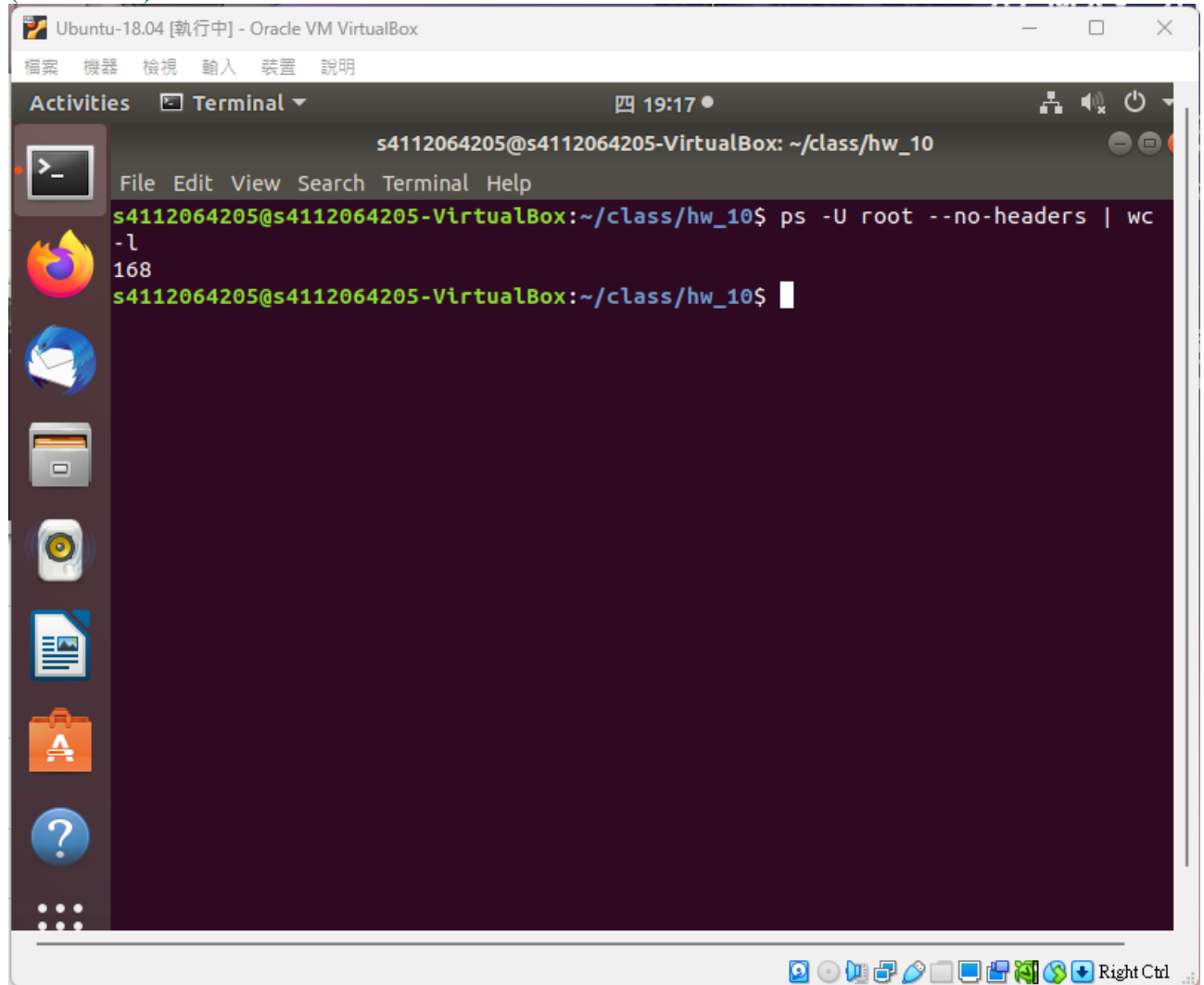
3. (20%) Use one-line command to show the number of all processes started by “root” user.
(Exclude the header line “PID...”)

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:

- 在目前游標所在的行中，搜索第一個出現的 .h 替換成 .H。
- 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 W。

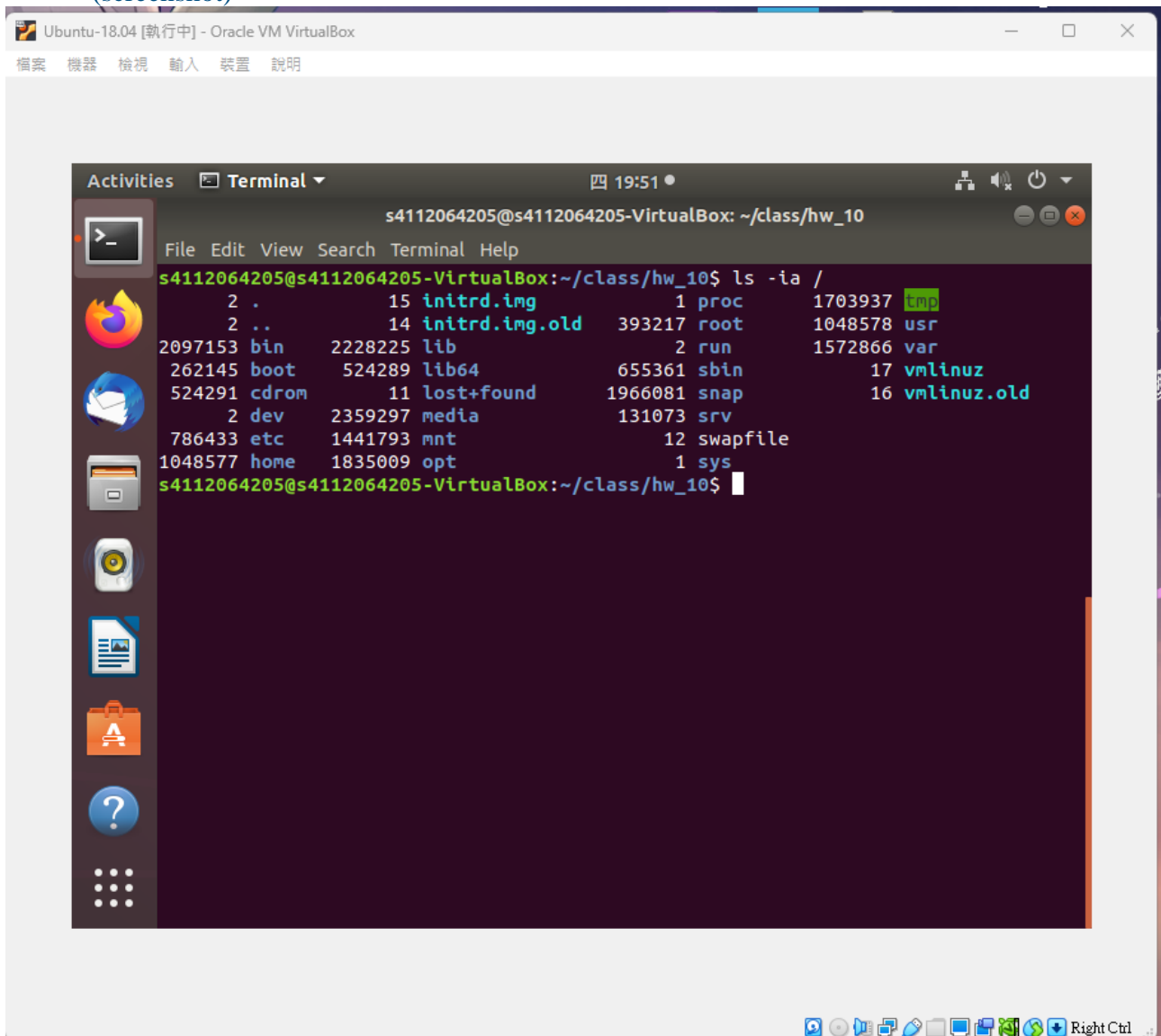
5. (20%) List only the filename (or folder name) and corresponding inode number in the root directory (**not under, and including the hidden files**)

ANS:

(command)

`ls -la /`

(screenshot)



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:

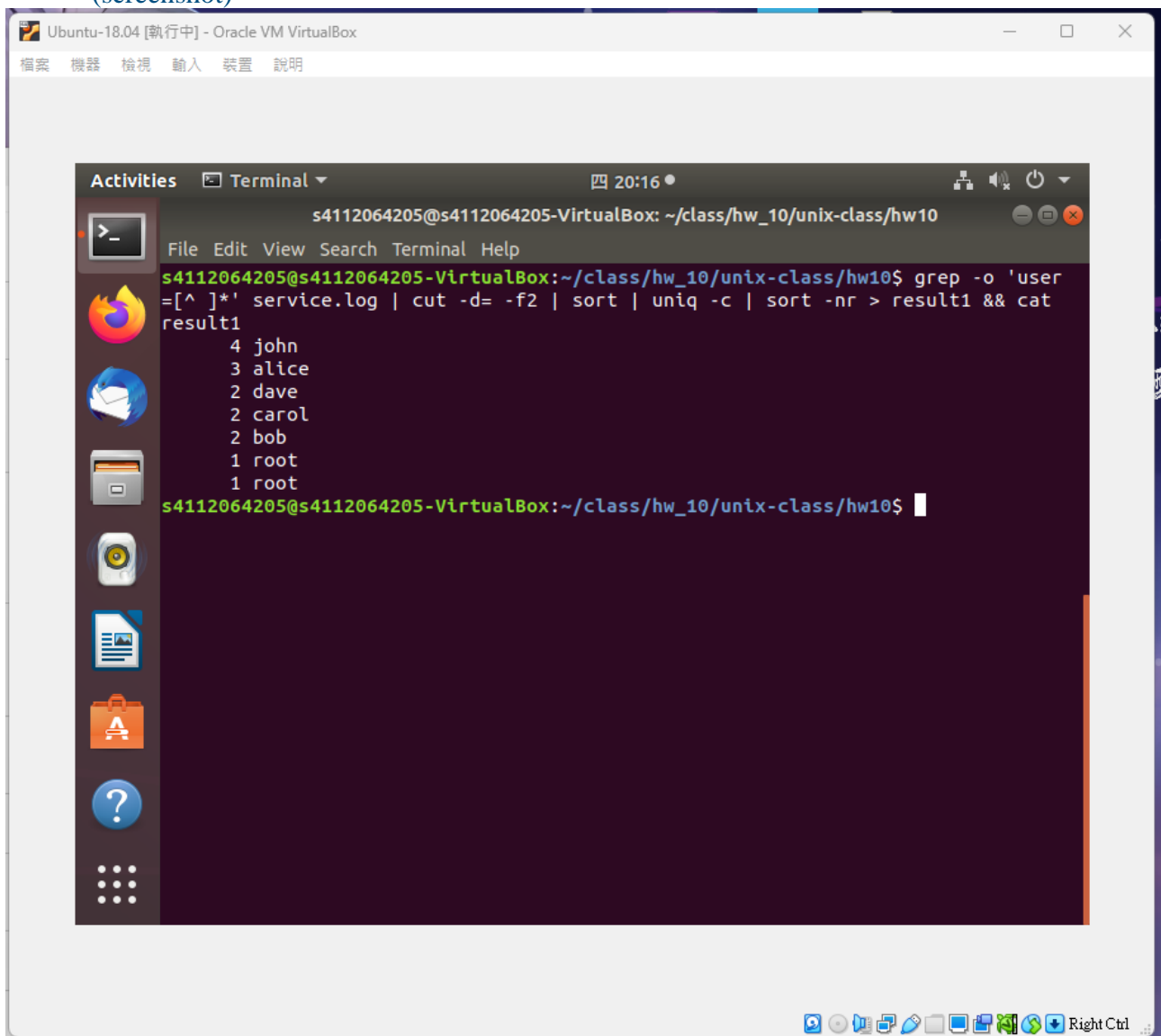
```
4 john
3 alice
2 dave
2 carol
2 bob
1 root
1 root
```

ANS:

(command)

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

(screenshot)

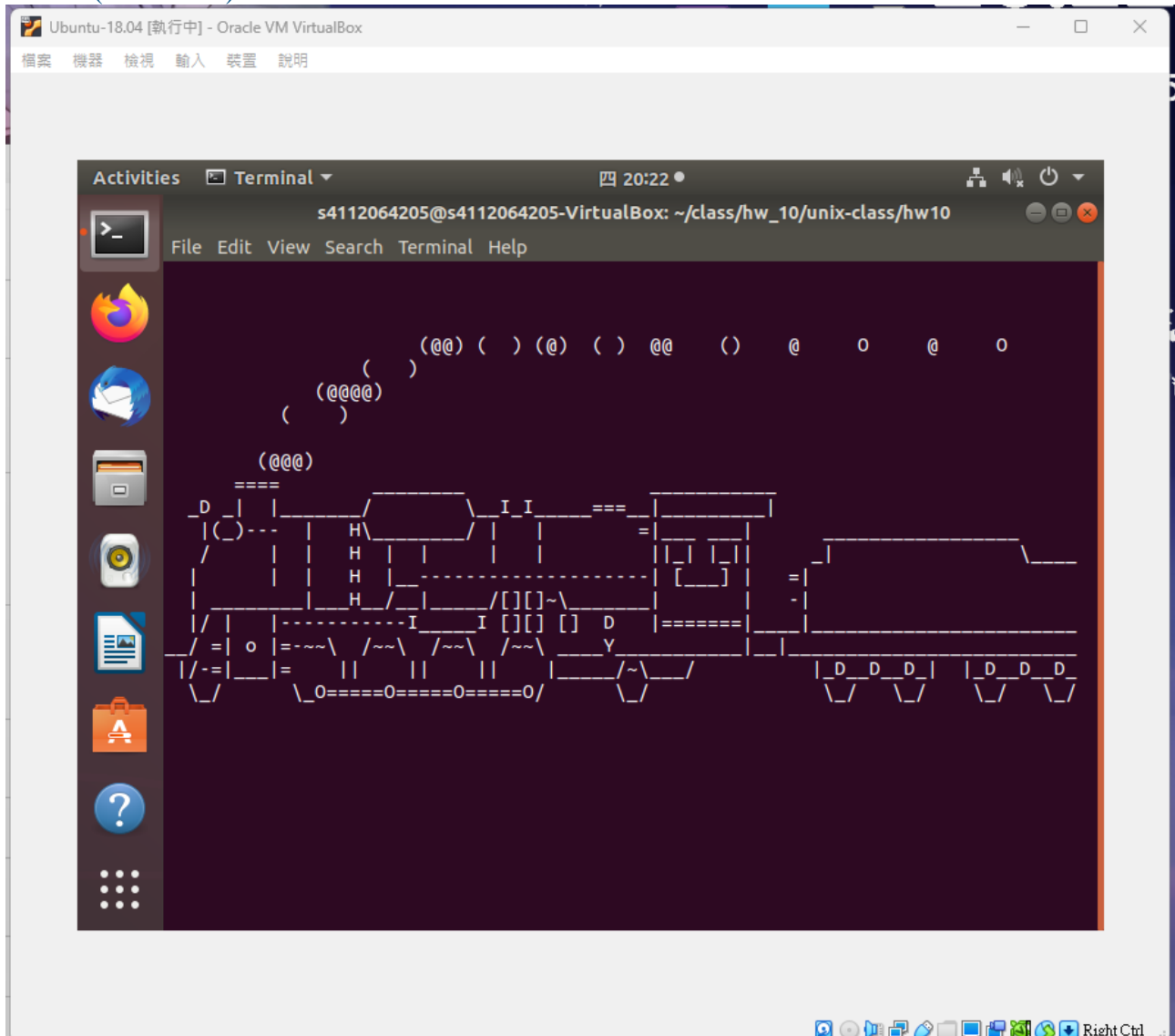


Bonus

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

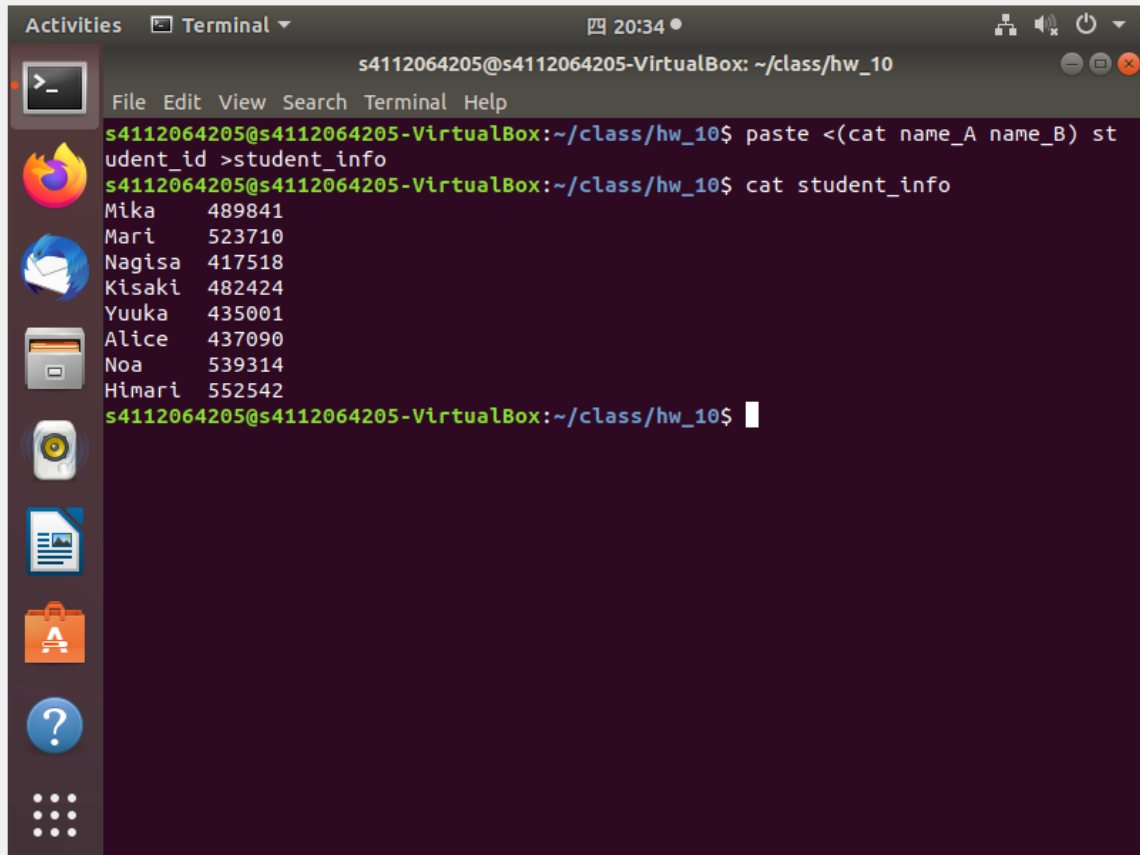
	Noa Himari
student_id	489841 523710 417518 482424 435001 437090 539314 552542
student_info	Mika 489841 Mari 523710 Nagisa 417518 Kisaki 482424 Yuuka 435001 Alice 437090 Noa 539314 Himari 552542

ANS:

(command)

paste <(cat name_A name_B) student_id > student_info

(screenshot)



The screenshot shows a terminal window titled "Activities Terminal" with a timestamp of "四 20:34". The terminal is running a shell script in the directory ~/class/hw_10. The script uses the 'paste' command to read two files, name_A and name_B, and then the 'cat' command to display the contents of student_info. The output of the script is a list of names and their corresponding IDs.

```
s4112064205@s4112064205-VirtualBox: ~/class/hw_10
File Edit View Search Terminal Help
s4112064205@s4112064205-VirtualBox:~/class/hw_10$ paste <(cat name_A name_B) st
udent_id >student_info
s4112064205@s4112064205-VirtualBox:~/class/hw_10$ cat student_info
Mika      489841
Mari      523710
Nagisa    417518
Kisaki    482424
Yuuka     435001
Alice     437090
Noa       539314
Hitmari   552542
s4112064205@s4112064205-VirtualBox:~/class/hw_10$
```