

Practical 1

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1 BASH, PIPE AND I/O REDIRECTION

- 1. List everyone logged in and save the list in a file called "users" in your own home directory.

Answer: Using the `w` command to find users who logged into the system. We can use "`who -u`" to list users logged in.

- 2. List all processes that are running and add this list to the end of the "users" file.

Answer: Using "`ps A`" command to list all processes that are running.

- 3. List everyone who is logged on sorted by their username.

Answer: `w | sort`

- 4. Count number of session each logged in user, sorted by this number in descending order.

Answer: `w | sort -r`

- 5. Show content of the first and last 3 lines of the file "`/etc/fstab`"

Answer: `head -3 /etc/fstab tail -3 /etc/fstab`

My Macbook OS does not have those files so I could not run the command successfully.

The format to show content of any file is: `head [or] tail - [n] "file name"`.

- 6. Retrieve line number 5 to 10 from the file "`/etc/fstab`" and write these files into a new file "extract.txt"

Answer: In order to retrieve the content of a file, we can use several Linux commands such as "cat", "more", "less", "awk", or sed ("cat" is usually used for concatenate files). In these situation I prefer the command "sed". The format of this command as follows:
sed -n '1, \$p' file.

sed -n '5, 10p' /etc/fstab

to write these files into a new file "extract.txt" I use the command:

- 7. List all files in current directory, recursively, to which the user has full permission.

Answer: The command ls will help to list all files in the curent directory. ls -rf

- 8. Compare two files and show percentage of similarities between them.

Answer:

```
diffLines='diff $1 $2 | egrep "(>|<)" | wc -l'
aLines='wc -l < $1'
bLines='wc -l < $2'
if [ $ aLines -eq 0 ] && [ $ bLines -eq 0 ]; then
exit 0
fi
diffPer='echo "$ diffLines * 100 * 2 / ($ aLines + $ bLines)" | bc'
similar='echo "100-$ diffPer" | bc'
if [ "$ similar" -gt 90 ]; then
echo Similarity $ similar: $1 $2
fi
```

- 9. Find all files in current directory, recursively, that are at least 90 percent similar

Answer:

2 APPENDIX

- Question 1.

```
16:32 up 5:43, 2 users, load averages: 2.01 1.66 1.68 USER TTY FROM LOGIN@ IDLE
WHAT BillyTran console - 11:06 5:25 - BillyTran s001 - 16:32 - w BillyTran@Trans-
MacBook-Air sa2020 BillyTran console Mar 11 09:36 02:08 178 BillyTran ttys000 Mar 11
11:02 . 1519
```

- Question 2. 1013 ?? Ss 0:02.32 /Applications/Dropbox.app/Contents/PlugIns/garcon.ap
1017 ?? S 0:00.27 /System/Library/Frameworks/CoreServices.framework/Fr 1018 ?? S
0:00.41 /System/Library/Frameworks/CoreServices.framework/Fr 1024 ?? S 0:00.56 /Sys-
tem/Library/Frameworks/CoreServices.framework/Fr 1025 ?? S 0:00.76 /System/Library/Frameworks/CoreS

```

1077 ?? S 0:00.18 /System/Library/Frameworks/CoreServices.framework/Fr 1078 ?? S
0:00.19 /System/Library/Frameworks/CoreServices.framework/Fr 1080 ?? S 0:00.18 /Sys-
tem/Library/Frameworks/CoreServices.framework/Fr 1083 ?? S 0:00.19 /System/Library/Frameworks/CoreS
1084 ?? S 0:00.09 /System/Library/Frameworks/CoreServices.framework/Fr 1088 ?? S
0:00.13 /System/Library/Frameworks/CoreServices.framework/Fr 1089 ?? S 0:00.13 /Sys-
tem/Library/Frameworks/CoreServices.framework/Fr 1090 ?? S 0:00.10 /System/Library/Frameworks/CoreS
1091 ?? S 0:00.10 /System/Library/Frameworks/CoreServices.framework/Fr 1093 ?? S
0:00.33 /System/Library/Frameworks/CoreServices.framework/Fr 1094 ?? S 0:00.78 /Sys-
tem/Library/Frameworks/CoreServices.framework/Fr 1095 ?? S 0:00.82 /System/Library/Frameworks/CoreS
1111 ?? S 0:05.23 /System/Applications/Utilities/Terminal.app/Contents 1117 ?? S
0:02.73 /Applications/Sublime Text.app/Contents/MacOS/Sublim 1118 ?? Ss 0:00.47
/Applications/Dropbox.app/Contents/PlugIns/garcon.ap 1119 ?? S 0:00.48 /Applica-
tions/Sublime Text.app/Contents/MacOS/plugin 1128 ?? Ss 0:00.05 /usr/sbin/ocspd
1129 ?? S 0:00.13 /System/Library/PrivateFrameworks/DistributedEvaluat 1112 s001 Ss
0:00.05 login -pf BillyTran 1113 s001 S 0:00.08 -zsh 1131 s001 R+ 0:00.01 ps A

```

- Question 3.

```

BillyTran@Trans-MacBook-Air sa2020 11:46 up 2:15, 2 users, load averages: 1.89 1.82
1.75 BillyTran console - 9:36 2:09 - BillyTran s000 - 11:02 - sort USER TTY FROM LOGIN@
IDLE WHAT

```

- Question 4. USER TTY FROM LOGIN@ IDLE WHAT BillyTran s000 - 11:02 - sort -r
BillyTran console - 9:36 6:51 - 16:28 up 6:56, 2 users, load averages: 1.24 1.60 1.77

- Question 6. . . . Practical1.pdf Practical1.tex Question 1: BillyTran@Trans-MacBook-Air
Practical1.synctex.gz README.md .git Practical1.aux Practical1.log