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DISCOVERY EXERCISES (1-19)

1. Use a command to find the instances in which the word “host” is used in the /etc directory.

grep ‘host’ /etc

2. What addition to the command you used in Exercise 1 can you use to slow the output to one screen at a time?

grep ‘host’ /etc|more

3. How can you determine the number of lines and words in the /etc/termcap file?

wc -lw /etc/termcap

4. Use a command to remove the letters “o” and “a” from the my_list file you created in the Hands-on Projects—and write the output to the file changed_list.

tr -d ‘o’,’a’ < my_list > changed_list

5. Use a command to find out which lines in the my_list file contain the word “Foot.”

[student@COS-047 ~]$ grep "Foot" my_list
Football

6. Create a file called trees, containing the following individual lines:

vi trees
Oak tree
Pine tree
Spruce tree
Cottonwood
Maple tree

~
~

:x

[student@COS-047 ~]$ cat trees > more_trees
[student@COS-047 ~]$ cat more_trees
Oak tree

Pine tree
Spruce tree
Cottonwood
Maple tree

vi more_trees
Oak tree
Pine tree
Spruce tree
Cottonwood
Maple tree
Redwood
Willow tree

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:x

7. Use a command to compare the trees and more_trees files and show the differences in terms of individual lines that differ

[student@COS-047 ~]$ diff -y trees more_trees

Oak tree	Oak tree
Pine tree	Pine tree

Spruce tree
Cottonwood
Maple tree

Spruce tree
Cottonwood
Maple tree
> Redwood
> Willow tree

```
[student@COS-047 ~]$ diff -c trees more_trees
*** trees         2018-03-06 16:50:15.618951476 -0700
--- more_trees 2018-03-06 16:53:06.824599775 -0700
***************
*** 3,6 ****
--- 3,8 ----
  Spruce tree
  Cottonwood
  Maple tree
+ Redwood
+ Willow tree
[student@COS-047 ~]$ diff -d trees more_trees
5a6,7
> Redwood
> Willow tree
```

8. Determine the number of bytes in both the trees and more_trees files using a one line command.

```
[student@COS-047 ~]$ wc -c trees more_trees
 54 trees
 74 more_trees
128 total
```

9. Use a command to replace the word “tree” with “plant” in the more_trees file and display the output to the screen.

```
[student@COS-047 ~]$ tr -d 'tree','plant' < more_trees
Ok
Pi
Suc
Coowood
M
Rdwood
Wiow
```

10. Create a new file, CD_list, and enter these lines in the file:

```
vi CD_list
country:1000:210
rock:1001:380
```

classical:1002:52
alternative:1003:122
light rock:1004:151
light rock:1004:151
celtic:1005:44
jazz:1006:62
soundtracks:1007:32
soundtracks:1007:32

~
~
:x

vi Demo.sed
$a\
hard rock:1008:70\
misc:1009:22

~
~
~
:x

[student@COS-047 ~]$ sed -f Demo.sed CD_list
assical:1002:52
alternative:1003:122
light rock:1004:151
light rock:1004:151
celtic:1005:44
jazz:1006:62
soundtracks:1007:32
soundtracks:1007:32

hard rock:1008:70
misc:1009:22

11. Use a command to find the duplicate lines (records) in the CD_list file.

[student@COS-047 ~]$ uniq -d CD_list
light rock:1004:151
soundtracks:1007:32

12. Use the uniq command to remove the duplicate lines in the CD_list file, placing the corrected information in a file called CD_list_new.

[student@COS-047 ~]$ uniq CD_list > CD_list_new
[student@COS-047 ~]$ cat CD_list_new
assical:1002:52

alternative:1003:122
light rock:1004:151
celtic:1005:44
jazz:1006:62
soundtracks:1007:32

13. In the CD_list_new file, replace the word “misc” with “other,” save the changes in the file CD_list_replace, and then compare the contents of the CD_list file with the CD_list_replace file to ensure your changes are implemented.

(NOTE: I cannot get the sed command to work for me correctly.)

[student@COS-047 ~]$ sed s/misc/other CD_list_new > CD_list_replace
sed: -e expression #1, char 12: unterminated `s' command

14. Use the grep command to find all the lines that contain the word “celtic” in the CD_list_new file.

[student@COS-047 ~]$ grep celtic CD_list_new
celtic:1005:44

15. Use a command to make all letters uppercase in the CD_list_new file and save the output to a file called CD_list_uppercase.

[student@COS-047 ~]$ tr [a-z] [A-Z] < CD_list_new > CD_list_uppercase
[student@COS-047 ~]$ cat CD_list_uppercase
ASSICAL:1002:52
ALTERNATIVE:1003:122
LIGHT ROCK:1004:151
CELTIC:1005:44
JAZZ:1006:62
SOUNDTRACKS:1007:32

16. Use the sed command on the CD_list_new file to replace the words “light rock” with “easy listening” and the word “alternative” with “experimental.”
(NOTE: I cannot get the sed command to function properly with the “s//” option.)

[student@COS-047 ~]$ sed s/light rock/easy listening s/alternative/experimental < CD_list_new > CD_list_new
sed: -e expression #1, char 7: unterminated `s' command

17. Create a file called software with these fields:
Project Number, using the same numbers shown in the project file (which you created earlier in this chapter)
Software Code, using any three-digit number
Software Description, such as Excel

Then write a small application joining records in the software file to matching records in the project file,and use the Awk program to print a report describing the software for each project you created earlier.

```
[student@COS-047 ~]$ cat project
EA-100:1:Reservation Plus:110
EA-100:1:Reservation Plus:103
EA-100:1:Reservation Plus:107
EA-100:1:Reservation Plus:109
EA-101:2:Accounting-Revenues Version 4:105
EA-101:2:Accounting-Revenues Version 4:112
EA-102:4:Purchasing System:110
EA-103:3:Personnel Evaluations:106
WE-206:1:Reservations:102
WE-207:4:Accounting - Basic:101
WE-208:2:Executive-Decision-Maker:102
NE-300:1:Region P & L:103
NE-302:1:Housekeeping Logs:104
NE-304:4:Maintenance Logs:105

[student@COS-047 ~]$ vi software
EA-100:701:Excel
EA-100:702:Excel
EA-100:703:Excel
EA-101:704:Excel
EA-101:705:Excel
EA-102:706:Excel
EA-103:707:Excel
WE-206:708:Excel
WE-207:709:Excel
WE-208:710:Excel
NE-300:711:Excel
NE-302:712:Excel
NE-304:713:Excel
$a\
join -t: -1 3 -1 4 -o2.3 -o2.4 software project > project

~
~
~
:x

[student@COS-047 ~]$ awk -F: '{printf "%s\t %s\n", $1, $2, $3, $4}' project
EA-100          1
EA-100          1
EA-100          1
EA-100          1
EA-101          2
EA-101          2
```

EA-102 4
EA-103 3
WE-206 1
WE-207 4
WE-208 2
NE-300 1
NE-302 1
NE-304 4

18. View the first 20 lines of /etc/termcap. Next use a command to change all characters in “version” to uppercase for only the first 20 lines in /etc/termcap.

[student@COS-047 ~]$ tr 'version','VERSION' < head -n 20 /usr/share/doc/systemd/README
bash: head: No such file or directory

19. Find a command to compare the differences between three files and that creates output for individual lines.

[student@COS-047 ~]$ diff3 counters zoo1 zoo2
====
1:1,2c
  Linux is a full featured UNIX clone.
  Linux is available in free and commercial versions.
2:1,8c

  Monkeys:Bananas:2000:850.00
  Lions:Raw Meat:4000:1245.50
  Lions:Raw Meat:4000:1245.50
  Camels:Vegetables:2300:564.75
  Elephants:Hay:120000:1105.75
  Elephants:Hay:120000:1105.75

3:1,6c

  Monkeys:Bananas:2000:850.00
  Lions:Raw Meat:4000:1245.50
  Camels:Vegetables:2300:564.75
  Elephants:Hay:120000:1105.75