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CIS45 FALL 2020

Saturday: 10/02

Lab-5

Searching, Sorting & Regular Expressions(Regex)

1. You should have a set of files that you copied from the /tmp/week-5 directory into your week-5 directory under your home.
   $ cp /tmp/week-5/* $HOME/homework/week-5

Or

   $ cd $HOME/homework
   $ cp /tmp/week-5/*

2. Write an expression to sort the “months” file in numeric order.

$ sort -n months

3. Write an expression using the sort command to merge the months and numbers file into one file called ‘monbrs’

$ sort -m months numbers > monbrs

4. Use the grep command to match all lines in the /etc/passwd file that begins with the letter ‘r’. (Be specific in using the beginning of line or end of line characters and single quotes around your expression.

$ grep -E ‘^r.*’ /etc/passwd

```
root:x:0:0:root:/root:/bin/bash
rpc:x:32:32:Rpcbind Daemon:/var/lib/rpcbind:/sbin/nologin
rtkit:x:172:172:RealtimeKit:/proc:/sbin/nologin
radvd:x:75:75:radvd user:/:/sbin/nologin
rpcuser:x:29:29:RPC Service User:/var/lib/nfs:/sbin/nologin
```

5. Write a grep expression to count the numbers of lines that match your search in #4 above.

$ grep -Ec ‘^r.*’ /etc/passwd => 5

6. Write a grep expression to give you all lines in the /etc/passwd file except those that have the string ‘cs45’.

$ grep -cv ’cs45’ /etc/passwd => 65

7. Write a grep expression to search for all lines in the months file that ends with the letter ‘y’.

$ grep -E ‘y$’ months => May

8. Write a grep expression to match all lines in the file that have the string ‘root’ or the string ‘ly’ or the string ‘body’. You should make sure you include options that match uppercase or lowercase

$ grep -Ei ‘root|ly|body' /etc/passwd

```
root:x:0:0:root:/root:/bin/bash
operator:x:11:0:operator:/root:/sbin/nologin
nobody:x:99:99:Nobody:/:/sbin/nologin
nfsnobody:x:65534:65534:Anonymous NFS User:/var/lib/nfs:/sbin/nologin
ply:x:1000:1000:Patrick Ly:/home/ply:/bin/bash
```

9. Write a command to show all special characterslike the ‘TAB’ or other in the ‘regtxt’ file.

$ grep -E ‘[[:blank:]]|[[:punct:]]’ regtxt

```
I am line one
2 I am
100 is cost of ticket
  two spaces in begin
two spaces at end

line with 5 spaces above
408-334-9808
446-35-1088
XaaaA
55555555
```

10. Write a grep command to pull out all the phone numbers from the ‘regtxt’ file.

$ grep -E ‘[0-9]{3}-[0-9]{3}-[0-9]{4}’ regtxt => `408-334-9808`

11. What line will be pulled out of the regtxt file with the following grep expression.

$ grep '^a.*A$' regtxt

---

aaaaaAA

12. Use the ‘sed’ command to mask the last 4 digits of all Social Security Numbers(SSN) in the regtxt2 file. Note that SSN begins with 3 digits, has two digits in the middle and ends with 4 digits. You want to replace the last four digits so that a number like this : 223-45-3456 ends up looking like this: 223-45-****

$ sed 's/^\([0-9][0-9][0-9]-[0-9][0-9]-\)\([0-9][0-9][0-9][0-9]\)$/\1**/' regtxt2**

```
 Before:
446-35-1088
346-35-2089

 After:
446-35-****
346-35-****
```

13. In regtxt1, there is a line that has ‘100’. Write a sed expression to put a parenthesis around the 100 so that it looks like this: (100). Hint: Find the pattern in your search, group it in a buffer, and when you replace, put parentheses around your search pattern. Note→ Look at the use of the ampersand character→ &

$ sed 's/^100/(100)/' regtxt1

```
I am line one
2 I am
(100) is cost of ticket
  two spaces in begin
two spaces at end
```

14. Write a grep expression to match any phone numbers in the file called regtxt2.

$ grep -E ‘[0-9]{3}-[0-9]{3}-[0-9]{4}’ regtxt2

```
408-334-9808
415-934-6808
510-534-9808
```

15. Write a sed expression to swap the first three digits of any phone number with the last 4 digits that are in regtxt2 file. You are swapping the area code with the last 4 digits of the phone number.

$ sed ‘s/^\([0-9][0-9][0-9]\)\(-[0-9][0-9][0-9]-\)\([0-9][0-9][0-9][0-9]\)$/\3\2\1/' regtxt2

```
Before:
408-334-9808
415-934-6808
510-534-9808

After:
9808-334-408
6808-934-415
9808-534-510
```