sed/awk

sed - stream editor - easier to perform operations on files you're passing through pipes. use any delimiter in sed commands

awk - useful for data extraction. condition followed by an action in curly braces.

sed remove blank lines

sed -i '/^\$/d' file

add test 'new line' to end of file

-e allow multiple sed commands

```
eureka@ubuntu:~$ cat test file
                                        eureka@ubuntu:~$ sed -e '$a new
day, city, host
                                        line' test file
1, CHI, b
                                        day, city, host
2, LON, c
                                        1, CHI, b
3, TOK, a
                                        2,LON,C
2,CHI,c
                                         3, TOK, a
3, CHI, a
                                        2, CHI, c
2, LON, C
                                         3,CHI,a
4,SAO,a
                                         2, LON, c
                                         4,SAO,a
                                        new line
```

print line after pattern and print line that holds pattern

```
eureka@ubuntu:~$ cat test_file
day,city,host
1,CHI,b
2,LON,c
3,TOK,a
2,CHI,c
3,CHI,a
2,LON,c
4,SAO,a
eureka@ubuntu:~$ sed -n
'/3,CHI,a/,+1 p' test_file
3,CHI,a
2,LON,c
4,SAO,a
```

remove all lines that have more than 4 characters

eureka@ubuntu:~\$ cat	eureka@ubuntu:~\$ sed -i	eureka@ubuntu:~\$
test_file	'/^.\{4\}/d' test_file	cat test_file
day, city, host		123
123		
1,CHI,b		
2,LON,C		
3,TOK,a		
2,CHI,c		
3,CHI,a		
2,LON,C		
4,SAO,a		

swap columns 2 and 3 and skip header

eureka@ubuntu:~\$ cat test file	eureka@ubuntu:~\$ awk '{FS=","; if
day,city,host	(NR == 1) ; else print \$1, \$3,
1,CHI,b	<pre>\$2}' < test_file</pre>
2,LON,C	1 b CHI
3, TOK, a	2 c LON
2,CHI,c	3 a TOK
3,CHI,a	2 c CHI
2,LON,c	3 a CHI
4,SAO,a	2 c LON
	4 a SAO

add 200 to column 2

```
eureka@ubuntu:~$ cat file.txt
CHI,200,c
eureka@ubuntu:~$ awk -F "," '{print $1,$2 + 200,$3}' file.txt
CHI 400 c
```