CS5354 UNIX TOOL PROGRAMMING

Sed: STREAM EDITOR

- A. Sawarkar

WHAT IS SED?

- A non-interactive stream editor
- Interprets sed instructions and performs actions
- Use sed to:
 - Automatically perform edits on file(s)
 - Simplify doing the same edits on multiple files
 - Write conversion programs

Sed: THE STREAM EDITOR

Sed is a multipurpose tool which combine the work of several filters.

It uses very few options but all are very useful

Sed perform noninteractive operation on a data stream.

Syntax:

Sed [options] 'address action' files(s)

Adressing done in two ways

By one or two line number

By specifing a /-enclosed pattern which occurs in a line

LINE ADDRESS

Examples:

\$sed '3q' input-file

show only line 3 (address:3, action :quit)

```
adhoc@adhoc: ~/Desktop

File Edit View Search Terminal Help

adhoc@adhoc: ~/Desktop$ sed '3q' emp.lst

2233 | a.k.shukla | g.m. | sales | 12/12/52 | 6000

9876 | jai sharma | director | production | 12/03/50 | 7000

5678 | sumit chakrobarty | d.g.m. | marketing | 19/04/43 | 6000

adhoc@adhoc: ~/Desktop$
```

sed -n '1,2p' input-file

print 2 line (option:n lines, address: start1,2p: print 2 line)

```
adhoc@adhoc:~/Desktop$ sed -n '1,2p' emp.lst
2233 | a.k.shukla | g.m. | sales | 12/12/52 | 6000
9876 | jai sharma | director | production | 12/03/50 | 7000
adhoc@adhoc:~/Desktop$ sed -n '2,2p' emp.lst
9876 | jai sharma | director | production | 12/03/50 | 7000
```

LINE ADDRESS

\$sed -n '\$p' input-filePrint last line

Selecting line from Anywhere

\$sed -n '9,11p' input-file

Select/ print line from 9 through 11

Selecting multiple groups of line

\$sed -n '1,2p
7,9p
\$p' input-file

```
adhoc@adhoc: ~/Desktop
File Edit View Search Terminal Help
adhoc@adhoc:~/Desktop$ sed -n '1,2p
7,9p
$p' emp.lst
                        g.m. | sales
2233 | a.k.shukla
                                              | 12/12/52 | 6000
                         director | production | 12/03/50 | 7000
9876 | jai sharma
6213 | karuna ganguly
                         g.m. |
                                   accounts
                                              | 05/06/62 | 6300
1265 | s.n. dasgupta
                         manager
                                   sales
                                              12/09/63 | 5600
4290 | jayant choudhury
                         executive| production | 07/09/50 | 6000
0110 | v.k.agrawal
                                  | marketing
                         g.m.
                                              31/12/40 | 9000
adhoc@adhoc:~/Desktop$
```

LINE ADDRESS

Negating the Action(!)

Select first two line == not select 3 through the end \$sed -n '1,2p' file == \$sed -n '3,\$!p' file

```
adhoc@adhoc:~/Desktop$ sed -n '1,2p' emp.lst

2233 | a.k.shukla | g.m. | sales | 12/12/52 | 6000

9876 | jai sharma | director | production | 12/03/50 | 7000

adhoc@adhoc:~/Desktop$ sed -n '3,$!p' emp.lst

2233 | a.k.shukla | g.m. | sales | 12/12/52 | 6000

9876 | jai sharma | director | production | 12/03/50 | 7000

adhoc@adhoc:~/Desktop$
```

Using Multiple Instruction (-e, -f)

-e: allow you to enter as many instruction as you wish

```
e.g
$sed -n -e '1,2p' -e '7,9p' -e '$p' Input-file
```

```
File Edit View Search Terminal Help
adhoc@adhoc:~/Desktop$ sed -n '1,2p
> 7,9p
> $p' emp.lst
      a.k.shukla
                                      sales
2233
                           q.m.
                                                   12/12/52 |
                                                              6000
9876
      jai sharma
                           director |
                                      production
                                                   12/03/50
                                                              7000
6213 |
      karuna ganguly
                                                   05/06/62
                          g.m.
                                      accounts
                                                              6300
1265
      s.n. dasgupta
                          manager
                                      sales
                                                   12/09/63
                                                              5600
       jayant choudhury
4290
                           executive production |
                                                   07/09/50
                                                              6000
      v.k.agrawal
0110
                                      marketing
                                                   31/12/40
                                                              9000
                           q.m.
adhoc@adhoc:~/Desktop$ sed -n -e'1,2p' -e'7,9p' -e '$p' emp.lst
      a.k.shukla
2233
                                      sales
                                                   12/12/52
                           q.m.
                                                              6000
9876
    | jai sharma
                           director |
                                      production |
                                                   12/03/50
                                                              7000
      karuna ganguly
                                                   05/06/62
6213
                           g.m.
                                      accounts
                                                              6300
      s.n. dasqupta
1265
                          manager
                                      sales
                                                   12/09/63
                                                              5600
      jayant choudhury
4290
                           executive| production |
                                                   07/09/50
                                                              6000
0110 | v.k.agrawal
                                      marketing
                         q.m.
                                                   31/12/40
                                                              9000
adhoc@adhoc:~/Desktop$
```

Using Multiple Instruction (-e, -f)

-f: Instruction from file

\$sed -n -f inst.fil emp.lst

```
adhoc@adhoc:~/Desktop$ cat inst.fil
1,2p
7,9p
adhoc@adhoc:~/Desktop$ sed -n -f inst.fil emp.lst
2233
      a.k.shukla
                                                  12/12/52
                                     sales
                                                             6000
                          a.m.
9876 | jai sharma
                          director
                                     production
                                                  12/03/50
                                                             7000
6213
      karuna ganguly
                                                  05/06/62
                          q.m.
                                     accounts
                                                             6300
1265 | s.n. dasqupta
                          manager
                                     sales
                                                  12/09/63
                                                             5600
      jayant choudhury
                          executive| production
                                                  07/09/50
                                                             6000
0110 | v.k.agrawal
                                     marketing
                                                  31/12/40
                                                             9000
                          q.m.
adhoc@adhoc:~/Desktop$
```

We can use many instruction files.

\$sed -n -f inst1 -f inst2 emp.lst

```
adhoc@adhoc:~/Desktop$ cat inst1
1,4p
adhoc@adhoc:~/Desktop$ cat inst2
6,7p
adhoc@adhoc:~/Desktop$ sed -n -f inst1 -f inst2 emp.lst
       a.k.shukla
                                       sales
2233
                           q.m.
                                                    12/12/52
                                                               6000
                                       production |
9876
       jai sharma
                           director |
                                                    12/03/50
                                                               7000
       sumit chakrobarty
                                      marketing
                                                    19/04/43
5678
                           d.q.m.
                                                               6000
2365
       barun sengupta
                           director | personnel
                                                    11/05/47
                                                               7800
       chanchal singhvi
                                      sales
1006
                           director |
                                                    03/09/38
                                                               6700
       karuna ganguly
6213
                                                    05/06/62
                                                               6300
                           q.m.
                                       accounts
adhoc@adhoc:~/Desktop$
```

Context Adderssing

Single pattern in all lines of input file \$sed -n '/director/p' emp.lst (/SEARCH/)

```
adhoc@adhoc: ~/Desktop
File Edit View Search Terminal Help
adhoc@adhoc:~/Desktop$ sed -n '/director/p' emp.lst
       jai sharma
                            director | production |
9876
                                                    12/03/50
                                                                7000
2365
       barun sengupta
                            director
                                       personnel
                                                     11/05/47
                                                                7800
       chanchal singhvi
1006
                           director
                                       sales
                                                     03/09/38
                                                                6700
                            director | marketing
                                                     26/09/45
6521
       lalit chowduryg*
                                                                8200
adhoc@adhoc:~/Desktop$ sed -n '/sales/p' emp.lst
2233 I
       a.k.shukla
                                       sales
                                                                6000
                           q.m.
                                                     12/12/52
       chanchal singhvi
                                                     03/09/38
1006
                            director
                                       sales
                                                                6700
       s.n. dasgupta
                                                     12/09/63
1265
                                       sales
                                                                5600
                            manager
                                                     01/05/59
2476
       anil aggarwal
                                       sales
                                                                5000
                            manager
adhoc@adhoc:~/Desktop$ sed
                            -n '/anil/p' emp.lst
       anil aggarwal
2476 I
                            manager
                                       sales
                                                    01/05/59
                                                                5000
adhoc@adhoc:~/Desktop$ sed -n '/qupta/p' emp.lst
       barun sengupta
                            director | personnel
2365
                                                     11/05/47
                                                                7800
       n.k.gupta
5423
                            chairman
                                       admin
                                                     30/08/56
                                                                5400
1265 I
       s.n. dasgupta
                                       sales
                                                     12/09/63
                            manager
                                                                5600
adhoc@adhoc:~/DesktopS
```

Using RE

Select all agrawals

\$sed -n '/[aA]gg*[ar][ar]wal/p' emp.lst

```
adhoc@adhoc: ~/Desktop
File Edit View Search Terminal Help
adhoc@adhoc:~/Desktop$ sed -n '/[aA]gg*[ar][ar]wal/p' emp.lst
       anil aggarwal
                                                     01/05/59
2476
                           manager
                                                                5000
                                       sales
       sudhir Agarwal
3564
                           executive
                                       personnel
                                                     06/07/47
                                                                7500
       v.k.agrawal
0110
                                       marketing
                                                     31/12/40
                                                                9000
                            q.m.
adhoc@adhoc:~/Desktop$
```

More than one

```
$sed -n '/[aA]gg*[ar][ar]wal/p
/gupta/p' emp.lst
```

```
adhoc@adhoc:~/Desktop$ sed -n '/[aA]gg*[ar][ar]wal/p
/qupta/p' emp.lst
                           director
2365
       barun sengupta
                                       personnel
                                                    11/05/47
                                                                7800
                                       admin
       n.k.gupta
                           chairman
                                                    30/08/56
5423
                                                                5400
1265
       s.n. dasgupta
                           manager
                                       sales
                                                    12/09/63
                                                                5600
2476
       anil aggarwal
                           manager
                                       sales
                                                                5000
                                                    01/05/59
       sudhir Agarwal
                                                    06/07/47
3564
                           executive personnel
                                                                7500
0110
       v.k.agrawal
                                       marketing
                                                    31/12/40
                                                                9000
                           q.m.
adhoc@adhoc:~/Desktop$ sed -n '/50.....$/p' emp.lst
       iai sharma
                           director |
                                       production |
9876
                                                    12/03/50
                                                                7000
       jayant choudhury
                           executive| production
                                                    07/09/50
                                                                6000
adhoc@adhoc:~/Desktop$
```

Wirting selected line to a file(w)

Select / write specifi line (filed) into other file

\$sed -n '/director/w destination_file' input file

```
adhoc@adhoc:~$ cd Desktop
adhoc@adhoc:~/Desktop$ sed -n '/director/w dist1' emp.lst
adhoc@adhoc:~/Desktop$ cat dist1
                         | director | production | 12/03/50
9876 | jai sharma
                                                             7000
2365 | barun sengupta | director | personnel | 11/05/47
                                                             7800
      chanchal singhvi | director
                                     sales
                                                  03/09/38
1006
                                                             6700
6521 | lalit chowduryg* | director | marketing
                                                  26/09/45
                                                             8200
adhoc@adhoc:~/Desktop$
```

Spliting file into more than one file

\$sed -n '/director/w dist1 /manager / w mag1 /executive /w ext1' emp.lst

Split file main_file into two files. 1St (1-500 lines) and 2nd(501 to end) \$\\$\sed -n '1,500\text{w file1}\$
501,\$\text{W file2' main file}

Text Editing

Sed can insert text and change existing text in file

1.Insert & Change lines (i,a,c)

Insert c header files in foo.c file

\$sed '1i\
#include<stdio.h>\
#include<conio.h>

'foo.c > \$\$

Note: need to use \ before [enter] except last line. \$\$ is temp file

Append blank line after every line of file \$sed 'a\

emp.lst

```
adhoc@adhoc:~/Desktop$ cat foo.c
int main()
printf("hi");
return 0;
adhoc@adhoc:~/Desktop$ sed '1i\
> #include<stdio.h>\
 #include<comio.h>
  ' foo.c > $$
adhoc@adhoc:~/Desktop$ cat foo.c
int main()
printf("hi");
return 0:
adhoc@adhoc:~/Desktop$ mv $$ foo.c
adhoc@adhoc:~/Desktop$ cat foo.c
#include<stdio.h>
#include<conio.h>
int main()
printf("hi");
return 0;
adhoc@adhoc:~/Desktop$
```

Text Editing

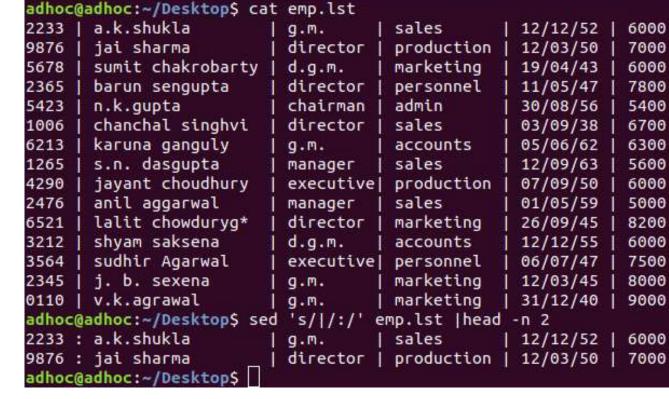
Delete line (d)
Delete all lines except those containg director
\$sed '/director/d' emp.lst

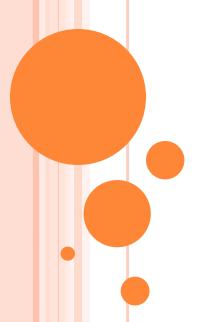
```
adhoc@adhoc:~/Desktop$ sed '/director/d' emp.lst
       a.k.shukla
2233
                           q.m.
                                       sales
                                                    12/12/52
                                                               6000
       sumit chakrobarty
                                       marketing
5678
                           d.g.m.
                                                    19/04/43
                                                               6000
      n.k.gupta
                           chairman
                                       admin
                                                    30/08/56
5423
                                                               5400
6213
      karuna ganguly
                                                    05/06/62 |
                                       accounts
                                                               6300
                           q.m.
                                                    12/09/63
1265
      s.n. dasgupta
                                      sales
                           manager
                                                               5600
     | jayant choudhury
4290
                           executive| production
                                                    07/09/50
                                                               6000
      anil aggarwal
2476
                           manager
                                      sales
                                                    01/05/59
                                                               5000
3212
      shyam saksena
                           d.g.m.
                                                    12/12/55
                                      accounts
                                                               6000
      sudhir Agarwal
                           executive
                                      personnel
                                                    06/07/47
3564
                                                               7500
      j. b. sexena
                                      marketing
                                                    12/03/45
2345
                                                               8000
                           q.m.
0110
    | v.k.agrawal
                                      marketing
                                                    31/12/40
                                                               9000
                           q.m.
adhoc@adhoc:~/Desktop$
```

\$sed '/director/d' emp.lst > outlist

Substitution(s) [Replace] Syntax:

[address] s/exp1/exp2/ flags \$sed 's/|/:/' emp.lst | head -n 2





Want to replace all matching: use global(g)

\$sed 's/|/:/g' emp.lst

[Replace all | with : of file emp.lst, only print purpose]

```
adhoc@adhoc:~/Desktop$ sed 's/|/:/g' emp.lst
2233 : a.k.shukla
                                     : sales
                                                   : 12/12/52 :
                          : q.m.
9876 : jai sharma
                          : director : production : 12/03/50
5678 : sumit chakrobarty : d.g.m.
                                     : marketing
                                                  : 19/04/43
2365 : barun sengupta
                          : director : personnel
                                                    11/05/47
                                                                7800
5423 : n.k.gupta
                          : chairman : admin
                                                    30/08/56
1006 : chanchal singhvi
                         : director :
                                       sales
                                                    03/09/38 :
                                                                6700
6213 : karuna ganguly
                                     : accounts
                                                    05/06/62
                                                                6300
1265 : s.n. dasqupta
                          : manager : sales
                                                   : 12/09/63 :
4290 : jayant choudhury
                         : executive: production : 07/09/50 :
2476 : anil aggarwal
                                                    01/05/59
                          : manager
                                    : sales
                                                                5000
6521 : lalit chowduryg*
                          : director : marketing
                                                  : 26/09/45 : 8200
3212 : shyam saksena
                                       accounts
                                                   : 12/12/55
                          : d.g.m.
3564 : sudhir Agarwal
                          : executive: personnel
                                                   : 06/07/47 : 7500
2345 : j. b. sexena
                                                  : 12/03/45 :
                          : g.m.
                                     : marketing
0110 : v.k.agrawal
                                     : marketing
                                                  : 31/12/40 :
                          : q.m.
```

We can limit the vertical boundaries vertically too.

\$sed '1,3s/|/:/g' emp.lst

```
adhoc@adhoc:~/Desktop$ sed
                             '1,3s/|/:/g'
                                           emp.lst
2233 : a.k.shukla
                                                     : 12/12/52
                                                                   6000
9876 : jai sharma
                                         production :
                             director
                                                       12/03/50
                                                                   7000
       sumit chakrobarty:
                             d.q.m.
                                         marketing
                                                       19/04/43
                                                                   6000
       barun sengupta
2365
                                         personnel
                                                       11/05/47
                                                                   7800
                             director
5423
       n.k.gupta
                             chairman
                                         admin
                                                       30/08/56
                                                                   5400
1006
       chanchal singhvi
                                                       03/09/38
                                                                   6700
                             director
                                         sales
6213
       karuna ganguly
                                         accounts
                                                       05/06/62
                                                                   6300
1265
       s.n. dasgupta
                                         sales
                                                       12/09/63
                                                                   5600
                             manager
4290
       jayant choudhury
                             executive| production
                                                       07/09/50
                                                                   6000
2476
       anil aggarwal
                                         sales
                                                       01/05/59
                                                                   5000
                             manager
6521
       lalit chowduryg*
                             director
                                         marketing
                                                       26/09/45
                                                                   8200
3212
       shyam saksena
                             d.g.m.
                                         accounts
                                                       12/12/55
                                                                   6000
3564
       sudhir Agarwal
                                         personnel
                                                                   7500
                             executive
                                                       06/07/47
2345
       j. b. sexena
                                         marketing
                                                       12/03/45
                                                                   8000
                             g.m.
       v.k.agrawal
0110
                                         marketing
                                                       31/12/40
                                                                   9000
                             g.m.
```

Word replacement

\$sed '1,5s/director/member/' emp.lst

```
adhoc@adhoc:~/Desktop$ sed '1.5s/director/member/g'
                                                      emp.lst
       a.k.shukla
                                       sales
                                                     12/12/52
                            q.m.
                                                                6000
9876
      jai sharma
                            member
                                     production |
                                                   12/03/50
                                                              7000
                                       marketing
       sumit chakrobarty
                                                     19/04/43
5678
                            d.q.m.
                                                                6000
                            member
2365
       barun sengupta
                                     personnel
                                                  11/05/47
                                                              7800
5423
      n.k.gupta
                            chairman
                                       admin
                                                     30/08/56
                                                                5400
1006
      chanchal singhvi
                            director
                                       sales
                                                     03/09/38
                                                                6700
6213
       karuna ganguly
                                       accounts
                                                     05/06/62
                                                                6300
                            g.m.
       s.n. dasqupta
1265
                                       sales
                                                     12/09/63
                                                                5600
                            manager
4290
      jayant choudhury
                            executive| production
                                                     07/09/50
                                                                6000
       anil aggarwal
                                       sales
                                                     01/05/59
                                                                5000
2476
                            manager
6521
       lalit chowduryg*
                            director
                                       marketing
                                                     26/09/45
                                                                8200
       shyam saksena
3212
                            d.q.m.
                                       accounts
                                                     12/12/55
                                                                6000
       sudhir Agarwal
                            executive|
3564
                                       personnel
                                                     06/07/47
                                                                7500
                                       marketing
2345
      j. b. sexena
                                                     12/03/45
                                                                8000
                            q.m.
     I v.k.agrawal
                                       marketing
0110
                                                     31/12/40
                                                                9000
                            g.m.
adhoc@adhoc:~/DesktopS
```

Relacement by RE

\$sed 's/[Aa]gg*[ar][ar]wal/Agarwal/g' emp.lst [Replace all types of agrawal with Agarwal]

Add **Prefix**/Begining (^)

\$sed 's/ $^/2$ /' emp.lst

[add 2 to every line of file emp.lst]

```
adhoc@adhoc:~/Desktop$ sed
                             's/^/2/'
                                      emp.lst
22233
        a.k.shukla
                                         sales
                                                       12/12/52
                                                                   6000
                             director
29876
        jai sharma
                                         production
                                                       12/03/50
                                                                   7000
25678
        sumit chakrobarty
                             d.g.m.
                                         marketing
                                                       19/04/43
                                                                   6000
22365
        barun sengupta
                            director
                                        personnel
                                                                  7800
                                                      11/05/47
25423
        n.k.gupta
                            chairman
                                        admin
                                                      30/08/56
                                                                  5400
21006
        chanchal singhvi
                             director
                                         sales
                                                       03/09/38
                                                                   6700
26213
        karuna ganguly
                                         accounts
                                                       05/06/62
                                                                   6300
                             g.m.
        s.n. dasqupta
21265
                                         sales
                                                       12/09/63
                                                                   5600
                             manager
        jayant choudhury
24290
                             executive|
                                         production
                                                       07/09/50
                                                                   6000
        anil aggarwal
22476
                             manager
                                         sales
                                                       01/05/59
                                                                   5000
26521
        lalit chowduryg*
                             director
                                         marketing
                                                       26/09/45
                                                                   8200
23212
        shyam saksena
                             d.g.m.
                                         accounts
                                                       12/12/55
                                                                   6000
        sudhir Agarwal
23564
                             executive|
                                         personnel
                                                       06/07/47
                                                                   7500
22345
        j. b. sexena
                             g.m.
                                         marketing
                                                       12/03/45
                                                                   8000
20110 | v.k.agrawal
                             q.m.
                                         marketing
                                                       31/12/40
                                                                   9000
adhoc@adhoc:~/Desktop$ sed
                                      emp.lst
```

Add Suffix/End (\$)

\$sed 's/\$/.00' emp.lst

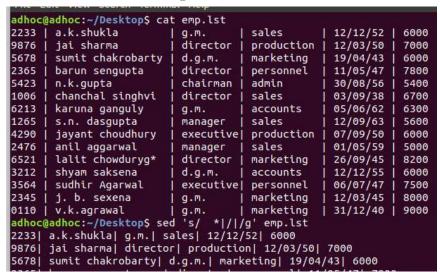
adhoc@adhoc:~/Desktop\$	sed 's/\$/.00/'	emp.lst	
2233 a.k.shukla	g.m.	sales	12/12/52 6000.00
9876 jai sharma	director	production	12/03/50 7000.00
5678 sumit chakrobart	y d.g.m.	marketing	19/04/43 6000.00
2365 barun sengupta	director	personnel	11/05/47 7800.00
5423 n.k.gupta	chairman	admin	30/08/56 5400.00
1006 chanchal singhvi	director	sales	03/09/38 6700.00
6213 karuna ganguly	g.m.	accounts	05/06/62 6300.00
1265 s.n. dasgupta	manager	sales	12/09/63 5600.00
4290 jayant choudhury	executive	production	07/09/50 6000.00
2476 anil aggarwal	manager	sales	01/05/59 5000.00
6521 lalit chowduryg*	director	marketing	26/09/45 8200.00
3212 shyam saksena	d.g.m.	accounts	12/12/55 6000.00
3564 sudhir Agarwal	executive	personnel	06/07/47 7500.00
2345 j. b. sexena	g.m.	marketing	12/03/45 8000.00
0110 v.k.agrawal	_ g.m.	marketing	31/12/40 9000.00

Multiple Substitution \$sed 's/director/doctor/g >s/manager/seniormanager/g' emp.lst

```
adhoc@adhoc:-/Desktop$ sed 's/director/doctor/g
s/manager/sentormanager/g'
                           emp.lst
    | a.k.shukla
                           g.m.
                                     sales
                                                   12/12/52 | 6000
9876
       jai sharma
                           doctor
                                    production | 12/03/50 | 7000
5678
      sumit chakrobarty
                                      marketing
                           d.g.m.
                                                    19/04/43 | 6000
2365
      barun sengupta
                           doctor | personnel
                                                | 11/05/47 | 7800
5423
       n.k.gupta
                           chatrman |
                                      admin
                                                    30/08/56 | 5400
1006
      chanchal singhvi
                           doctor | sales
                                                 03/09/38 | 6700
6213
      karuna ganguly
                           g.m.
                                      accounts
                                                    05/06/62 | 6300
1265
       s.n. dasgupta
                            sentormanager | sales
                                                        12/09/63
4290
       jayant choudhury
                           executive| production | 07/09/50 | 6000
2476
       anil aggarwal
                            sentormanager
                                                        | 01/05/59 | 5000
                                          sales
6521
       lalit chowduryg*
                           doctor | marketing
                                               | 26/09/45 | 8200
3212
       shyam saksena
                                                    12/12/55
                           d.g.m.
                                      accounts
                                                               6000
3564
       sudhir Agarwal
                           executive
                                      personnel
                                                    06/07/47
                                                                7500
      1. b. sexena
                           g.m.
                                      marketing
                                                    12/03/45
                                                               8000
0110 | v.k.agrawal
                                      marketing
                                                    31/12/40
                                                               9000
                           g.m.
adhoc@adhoc:~/Desktop$
```

Compressing multiple spaces (Remove extra space)

\$sed 's/ *|/|/g' emp.lst



Substitution(s) with RE

1. Repeated Pattern (&)

\$sed 's/director/executive **director**/' emp.lst

\$sed 's/director/executive \$/' emp.lst

Note:// means Rembers the scanned patterns

\$sed '/director/s//executive \$/' emp.lst

```
adhoc@adhoc:~/Desktop$ sed 's/director/eective director/' emp.lst
      a.k.shukla
2233
                           q.m.
                                    | sales
                                                  | 12/12/52 | 6000
      jai sharma
                           eective director | production | 12/03/50
9876
                                                                      7000
      sumit chakrobarty |
                                    | marketing
                           d.q.m.
                                                | 19/04/43 | 6000
                           eective director | personnel
       barun sengupta
2365
                                                                       7800
```

```
UIIU | V.K.aylawat
                                    | Markerrild | 21/12/40 | 2000
adhoc@adhoc:~/Desktop$ sed 's/director/eective &/'
                                                   emp.lst
      a.k.shukla
                           q.m.
                                    | sales
                                                   12/12/52 | 6000
                           eective director | production | 12/03/50
9876
      iai sharma
     | sumit chakrobarty | d.g.m.
                                    | marketing | 19/04/43 | 6000
5678
                          eective director | personnel
2365 l
      barun sengupta
```

```
adhoc@adhoc:~/Desktop$ sed
                           '/director/s//eective &/' emp.lst
2233
     | a.k.shukla
                           q.m.
                                      sales
                                                  | 12/12/52 | 6000
9876
     | jai sharma
                           eective director | production | 12/03/50
                                                                       7000
                                                 | 19/04/43 | 6000
5678
     | sumit chakrobarty |
                           d.g.m.
                                     | marketing
                           eective director | personnel
       barun sengupta
```