# CS5354 UNIX TOOL PROGRAMMING

**Sed: STREAM EDITOR** 

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### 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

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

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

## 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 I
      a.k.shukla
                                      sales
                                                   12/12/52
                                                               6000
                           q.m.
9876 | jai sharma
                           director
                                      production
                                                   12/03/50
                                                              7000
6213 |
      karuna ganguly
                                                   05/06/62
                           g.m.
                                      accounts
                                                              6300
      s.n. dasgupta
                                                   12/09/63
1265 l
                           manager
                                      sales
                                                               5600
      jayant choudhury
                           executive| production
                                                   07/09/50
                                                               6000
0110 | v.k.agrawal
                                      marketing
                                                   31/12/40
                                                               9000
                           q.m.
adhoc@adhoc:~/Desktop$
```

```
adhoc@adhoc:~/Desktop$ cat inst1
We 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
                                g.m.
                                                         12/12/52
                                                                    6000
    9876
           jai sharma
                                director |
                                           production |
                                                         12/03/50
                                                                    7000
           sumit chakrobarty
                                           marketing
                                                         19/04/43
    5678
                                d.g.m.
                                                                    6000
    2365
           barun sengupta
                                director |
                                          personnel
                                                         11/05/47
                                                                    7800
    1006
           chanchal singhvi
                                director I
                                           sales
                                                         03/09/38
                                                                    6700
           karuna ganguly
    6213
                                                         05/06/62
                                                                    6300
                                g.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
9876 | jai sharma
                            director | production |
                                                    12/03/50
                                                                7000
2365
       barun sengupta
                            director
                                       personnel
                                                     11/05/47
                                                                7800
       chanchal singhvi
1006
                           director
                                       sales
                                                     03/09/38
                                                                6700
                                                    26/09/45
6521
       lalit chowduryg*
                            director | marketing
                                                                8200
adhoc@adhoc:~/Desktop$ sed -n '/sales/p' emp.lst
2233 I
       a.k.shukla
                                       sales
                                                                6000
                           q.m.
                                                     12/12/52
       chanchal singhvi
                            director
                                                     03/09/38
1006
                                      sales
                                                                6700
       s.n. dasgupta
1265
                                      sales
                                                     12/09/63
                                                                5600
                            manager
2476
       anil aggarwal
                                      sales
                                                     01/05/59
                            manager
                                                                5000
adhoc@adhoc:~/Desktop$ sed
                            -n '/anil/p' emp.lst
       anil aggarwal
                            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:~/Desktop$
```

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

## 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. 1 (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 \alpha\

emp.lst

```
adhoc@adhoc:~/Desktop$ cat foo.c
int main()
printf("hi");
return 0;
adhoc@adhoc:~/Desktop$ sed '1i\
 #include<stdio.h>\
 #include<conio.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
                                      sales
2233
                           g.m.
                                                   12/12/52
                                                               6000
5678
      sumit chakrobarty
                                      marketing
                           d.q.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
                                      sales
                                                   01/05/59
                                                               5000
                           manager
3212
      shyam saksena
                           d.g.m.
                                      accounts
                                                   12/12/55
                                                               6000
      sudhir Agarwal
                           executive| personnel
3564
                                                   06/07/47
                                                              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

# Text Editing

Substitution(s) [Replace] Syntax:

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

adhoc@adhoc:~/DesktopS cat emp.lst

danie cadanie : / beskeeps cad	. chip. coc		
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
2365   barun sengupta	director	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	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
2476   anil aggarwal	manager	sales	01/05/59   5000
6521   lalit chowduryg*	director	marketing	26/09/45   8200
3212   shyam saksena	d.g.m.	accounts	12/12/55   6000
3564   sudhir Agarwal	executive	personnel	06/07/47   7500
2345   j. b. sexena	g.m.	marketing	12/03/45   8000
0110   v.k.agrawal	g.m.	marketing	31/12/40   9000
adhoc@adhoc:~/Desktop\$ sed 's/ /:/' emp.lst  head -n 2			
2233 : a.k.shukla	g.m.	sales	12/12/52   6000
9876 : jai sharma	director	production	12/03/50   7000
adhoc@adhoc:~/Desktop\$			