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

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

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
$p
adhoc@adhoc:~/Desktop$ sed -n -f inst.fil emp.lst
2233 | a.k.shukla        | g.m.      | sales      | 12/12/52 | 6000
9876 | jai sharma        | director  | production | 12/03/50 | 7000
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       | g.m.      | marketing  | 31/12/40 | 9000
adhoc@adhoc:~/Desktop$
```

We
```
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
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
1006 | chanchal singhvi  | director | sales      | 03/09/38 | 6700
6213 | karuna ganguly    | g.m.     | accounts   | 05/06/62 | 6300
adhoc@adhoc:~/Desktop$
```

Context Adderssing

Single pattern in all lines of input file

$sed -n '/director/p' emp.lst   **(/SEARCH/)**

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
2476 | anil aggarwal      | manager  | sales      | 01/05/59 | 5000
3564 | sudhir Agarwal     | executive| personnel  | 06/07/47 | 7500
0110 | v.k.agrawal        | g.m.     | marketing  | 31/12/40 | 9000
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
/gupta/p' emp.lst
2365 | barun sengupta     | director | personnel  | 11/05/47 | 7800
5423 | n.k.gupta          | chairman | admin      | 30/08/56 | 5400
1265 | s.n. dasgupta      | manager  | sales      | 12/09/63 | 5600
2476 | anil aggarwal      | manager  | sales      | 01/05/59 | 5000
3564 | sudhir Agarwal     | executive| personnel  | 06/07/47 | 7500
0110 | v.k.agrawal        | g.m.     | marketing  | 31/12/40 | 9000
adhoc@adhoc:~/Desktop$ sed -n '/50.......$/p' emp.lst
9876 | jai sharma         | director | production | 12/03/50 | 7000
4290 | jayant choudhury   | executive| production | 07/09/50 | 6000
adhoc@adhoc:~/Desktop$
```

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
9876 | jai sharma       | director | production | 12/03/50 | 7000
2365 | barun sengupta   | director | personnel  | 11/05/47 | 7800
1006 | chanchal singhvi | director | sales      | 03/09/38 | 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 '1,500w file1

501,$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<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 containing director

$sed '/director/d' emp.lst

```
adhoc@adhoc:~/Desktop$ sed '/director/d' emp.lst
2233 | a.k.shukla        | g.m.      | sales      | 12/12/52 | 6000
5678 | sumit chakrobarty | d.g.m.    | marketing  | 19/04/43 | 6000
5423 | n.k.gupta         | chairman  | admin      | 30/08/56 | 5400
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
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 '/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:~/Desktop$ cat 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
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$ 
```