

Substitution Groups

s/

\([^\,]*\)

/\U\1/

substitution

Grouping defined with
escaped parentheses

Replace string: upper cases
first grouping

The search string identifies
all characters up to the
first comma

The replace string
uppercases the first group

```
$ sed 's@\([^\,]*\)@\U\1@' employees
```

```
$ sed 's@\([^\,]*\),\([^\,]*\)@\U\1\L\2@' employees
```

Working with the employees file

Uppercase the first field of a comma separated file

Uppercase the first field and lowercase the second field of a comma separated file

EXAMPLE

SAMPLE DATA

```
user@trusty:~$ cat employees
Jones,Bob,232-78-3456
Jackson,Jane,,
Federer,Jack,xxx-xx-xxxx
Maw,Michael,1879-0
Alexander,Sally,345-89-8095
Beder,Ioana,567-34-9802
Staines,Brad,,
user@trusty:~$
```

SUPPOSE WE WANT TO REPLACE THE FIRST NAME WITH UPPERCASE

```
user@trusty:~$ sed 's/\([^,]*\)/\U\1/' employees
JONES,Bob,232-78-3456
JACKESON,Jane,,
FEDERER,Jack,xxx-xx-xxxx
MAW,Michael,1879-0
ALEXANDER,Sally,345-89-8095
BEDER,Ioana,567-34-9802
STAINES,Brad,,
user@trusty:~$ _
```

In Sed /(/)_ IS USED FOR CAPTURE GROUPS

SUPPOSE WE WANT TO REPLACE THE FIRST NAME WITH UPPERCASE AND SECOND NAME WITH LOWER CASE


```
user@trusty:~$ sed 's/\([^,]*\),\([^,]*\)/\U\1\L\2/' employees
JONESbob,232-78-3456
JACKESONjane,,
FEDERERjack,xxx-xx-xxxx
MAWmichael,1879-0
ALEXANDERSally,345-89-8095
BEDERioana,567-34-9802
STAINESbrad,,

```

BUT THE COMMA GETS MISSING

```
user@trusty:~$ sed 's/\([^,]*\),\([^,]*\)/\U\1,\L\2/' employees
JONES,bob,232-78-3456
JACKESON,jane,,
FEDERER,jack,xxx-xx-xxxx
MAW,michael,1879-0
ALEXANDER,sally,345-89-8095
BEDER,ioana,567-34-9802
STAINES,brad,,

```



TASK

Danny needs to edit all of the catalogs within the catalog directory, replacing the field delimiters with colons and grouping the price column into 1000s

```
$ cat catalog.sed
s/,/:/g
s/\(^|[\^0-9.]\)\([0-9]\+\)\([0-9]\{3\}\)/\1\2,\3/g
$ sed -i -f catalog.sed catalog/*
```

```
user@trusty:~$ cat /proc/loadavg
0.06 0.11 0.08 1/338 7567
user@trusty:~$ cat catalog.sed
s/,/:/g
s/\(^|[\^0-9.]\)\(\([0-9]\+\)\(\([0-9]\{3\}\)\)/\1\2,\3/g
```

CATALOG FILE THAT NEED TO BE EDITED

```
user@trusty:~$ cat catalog/*
fork,50,21
spade,50,30
mower,99,30
ride-on,3199,3
hose,15,23
sprayer,11,3
drill,99,5
hammer,10,50
brush,5,100
lamp,25,30
screwdriver,5,23
table-saw,1099,3
user@trusty:~$
```

```
user@trusty:~$ sed -f catalog.sed catalog/*
fork:50:21
spade:50:30
mower:99:30
ride-on:3,199:3
hose:15:23
sprayer:11:3
drill:99:5
hammer:10:50
brush:5:100
lamp:25:30
screwdriver:5:23
table-saw:1,099:3
```

PERMANENTLY MAKING CHANGES ADD -i option

```
user@trusty:~$ sed -i -f catalog.sed catalog/*
```

```
user@trusty:~/catalog$ cat garden
fork:50:21
spade:50:30
mower:99:30
ride-on:3,199:3
hose:15:23
sprayer:11:3
user@trusty:~/catalog$ cat tools
drill:99:5
hammer:10:50
brush:5:100
lamp:25:30
screwdriver:5:23
table-saw:1,099:3
```

Executing commands with sed

We can use use e flag to execute the command over a file example is shown below

```
sed 's/^/ls -l /e listoffiles.txt'
```

Making full use of the ever useful sed **substitute** command coupled with **execute**, we can read arguments from the input file. We then substitute the start of the line with the **command to be run** against the argument...let me show you

We want to archive only those files with a forward slash so we escape the forward slash for using it as range

Archiving DIY'r'Us Catalogs

Require a leading
forward slash

```
$ sed ' /^\\// s/^/tar -rf catalog.tar /e' cat.list
```

Require a leading forward slash

Append matching line to TAR file

File will contain catalogs to archive

```
$ sed ' /^\// s/^/tar -rf catalog.tar /e' cat.list
$ sed ' /^\// s/^/rm -f /e' cat.list
```

The original catalog is deleted

Example file and the execution

```
user@trusty:~$
user@trusty:~$ cat file.list
/etc/hosts
/etc/services
user@trusty:~$ sed ' s/^/ls -l /e ' file.list
-rw-r--r-- 1 root root 221 May 11 2014 /etc/hosts
-rw-r--r-- 1 root root 19558 Dec 30 2013 /etc/services
user@trusty:~$
```

```
user@trusty:~$ sed ' s/^/stat /e ' file.list
File: '/etc/hosts'
Size: 221          Blocks: 8          IO Block: 4096   regular file
Device: 801h/2049d Inode: 262303       Links: 1
Access: (0644/-rw-r--r--) Uid: ( 0/   root)   Gid: ( 0/   root)
Access: 2014-11-10 07:58:29.685637181 +0000
Modify: 2014-05-11 20:58:00.053052172 +0100
Change: 2014-05-11 20:58:00.053052172 +0100
Birth: -
File: '/etc/services'
Size: 19558        Blocks: 40          IO Block: 4096   regular file
Device: 801h/2049d Inode: 262353       Links: 1
Access: (0644/-rw-r--r--) Uid: ( 0/   root)   Gid: ( 0/   root)
Access: 2014-11-09 12:07:51.771168769 +0000
Modify: 2013-12-30 11:08:55.000000000 +0000
Change: 2014-05-11 20:52:42.809044440 +0100
Birth: -
user@trusty:~$ _
```

We can also add users And remove users to system


```
user@trusty:~$ cat user.list
gwen
monty
user@trusty:~$ sed ' s/^/sudo useradd /e ' user.list

user@trusty:~$ tail -n 2 /etc/passwd
gwen:x:1004:1004::/home/gwen:
monty:x:1005:1005::/home/monty:
```

```
user@trusty:~$ sed ' s/^/sudo userdel -r /e ' user.list
userdel: gwen mail spool (/var/mail/gwen) not found
userdel: gwen home directory (/home/gwen) not found

userdel: monty mail spool (/var/mail/monty) not found
userdel: monty home directory (/home/monty) not found

user@trusty:~$ cat cat.list
/home/user/catalog/garden
```

Add a file to a existing archive as shown

```
user@trusty:~$ sed ' /\^\\/ s/^/tar -rf catalog.tar /e ' cat.list
tar: Removing leading '/' from member names

user@trusty:~$ tar -tf catalog.tar
ntp.sed
numbers
home/user/catalog/garden
```

USING SED WITHIN VIM EDITOR

COME INSIDE A FILE USING VI FILENAME AND THEN GIVE ESCAPE KEY TO GO TO LAST LINE AND GIVE SED EXPRESIN HERE % IS USED TO SYMBOLSE WHOLE DOCUMENT AND g IS USED FOR GLOBAL REPLACEMENT

```
driftfile /var/lib/ntp/ntp.drift
statistics loopstats peerstats clockstats
filegen loopstats file loopstats type day enable
filegen peerstats file peerstats type day enable
filegen clockstats file clockstats type day enable
server ntp.example.com prefer
server ntp.ubuntu.com
restrict -4 default kod notrap nomodify nopeer noquery
restrict -6 default kod notrap nomodify nopeer noquery
restrict 127.0.0.1
restrict ::1
```

AFTER PRESSING ENTER

```
driftfile /var/lib/ntp/ntp.drift
statistics loopstuff peerstuff clockstuff
filegen loopstuff file loopstuff type day enable
filegen peerstuff file peerstuff type day enable
filegen clockstuff file clockstuff type day enable
server ntp.example.com prefer
server ntp.ubuntu.com
restrict -4 default kod notrap nomodify nopeer noquery
restrict -6 default kod notrap nomodify nopeer noquery
restrict 127.0.0.1
restrict ::1
```

PRESS U TO UNDO CHANGES

USE 2,3 TO GIVE LINE WHERE WE WANT TO CHANGE

```
driftfile /var/lib/ntp/ntp.drift
statistics loopstats peerstats clockstats
filegen loopstats file loopstats type day enable
filegen peerstats file peerstats type day enable
filegen clockstats file clockstats type day enable
server ntp.example.com prefer
server ntp.ubuntu.com
restrict -4 default kod notrap nomodify nopeer noquery
restrict -6 default kod notrap nomodify nopeer noquery
restrict 127.0.0.1
restrict ::1
```

```
:2,3s/stats/stuff/g
```

WE CAN ALSO USE REGEX IN THIS AS LIKE THIS


```
:/^stat/s/^/ /
```

OUTPUT

```
driftfile /var/lib/ntp/ntp.drift
statistics loopstuff peerstuff clockstuff
filegen peerstats file peerstats type day enable
filegen clockstats file clockstats type day enable
server ntp.example.com prefer
server ntp.ubuntu.com
restrict -4 default kod notrap nomodify nopeer noquery
restrict -6 default kod notrap nomodify nopeer noquery
restrict 127.0.0.1
restrict ::1
```

```
:5,7s/^/ /_
```

OUTPUT

```
driftfile /var/lib/ntp/ntp.drift
statistics loopstuff peerstuff clockstuff
filegen peerstats file peerstats type day enable
filegen clockstats file clockstats type day enable
server ntp.example.com prefer
server ntp.ubuntu.com
restrict -4 default kod notrap nomodify nopeer noquery
restrict -6 default kod notrap nomodify nopeer noquery
restrict 127.0.0.1
restrict ::1
```



```

1 #!/bin/bash
2 OLDIFS=$IFS
3 IFS=","
4 while read product price quantity
5 do
6     echo -e "\e[1;33m$product \
7     =====\e[0m\n\
8     Price : \t $price \n\
9     Quantity : \t $quantity \n"
10 done < $1
11 IFS=$OLDIFS

```

PRESS ENTER

WE CAN USE IT IN ANOTHER FILE BY USING R COMMAND AS SHOWN BELOW

```

:~
:r while

```

AND OUTPUT IS

[illegible]

