

```
leela@leela: ~/shell
leela@leela: $ awk
Usage: mawk [Options] [Program] [file ...]

Program:
  The -f program value is the name of a file containing program text.
  If no -f option is given, a "-" ends option processing; the following
  parameters are the program text.

Options:
  -f program-file  Program text is read from file instead of from the
                    command-line. Multiple -f options are accepted.
  -F value         sets the field separator, FS, to value.
  -v var=value     assigns value to program variable var.
  --              unambiguous end of options.

Implementation-specific options are prefixed with "-W". They can be
abbreviated:

-W version        show version information and exit.
-W compat         pre-POSIX 2001.
-W dump           show assembler-like listing of program and exit.
-W help           show this message and exit.
-W interactive    set unbuffered output, line-buffered input.
-W exec file      use file as program as well as last option.
-W posix          stricter POSIX checking.
-W random=number  set initial random seed.
-W printf=number  adjust size of printf buffer.
-W usage          show this message and exit.

leela@leela: $ gawk
Command 'gawk' not found, but can be installed with:
sudo apt install gawk

leela@leela: $ ls
a.out      chr.c      Downloads  first.c    gt.c       myFiles    sec.c       tempconv.c  varname1.sh
arrays.sh  constant_var.sh  elif.sh   first.sh   if-else.sh  myscripts  shell       Templates   varname.sh
basic_01.sh  c_programs  far1.c    for_demo.sh  iterate_from_file.sh  Pictures  snap       the-c-programming-language-2nd-edition-solutions  var_readonly.sh
basic01.sh  Desktop    far.c     get.c       key_value.sh  Public    string_ops.sh  user_input1.sh  Videos
basic.sh    Documents  first1.sh GNS3       Music        put.c     switch_demo.sh  user_input.sh

leela@leela: $ cd shell
leela@leela: ~/shell$ ls
dlist  elist  emp1.lnt  emp.lnt  instr1.fill  instr2.fill  mlist  olist
leela@leela: ~/shell$ cat emp1.lnt
22321a b chukla le = lealor 112/17/571 99999
```

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leela@leela: ~/shell
leela@leela:~/shell$ cat emp1.lnt
2233|a.k. shukla      |g.m      |sales      |12/12/52| 90000
9876|jai sharma        |director  |production |03/12/50|130000
9876|jai sharma        |director  |production |03/12/50|130000
5678|sumit chakrobarty |d.g.m    |marketing  |04/19/43| 85000
2365|barun sengupta    |director  |personnel  |05/11/47|120000
2365|barun sengupta    |director  |personnel  |05/11/47|120000
5423|n.k. gupta        |chairman  |admin      |08/30/56|160000
1006|chanchal singhvi  |director  |sales      |09/03/38|140000
1006|chanchal singhvi  |director  |sales      |09/03/38|140000
6213|karuna ganguly    |g.m.      |accounts   |06/05/62|105000
1265|s.n. dasgupta     |manager   |sales      |09/12/63| 90000
4290|jayant Choudhury  |executive |production |09/07/50| 65000
2476|anil aggarwal     |manager   |sales      |05/01/59|110000
6521|lalit choudury    |director  |marketing  |09/26/45|125000
6521|lalit choudury    |director  |marketing  |09/26/45|125000
3212|shyam saksena     |d.g.m.    |accounts   |12/12/55| 85000
3564|sudhir Agarwal   |executive |personnel  |07/06/47| 75000
2345|j.b. saxena       |g.m.      |marketing  |03/12/45|110000
0110|v.k agarwal       |g.m.      |marketing  |12/31/40| 95000
leela@leela:~/shell$ cat emp.lnt
2233|charles harris   |g.m      |sales      |12/12/52| 90000
9876|bill johnson     |director  |production |03/12/50|130000
5678|robert dylan     |d.g.m    |marketing  |04/19/43| 85000
2365|john woodcock   |director  |personnel  |05/11/47|120000
5423|barry wood       |chairman  |admin      |08/30/56|160000
1006|gordon lightfoot |director  |sales      |09/03/38|140000
6213|michael lennon  |g.m.      |accounts   |06/05/62|105000
1265|p.j. woodhouse   |manager   |sales      |09/12/63| 90000
4290|neil o'bryan    |executive |production |09/07/50| 65000
2476|jackie wodehouse |manager   |sales      |05/01/59|110000
6521|derryk o'brien  |director  |marketing  |09/26/45|125000
3212|bill wilcocks   |d.g.m.    |accounts   |12/12/55| 85000
3564|ronie truman    |executive |personnel  |07/06/47| 75000
2345|james wilcox    |g.m.      |marketing  |03/12/45|110000
0110|julie truman    |g.m.      |marketing  |12/31/40| 95000
leela@leela:~/shell$ awk
Usage: awk [Options] [Program] [file ...]

Program:
  The -f option value is the name of a file containing program text.
  If no -f option is given, a " " ends option processing; the following
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leela@leela: ~/shell

The -f option value is the name of a file containing program text.
If no -f option is given, a "--" ends option processing; the following
parameters are the program text.

Options:
-f program-file  Program text is read from file instead of from the
                  command-line. Multiple -f options are accepted.
-F value        sets the field separator, FS, to value.
-v var=value     assigns value to program variable var.
--              unambiguous end of options.

Implementation-specific options are prefixed with "-W". They can be
abbreviated:

-W version      show version information and exit.
-W compat      pre-POSIX 2001.
-W dump        show assembler-like listing of program and exit.
-W help        show this message and exit.
-W interactive  set unbuffered output, line-buffered input.
-W exec file    use file as program as well as last option.
-W posix       stricter POSIX checking.
-W random=number set initial random seed.
-W sprintf=number adjust size of sprintf buffer.
-W usage       show this message and exit.

leela@leela:~/shell$ awk -W
awk: option -W lacks argument
leela@leela:~/shell$ awk -W version
mawk 1.3.4 20240123
Copyright 2008-2023,2024, Thomas E. Dickey
Copyright 1991-1996,2014, Michael D. Brennan

random-funcs:  arc4random_stir/arc4random
regex-funcs:   internal

compiled limits:
sprintf buffer      8192
maximum-integer     9223372036854775808
leela@leela:~/shell$ awk -W compact
awk: vacuous option: -W "compact"
leela@leela:~/shell$ cat emp1.lnt
2233|a.k. shukla      |g.m      |sales      |12/12/52| 90000
0076|jai sharma      |director  |production |03/12/50|130000
```

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leela@leela: ~/shell
3212|shyam saksena |d.g.m. |accounts |12/12/55| 85000
3564|sudhir Agarwal |executive |personnel |07/06/47| 75000
2345|j.b. saxena |g.m. |marketing |03/12/45| 110000
0110|v.k agarwal |g.m. |marketing |12/31/40| 95000
leela@leela:~/shell$ cat emp.lnt
2233|charles harris |g.m |sales |12/12/52| 90000
9876|bill johnson |director |production |03/12/50| 130000
5678|robert dylan |d.g.m |marketing |04/19/43| 85000
2365|john woodcock |director |personnel |05/11/47| 120000
5423|barry wood |chairman |admin |08/30/56| 160000
1006|gordon lightfoot |director |sales |09/03/38| 140000
6213|michael lennon |g.m. |accounts |06/05/62| 105000
1265|p.j. woodhouse |manager |sales |09/12/63| 90000
4290|neil o'bryan |executive |production |09/07/50| 65000
2476|jackie woddehouse |manager |sales |05/01/59| 110000
6521|derryk o'brien |director |marketing |09/26/45| 125000
3212|bill wilcocks |d.g.m. |accounts |12/12/55| 85000
3564|ronie trueeman |executive |personnel |07/06/47| 75000
2345|james wilcox |g.m. |marketing |03/12/45| 110000
0110|julie truman |g.m. |marketing |12/31/40| 95000
leela@leela:~/shell$ awk '/director/{print}' emp.lnt
9876|bill johnson |director |production |03/12/50| 130000
2365|john woodcock |director |personnel |05/11/47| 120000
1006|gordon lightfoot |director |sales |09/03/38| 140000
6521|derryk o'brien |director |marketing |09/26/45| 125000
leela@leela:~/shell$ awk '/manager/{print}' emp.lnt
1265|p.j. woodhouse |manager |sales |09/12/63| 90000
2476|jackie woddehouse |manager |sales |05/01/59| 110000
leela@leela:~/shell$ awk '/manager/,/director/{print}' emp.lnt
1265|p.j. woodhouse |manager |sales |09/12/63| 90000
4290|neil o'bryan |executive |production |09/07/50| 65000
2476|jackie woddehouse |manager |sales |05/01/59| 110000
6521|derryk o'brien |director |marketing |09/26/45| 125000
leela@leela:~/shell$ awk '/g.m./{print}' emp.lnt
leela@leela:~/shell$ awk '/g.m./{print}' emp.lnt
2233|charles harris |g.m |sales |12/12/52| 90000
5678|robert dylan |d.g.m |marketing |04/19/43| 85000
6213|michael lennon |g.m. |accounts |06/05/62| 105000
3212|bill wilcocks |d.g.m. |accounts |12/12/55| 85000
2345|james wilcox |g.m. |marketing |03/12/45| 110000
0110|julie truman |g.m. |marketing |12/31/40| 95000
leela@leela:~/shell$ awk '/g.m./{print}' emp.lnt
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leela@leela: ~/shell
0110|julie truman |g.m. |marketing |12/31/40| 95000
leela@leela:~/shell$ awk 'g.m./{print}' emp1.lnt
2233|a.k. shukla |g.m. |sales |12/12/52| 90000
5678|sumit chakrobarty|d.g.m. |marketing |04/19/43| 85000
6213|karuna ganguly |g.m. |accounts |06/05/62| 105000
3212|shyam saksena |d.g.m. |accounts |12/12/55| 85000
2345|j.b. saxena |g.m. |marketing |03/12/45| 110000
0110|v.k agarwal |g.m. |marketing |12/31/40| 95000
leela@leela:~/shell$ awk '/production/{print}' emp1.lnt
9876|jai sharma |director |production |03/12/50| 130000
9876|jai sharma |director |production |03/12/50| 130000
4290|jayant Choudhury |executive |production |09/07/50| 65000
leela@leela:~/shell$ awk '{print}' emp1.lnt
2233|a.k. shukla |g.m. |sales |12/12/52| 90000
9876|jai sharma |director |production |03/12/50| 130000
9876|jai sharma |director |production |03/12/50| 130000
5678|sumit chakrobarty|d.g.m. |marketing |04/19/43| 85000
2365|barun sengupta |director |personnel |05/11/47| 120000
2365|barun sengupta |director |personnel |05/11/47| 120000
5423|n.k. gupta |chairman |admin |08/30/56| 160000
1006|chanchal singhvi |director |sales |09/03/38| 140000
1006|chanchal singhvi |director |sales |09/03/38| 140000
6213|karuna ganguly |g.m. |accounts |06/05/62| 105000
1265|s.n. dasgupta |manager |sales |09/12/63| 90000
4290|jayant Choudhury |executive |production |09/07/50| 65000
2476|anil aggarwal |manager |sales |05/01/59| 110000
6521|lalit choudury |director |marketing |09/26/45| 125000
6521|lalit choudury |director |marketing |09/26/45| 125000
3212|shyam saksena |d.g.m. |accounts |12/12/55| 85000
3564|sudhir Agarwal |executive |personnel |07/06/47| 75000
2345|j.b. saxena |g.m. |marketing |03/12/45| 110000
0110|v.k agarwal |g.m. |marketing |12/31/40| 95000
leela@leela:~/shell$ awk '/director/{print}' emp.lnt
9876|bill johnson |director |production |03/12/50| 130000
2365|john woodcock |director |personnel |05/11/47| 120000
1006|gordon lightfoot |director |sales |09/03/38| 140000
6521|derryk o'brien |director |marketing |09/26/45| 125000
leela@leela:~/shell$ awk '/director/{ print}' emp.lnt
9876|bill johnson |director |production |03/12/50| 130000
2365|john woodcock |director |personnel |05/11/47| 120000
1006|gordon lightfoot |director |sales |09/03/38| 140000
6521|derryk o'brien |director |marketing |09/26/45| 125000

```



```
leela@leela: ~/shell
1006|gordon lightfoot |director |sales |09/03/38|140000
6521|derryk o'brien |director |marketing |09/26/45|125000
leela@leela:~/shell$ awk '/director/{ print }' emp.lnt
9876|bill johnson |director |production |03/12/50|130000
2365|john woodcock |director |personnel |05/11/47|120000
1006|gordon lightfoot |director |sales |09/03/38|140000
6521|derryk o'brien |director |marketing |09/26/45|125000
leela@leela:~/shell$ awk '/director/{ print }' emp.lnt
9876|bill johnson |director |production |03/12/50|130000
2365|john woodcock |director |personnel |05/11/47|120000
1006|gordon lightfoot |director |sales |09/03/38|140000
6521|derryk o'brien |director |marketing |09/26/45|125000
leela@leela:~/shell$ awk '/director/{ print $0 }' emp.lnt
9876|bill johnson |director |production |03/12/50|130000
2365|john woodcock |director |personnel |05/11/47|120000
1006|gordon lightfoot |director |sales |09/03/38|140000
6521|derryk o'brien |director |marketing |09/26/45|125000
leela@leela:~/shell$ awk '/director/{ print $1 }' emp.lnt
9876|bill
2365|john
1006|gordon
6521|derryk
leela@leela:~/shell$ awk '/director/{ print $2 }' emp.lnt
johnson
woodcock
lightfoot
o'brien
leela@leela:~/shell$ awk '/director/{ print $2 }' emp.lnt
sharma
sharma
sengupta
sengupta
singhvi
singhvi
choudury
choudury
leela@leela:~/shell$ awk '/director/{ print $4 }' emp.lnt
|production
|production
|personnel
|personnel
|sales
```

```

choudury
leela@leela:~/shell$ awk '/director/{ print $4 }' emp1.lnt
|production
|production
|personnel
|personnel
|sales
|sales
|marketing
|marketing
leela@leela:~/shell$ awk '/director/{ print $1,$3 }' emp1.lnt
9876|jai |director
9876|jai |director
2365|barun |director
2365|barun |director
1006|chanchal |director
1006|chanchal |director
6521|lalit |director
6521|lalit |director
leela@leela:~/shell$ awk '/director/{ print $1,$3,$0 }' emp1.lnt
9876|jai |director 9876|jai sharma |director |production |03/12/50|130000
9876|jai |director 9876|jai sharma |director |production |03/12/50|130000
2365|barun |director 2365|barun sengupta |director |personnel |05/11/47|120000
2365|barun |director 2365|barun sengupta |director |personnel |05/11/47|120000
1006|chanchal |director 1006|chanchal singhvi |director |sales |09/03/38|140000
1006|chanchal |director 1006|chanchal singhvi |director |sales |09/03/38|140000
6521|lalit |director 6521|lalit choudury |director |marketing |09/26/45|125000
6521|lalit |director 6521|lalit choudury |director |marketing |09/26/45|125000
leela@leela:~/shell$ awk '/director/{ print $0,$1,$3 }' emp1.lnt
9876|jai sharma |director |production |03/12/50|130000 9876|jai |director
9876|jai sharma |director |production |03/12/50|130000 9876|jai |director
2365|barun sengupta |director |personnel |05/11/47|120000 2365|barun |director
2365|barun sengupta |director |personnel |05/11/47|120000 2365|barun |director
1006|chanchal singhvi |director |sales |09/03/38|140000 1006|chanchal |director
1006|chanchal singhvi |director |sales |09/03/38|140000 1006|chanchal |director
6521|lalit choudury |director |marketing |09/26/45|125000 6521|lalit |director
6521|lalit choudury |director |marketing |09/26/45|125000 6521|lalit |director
leela@leela:~/shell$ awk -F "|" '/sa[kx]s*ena/' emp1.lnt
3212|shyan saksena |d.g.m. |accounts |12/12/55| 85000
2345|j.b. saxena |g.m. |marketing |03/12/45|110000
leela@leela:~/shell$ awk -F "|" '/sa[kx]s*ena/{print $1,$3}' emp1.lnt
3212|d.g.m.

```

```
leela@leela: ~/shell
leela@leela:~/shell$ awk -F "|" '/sa[kx]s*ena/{print $1,$3}' emp1.lnt
3212 d.g.m.
2345 g.m.
leela@leela:~/shell$ $1 emp1.lnt
emp1.lnt: command not found
leela@leela:~/shell$ cat emp1.lnt
2233|a.k. shukla |g.m |sales |12/12/52| 90000
9876|jai sharma |director |production |03/12/50|130000
9876|jai sharma |director |production |03/12/50|130000
5678|sumit chakrobarty |d.g.m |marketing |04/19/43| 85000
2365|barun sengupta |director |personnel |05/11/47|120000
2365|barun sengupta |director |personnel |05/11/47|120000
5423|n.k. gupta |chairman |admin |08/30/56|160000
1006|chanchal singhvi |director |sales |09/03/38|140000
1006|chanchal singhvi |director |sales |09/03/38|140000
6213|karuna ganguly |g.m. |accounts |06/05/62|105000
1265|s.n. dasgupta |manager |sales |09/12/63| 90000
4290|jayant Choudhury |executive |production |09/07/50| 65000
2476|anil aggarwal |manager |sales |05/01/59|110000
6521|lalit choudury |director |marketing |09/26/45|125000
6521|lalit choudury |director |marketing |09/26/45|125000
3212|shyam saksena |d.g.m. |accounts |12/12/55| 85000
3564|sudhir Agarwal |executive |personnel |07/06/47| 75000
2345|j.b. saxena |g.m. |marketing |03/12/45|110000
0110|v.k agarwal |g.m. |marketing |12/31/40| 95000
leela@leela:~/shell$ awk '/sales/{print $2,$3,$5,$6 } emp1.lnt
> ^C
leela@leela:~/shell$ awk '/sales/{print $2,$3,$5,$6 }' emp1.lnt
awk: line 1: syntax error at or near ,
leela@leela:~/shell$ awk '/sales/{print $2,$3,$4,$6 }' emp1.lnt
shukla |g.m |sales |90000
singhvi |director |sales
singhvi |director |sales
dasgupta |manager |sales |90000
aggarwal |manager |sales
leela@leela:~/shell$ sed -i 's/[[:space:]]/3,4' emp1.lnt
sed: -e expression #1, char 17: unknown option to 's'
leela@leela:~/shell$ sed 's/ */ /g' emp1.lnt
2 2 3 3 | a . k . s h u k l a | g . m | s a l e s | 1 2 / 1 2 / 5 2 | 9 0 0 0 0
9 8 7 6 | j a i s h a r m a | d i r e c t o r | p r o d u c t i o n | 0 3 / 1 2 / 5 0 | 1 3 0 0 0 0
9 8 7 6 | j a i s h a r m a | d i r e c t o r | p r o d u c t i o n | 0 3 / 1 2 / 5 0 | 1 3 0 0 0 0
5 6 7 8 | s u m i t c h a k r o b a r t y | d . g . m | m a r k e t i n g | 0 4 / 1 9 / 4 3 | 8 5 0 0 0
```



```
leela@leela: ~/shell
9876|jaisharma|director|production|03/12/50|130000
5678|sumitchakrobarty|d.g.m|marketing|04/19/43|85000
2365|barunsengupta|director|personnel|05/11/47|120000
2365|barunsengupta|director|personnel|05/11/47|120000
5423|n.k.gupta|chairman|admin|08/30/56|160000
1006|chanchalsinghvi|director|sales|09/03/38|140000
1006|chanchalsinghvi|director|sales|09/03/38|140000
6213|karunaganguly|g.m.|accounts|06/05/62|105000
1265|s.n.dasgupta|manager|sales|09/12/63|90000
4290|jayantChoudhury|executive|production|09/07/50|65000
2476|anilagarwal|manager|sales|05/01/59|110000
6521|lalitchoudury|director|marketing|09/26/45|125000
6521|lalitchoudury|director|marketing|09/26/45|125000
3212|shyamsaksena|d.g.m.|accounts|12/12/55|85000
3564|sudhirAgarwal|executive|personnel|07/06/47|75000
2345|j.b.saxena|g.m.|marketing|03/12/45|110000
0110|v.kagarwal|g.m.|marketing|12/31/40|95000
leela@leela:~/shell$ sed 's/ //g' emp1.lnt
2233|a.k.shukla|g.m|sales|12/12/52|90000
9876|jaisharma|director|production|03/12/50|130000
9876|jaisharma|director|production|03/12/50|130000
5678|sumitchakrobarty|d.g.m|marketing|04/19/43|85000
2365|barunsengupta|director|personnel|05/11/47|120000
2365|barunsengupta|director|personnel|05/11/47|120000
5423|n.k.gupta|chairman|admin|08/30/56|160000
1006|chanchalsinghvi|director|sales|09/03/38|140000
1006|chanchalsinghvi|director|sales|09/03/38|140000
6213|karunaganguly|g.m.|accounts|06/05/62|105000
1265|s.n.dasgupta|manager|sales|09/12/63|90000
4290|jayantChoudhury|executive|production|09/07/50|65000
2476|anilagarwal|manager|sales|05/01/59|110000
6521|lalitchoudury|director|marketing|09/26/45|125000
6521|lalitchoudury|director|marketing|09/26/45|125000
3212|shyamsaksena|d.g.m.|accounts|12/12/55|85000
3564|sudhirAgarwal|executive|personnel|07/06/47|75000
2345|j.b.saxena|g.m.|marketing|03/12/45|110000
0110|v.kagarwal|g.m.|marketing|12/31/40|95000
leela@leela:~/shell$ sed 's/[[:space:]]\\+//g' emp1.lnt
sed: -e expression #1, char 18: unterminated `s' command
leela@leela:~/shell$ sed 's/[[:space:]]\\+//g' emp1.lnt
2233|a.k.shukla|g.m|sales|12/12/52|90000
9876|jaisharma|director|production|03/12/50|130000
```

```
leela@leela: ~/shell
2345|j.b.saxena|g.m.|marketing|03/12/45|110000
0110|v.kagarwal|g.m.|marketing|12/31/40|95000
leela@leela:~/shell$ sed 's/[[:space:]]\\+//g' emp1.lnt
sed: -e expression #1, char 18: unterminated 's' command
leela@leela:~/shell$ sed 's/[[:space:]]\\+//g' emp1.lnt
2233|a.k.shukla|g.m.|sales|12/12/52|90000
9876|jaisharma|director|production|03/12/50|130000
9876|jaisharma|director|production|03/12/50|130000
5678|sumitchakrobarty|d.g.m.|marketing|04/19/43|85000
2365|barunsengupta|director|personnel|05/11/47|120000
2365|barunsengupta|director|personnel|05/11/47|120000
5423|n.k.gupta|chairman|admin|08/30/56|160000
1006|chanchalsinghvi|director|sales|09/03/38|140000
1006|chanchalsinghvi|director|sales|09/03/38|140000
6213|karunaganguly|g.m.|accounts|06/05/62|105000
1265|s.n.dasgupta|manager|sales|09/12/63|90000
4290|jayantChoudhury|executive|production|09/07/50|65000
2476|anilaggarwal|manager|sales|05/01/59|110000
6521|lalitchoudury|director|marketing|09/26/45|125000
6521|lalitchoudury|director|marketing|09/26/45|125000
3212|shyamsaksena|d.g.m.|accounts|12/12/55|85000
3564|sudhirAgarwal|executive|personnel|07/06/47|75000
2345|j.b.saxena|g.m.|marketing|03/12/45|110000
0110|v.kagarwal|g.m.|marketing|12/31/40|95000
leela@leela:~/shell$ cat emp1.lnt
2233|a.k. shukla      |g.m.      |sales      |12/12/52| 90000
9876|jai sharma      |director   |production |03/12/50|130000
9876|jai sharma      |director   |production |03/12/50|130000
5678|sumit chakrobarty|d.g.m.     |marketing  |04/19/43| 85000
2365|barun sengupta   |director   |personnel  |05/11/47|120000
2365|barun sengupta   |director   |personnel  |05/11/47|120000
5423|n.k. gupta       |chairman   |admin      |08/30/56|160000
1006|chanchal singhvi |director    |sales      |09/03/38|140000
1006|chanchal singhvi |director    |sales      |09/03/38|140000
6213|karuna ganguly   |g.m.       |accounts   |06/05/62|105000
1265|s.n. dasgupta     |manager    |sales      |09/12/63| 90000
4290|jayant Choudhury  |executive  |production |09/07/50| 65000
2476|anil aggarwal     |manager    |sales      |05/01/59|110000
6521|lalit choudury    |director    |marketing  |09/26/45|125000
6521|lalit choudury    |director    |marketing  |09/26/45|125000
3212|shyam saksena     |d.g.m.     |accounts   |12/12/55| 85000
3564|sudhir Agarwal    |executive  |personnel  |07/06/47| 75000
```

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leela@leela: ~/shell
3212|shyam saksena |d.g.m. |accounts |12/12/55| 85000
3564|sudhir Agarwal |executive |personnel |07/06/47| 75000
2345|j.b. saxena |g.m. |marketing |03/12/45|110000
0110|v.k agarwal |g.m. |marketing |12/31/40| 95000
leela@leela:~/shell$ sed -i 's/[[:space:]]*$2//' emp1.lnt
leela@leela:~/shell$ sed -i 's/[[:space:]]*$2//' emp1.lnt
leela@leela:~/shell$ sed -i 's/[[:space:]]$2//' emp1.lnt
leela@leela:~/shell$ sed 's/ */|/g' emp1.lnt
2233|a.k. shukla|g.m|sales|12/12/52| 90000
9876|jai sharma|director|production|03/12/50|130000
9876|jai sharma|director|production|03/12/50|130000
5678|sumit chakrobarty|d.g.m|marketing|04/19/43| 85000
2365|barun sengupta|director|personnel|05/11/47|120000
2365|barun sengupta|director|personnel|05/11/47|120000
5423|n.k. gupta|chairman|admin|08/30/56|160000
1006|chanchal singhvi|director|sales|09/03/38|140000
1006|chanchal singhvi|director|sales|09/03/38|140000
6213|karuna ganguly|g.m.|accounts|06/05/62|105000
1265|s.n. dasgupta|manager|sales|09/12/63| 90000
4290|jayant Choudhury|executive|production|09/07/50| 65000
2476|anil aggarwal|manager|sales|05/01/59|110000
6521|lalit choudury|director|marketing|09/26/45|125000
6521|lalit choudury|director|marketing|09/26/45|125000
3212|shyam saksena|d.g.m.|accounts|12/12/55| 85000
3564|sudhir Agarwal|executive|personnel|07/06/47| 75000
2345|j.b. saxena|g.m.|marketing|03/12/45|110000
0110|v.k agarwal|g.m.|marketing|12/31/40| 95000
leela@leela:~/shell$ sed 's/ */|/g' emp.lnt
2233|charles harris|g.m|sales|12/12/52| 90000
9876|bill johnson|director|production|03/12/50|130000
5678|robert dylan|d.g.m|marketing|04/19/43| 85000
2365|john woodcock|director|personnel|05/11/47|120000
5423|barry wood|chairman|admin|08/30/56|160000
1006|gordon lightfoot|director|sales|09/03/38|140000
6213|michael lennon|g.m.|accounts|06/05/62|105000
1265|p.j. woodhouse|manager|sales|09/12/63| 90000
4290|neli o'bryan|executive|production|09/07/50| 65000
2476|jackie wodehouse|manager|sales|05/01/59|110000
6521|derryk o'brien|director|marketing|09/26/45|125000
3212|bill wilcocks|d.g.m.|accounts|12/12/55| 85000
3564|ronie trueman|executive|personnel|07/06/47| 75000
2345|james wilson|g.m.|marketing|03/12/45|110000
```

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leela@leela: ~/shell
3564|ronie truman|executive|personnel|07/06/47| 75000
2345|james wilcox|g.m.|marketing|03/12/45|110000
0110|julie truman|g.m.|marketing|12/31/40| 95000
leela@leela: ~/shell$ sed 's/ */|/g' emp.lnt
2233|charles harris|g.m|sales|12/12/52|90000
9876|bill johnson|director|production|03/12/50|130000
5678|robert dylan|d.g.m|marketing|04/19/43|85000
2365|john woodcock|director|personnel|05/11/47|120000
5423|barry wood|chairman|admin|08/30/56|160000
1006|gordon lightfoot|director|sales|09/03/38|140000
6213|michael lennon|g.m.|accounts|06/05/62|105000
1265|p.j. woodhouse|manager|sales|09/12/63|90000
4290|neil o'bryan|executive|production|09/07/50| 65000
2476|jackie wodehouse|manager|sales|05/01/59|110000
6521|derryk o'brien|director|marketing|09/26/45|125000
3212|bill wilcocks|d.g.m.|accounts|12/12/55|85000
3564|ronie truman|executive|personnel|07/06/47|75000
2345|james wilcox|g.m.|marketing|03/12/45|110000
0110|julie truman|g.m.|marketing|12/31/40|95000
leela@leela: ~/shell$ nano emp1.lnt
leela@leela: ~/shell$ sed 's/ */|/g' emp.lnt
2233|charles harris|g.m|sales|12/12/52| 90000
9876|bill johnson|director|production|03/12/50|130000
5678|robert dylan|d.g.m|marketing|04/19/43| 85000
2365|john woodcock|director|personnel|05/11/47|120000
5423|barry wood|chairman|admin|08/30/56|160000
1006|gordon lightfoot|director|sales|09/03/38|140000
6213|michael lennon|g.m.|accounts|06/05/62|105000
1265|p.j. woodhouse|manager|sales|09/12/63| 90000
4290|neil o'bryan|executive|production|09/07/50| 65000
2476|jackie wodehouse|manager|sales|05/01/59|110000
6521|derryk o'brien|director|marketing|09/26/45|125000
3212|bill wilcocks|d.g.m.|accounts|12/12/55| 85000
3564|ronie truman|executive|personnel|07/06/47| 75000
2345|james wilcox|g.m.|marketing|03/12/45|110000
0110|julie truman|g.m.|marketing|12/31/40| 95000
leela@leela: ~/shell$ sed 's/ */|/g' emp1.lnt
2233|a.k. shukla|g.m|sales|12/12/52|90000
9876|jai sharma|director|production|03/12/50|130000
9876|jai sharma|director|production|03/12/50|130000
5678|sumit chakrobarty|d.g.m|marketing|04/19/43|85000
2365|harun ragunath|director|personnel|05/11/47|120000
```



```
leela@leela: ~/shell
5678|sumit chakrobarty|d.g.m|marketing|04/19/43|85000
2365|barun sengupta|director|personnel|05/11/47|120000
2365|barun sengupta|director|personnel|05/11/47|120000
5423|n.k. gupta|chairman|admin|08/30/56|160000
1006|chanchal singhvi|director|sales|09/03/38|140000
1006|chanchal singhvi|director|sales|09/03/38|140000
6213|karuna ganguly|g.m.|accounts|06/05/62|105000
1265|s.n. dasgupta|manager|sales|09/12/63|90000
4290|jayant Choudhury|executive|production|09/07/50|65000
2476|anil aggarwal|manager|sales|05/01/59|110000
6521|talit choudury|director|marketing|09/26/45|125000
6521|talit choudury|director|marketing|09/26/45|125000
3212|shyam saksena|d.g.m.|accounts|12/12/55|85000
3564|sudhir Agarwal|executive|personnel|07/06/47|75000
2345|j.b. saxena|g.m.|marketing|03/12/45|110000
0110|v.k agarwal|g.m.|marketing|12/31/40|95000
leela@leela:~/shell$ sed 's/ */|/g' emp1.lnt | tee emp.lnt | head -n 3
2233|a.k. shukla|g.m|sales|12/12/52|90000
9876|jai sharma|director|production|03/12/50|130000
9876|jai sharma|director|production|03/12/50|130000
leela@leela:~/shell$ awk -F '{print $3,$6}' emp1.lnt
awk: 1: unexpected character '.'
leela@leela:~/shell$ awk -F "|" 'NR==3, NR==6{print NR,$2,$3,$6}' emp1.lnt
3 jai sharma director 130000
4 sumit chakrobarty d.g.m 85000
5 barun sengupta director 120000
6 barun sengupta director 120000
leela@leela:~/shell$ awk -F "|" 'NR==3, NR==6{print NR,$2,$3,$6}' emp1.lnt
3 jai sharma director 130000
4 sumit chakrobarty d.g.m 85000
5 barun sengupta director 120000
6 barun sengupta director 120000
leela@leela:~/shell$ awk -F "|" '/[aA]gg?[ar]wal/' emp1.lnt
leela@leela:~/shell$ awk -F "|" '/[aA]g?[ar]wal/' emp1.lnt
leela@leela:~/shell$ awk -F "|" '/[aA]gg?[ar]wal/' emp1.lnt
2476|anil aggarwal |manager |sales |05/01/59|110000
3564|sudhir Agarwal |executive |personnel |07/06/47|75000
0110|v.k agarwal |g.m. |marketing |12/31/40|95000
leela@leela:~/shell$ awk -F "|" '/[aA]gg?[ar]wal/' emp1.lnt
2476|anil aggarwal |manager |sales |05/01/59|110000
3564|sudhir Agarwal |executive |personnel |07/06/47|75000
0110|v.k agarwal |g.m. |marketing |12/31/40|95000
leela@leela:~/shell$ awk -F "|" '/[aA]gg?[ar]wal/' { printf "%3d % 30s % 12s %d\n", NR, $2, $3, $6 } emp1.lnt
```



```
leela@leela: ~/shell
1006|chanchal singhvi|director|sales|09/03/38|140000
6213|karuna ganguly|g.m.|accounts|06/05/62|105000
1265|s.n. dasgupta|manager|sales|09/12/63|90000
4290|jayant Choudhury|executive|production|09/07/50|65000
2476|anil aggarwal|manager|sales|05/01/59|110000
6521|lalit choudury|director|marketing|09/26/45|125000
6521|lalit choudury|director|marketing|09/26/45|125000
3212|shyam saksena|d.g.m.|accounts|12/12/55|85000
3564|sudhir Agarwal|executive|personnel|07/06/47|75000
2345|j.b. saxena|g.m.|marketing|03/12/45|110000
0110|v.k agarwal|g.m.|marketing|12/31/40|95000
leela@leela:~/shell$ sed 's/ */|/g' emp1.lnt | tee emp.lnt | head -n 3
2233|a.k. shukla|g.m.|sales|12/12/52|90000
9876|jai sharma|director|production|03/12/50|130000
9876|jai sharma|director|production|03/12/50|130000
leela@leela:~/shell$ awk -F '{print $3,$6}' emp1.lnt
awk: 1: unexpected character '.'
leela@leela:~/shell$ awk -F "|" 'NR==3, NR==6{print NR,$2,$3,$6}' emp1.lnt
3 jai sharma director 130000
4 sumit chakrobarty d.g.m 85000
5 barun sengupta director 120000
6 barun sengupta director 120000
leela@leela:~/shell$ awk -F "|" 'NR==3, NR==6{print NR,$2,$3,$6}' emp1.lnt
3 jai sharma director 130000
4 sumit chakrobarty d.g.m 85000
5 barun sengupta director 120000
6 barun sengupta director 120000
leela@leela:~/shell$ awk -F "|" '/[aA]gg?[ar]wal/' emp1.lnt
leela@leela:~/shell$ awk -F "|" '/[aA]g?[ar]wal/' emp1.lnt
2476|anil aggarwal |manager |sales |05/01/59|110000
3564|sudhir Agarwal |executive |personnel |07/06/47|75000
0110|v.k agarwal |g.m. |marketing |12/31/40|95000
leela@leela:~/shell$ awk -F "|" '/[aA]gg?[ar]+wal/' emp1.lnt
2476|anil aggarwal |manager |sales |05/01/59|110000
3564|sudhir Agarwal |executive |personnel |07/06/47|75000
0110|v.k agarwal |g.m. |marketing |12/31/40|95000
leela@leela:~/shell$ awk -F "|" '/[aA]gg?[ar]+wal/ { printf "%3d %-20s %-12s %d \n",NR,$2,$3,$6}' emp1.lnt
13 anil aggarwal manager 110000
17 sudhir Agarwal executive 75000
19 v.k agarwal g.m. 95000
leela@leela:~/shell$
```