

## ejercicio 1.10.1

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~
$ #ejercicio 1.10.1

asus@LAPTOP-4S1EJHL9 MINGW64 ~
$ #literal 1

asus@LAPTOP-4S1EJHL9 MINGW64 ~
$ #ir de csb sandbox

asus@LAPTOP-4S1EJHL9 MINGW64 ~
$ cd Documents/universidad/BIOINFO3/CSB-master\ \ (1\)/CSB-master/unix/sandbox/

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ #literal 2

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ ls
Marra2014_data.fasta  my_file.tmp      tarea4/
'Papers and reviews'/ my_files.fasta

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ wc Marra2014_data.fasta
 9515 13335 566026 Marra2014_data.fasta

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ wc -n ../data/Marra2014_data.fasta
wc: unknown option -- n
Try 'wc --help' for more information.

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ wc -l ../data/Marra2014_data.fasta
9515 ../data/Marra2014_data.fasta

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ wc ../data/Marra2014_data.fasta
 9515 13335 566026 ../data/Marra2014_data.fasta

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ #literal 3

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ cp ../data/Marra2014_data.fasta my_filefasta2.fasta
```

```

-master/unix/sandbox
$ #literal 3

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ cp ../data/Marra2014_data.fasta my_filefasta2.fasta

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ ls
Marra2014_data.fasta    my_file.tmp            my_files.fasta
'Papers and reviews'/  my_filefasta2.fasta    tarea4/

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ #literal 4

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ grep -c isgroup0036 my_filefasta2.fasta
0

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ grep -c isgroup0036 Marra2014_data.fasta
0

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ ls
Marra2014_data.fasta    my_file.tmp            my_files.fasta
'Papers and reviews'/  my_filefasta2.fasta    tarea4/

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ ls my_filefasta2.fasta
my_filefasta2.fasta

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ grep -c isgroup00001 Marra2014_data.fasta
147

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ #nota otra palabra si busca pero la del ejercicio me encuentra 0 coincidencias
.

```

```

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ #literal 5

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ cat my_filefasta2.fasta | tr ' ' ',' > my_filefasta3.tmp

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ ls
Marra2014_data.fasta  my_file.tmp          my_filefasta3.tmp  tarea4/
'Papers and reviews'/' my_filefasta2.fasta  my_files.fasta

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ rm my_filefasta3.tmp

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ ls
Marra2014_data.fasta  my_file.tmp          my_files.fasta
'Papers and reviews'/' my_filefasta2.fasta  tarea4/

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ rm my_file.tmp

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ ls
Marra2014_data.fasta  my_filefasta2.fasta  tarea4/
'Papers and reviews'/' my_files.fasta

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ rm my_file.fasta
rm: cannot remove 'my_file.fasta': No such file or directory

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ cat my_filefasta2.fasta | tr -s ' ' ',' > my filefasta3_tmp
tr: extra operand 'filefasta3_tmp'
Try 'tr --help' for more information.

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ cat my_filefasta2.fasta | tr -' ' ',' > my filefasta3_tmp
tr: unknown option --
Try 'tr --help' for more information.

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB

```

```

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ cat my_filefasta2.fasta | tr ' ' ',' > my_filefasta3_tmp
tr: extra operand 'filefasta3_tmp'
Try 'tr --help' for more information.

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ cat my_filefasta2.fasta | tr ' ' ',' > my_filefasta3_tmp
tr: extra operand 'filefasta3_tmp'
Try 'tr --help' for more information.

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ cat my_filefasta2.fasta | tr ' ' ',' > my_filefasta3.tmp

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ ls
Marra2014_data.fasta  my_filefasta2.fasta  my_filefasta3.tmp  tarea4/
'Papers and reviews'/  my_files.fasta

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ grep isogroups my_filefasta3.tmp

```

```

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ #literal 6

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
$ grep '>' my_filefasta2.fasta
>contig00001 length=527 numreads=2 gene=isogroup00001 status=it_thresh
>contig00002 length=551 numreads=8 gene=isogroup00001 status=it_thresh
>contig00003 length=541 numreads=2 gene=isogroup00001 status=it_thresh
>contig00004 length=291 numreads=3 gene=isogroup00001 status=it_thresh
>contig00005 length=580 numreads=12 gene=isogroup00001 status=it_thresh
>contig00006 length=3288 numreads=35 gene=isogroup00001 status=it_thresh
>contig00008 length=1119 numreads=10 gene=isogroup00001 status=it_thresh
>contig00010 length=202 numreads=4 gene=isogroup00001 status=it_thresh
>contig00011 length=5563 numreads=61 gene=isogroup00001 status=it_thresh
>contig00012 length=824 numreads=10 gene=isogroup00001 status=it_thresh
>contig00013 length=707 numreads=6 gene=isogroup00001 status=it_thresh
>contig00014 length=568 numreads=2 gene=isogroup00001 status=it_thresh
>contig00015 length=123 numreads=4 gene=isogroup00001 status=it_thresh
>contig00016 length=1721 numreads=22 gene=isogroup00001 status=it_thresh
>contig00017 length=788 numreads=15 gene=isogroup00001 status=it_thresh
>contig00018 length=1886 numreads=12 gene=isogroup00001 status=it_thresh
>contig00022 length=802 numreads=3 gene=isogroup00001 status=it_thresh
>contig00023 length=885 numreads=10 gene=isogroup00001 status=it_thresh
>contig00025 length=142 numreads=3 gene=isogroup00001 status=it_thresh
>contig00026 length=301 numreads=4 gene=isogroup00001 status=it_thresh
>contig00027 length=178 numreads=7 gene=isogroup00001 status=it_thresh
>contig00028 length=135 numreads=2 gene=isogroup00001 status=it_thresh
>contig00029 length=465 numreads=5 gene=isogroup00001 status=it_thresh
>contig00030 length=121 numreads=3 gene=isogroup00001 status=it_thresh
>contig00031 length=595 numreads=9 gene=isogroup00001 status=it_thresh
>contig00032 length=1202 numreads=5 gene=isogroup00001 status=it_thresh
>contig00033 length=540 numreads=27 gene=isogroup00001 status=it_thresh
>contig00034 length=1004 numreads=6 gene=isogroup00001 status=it_thresh
>contig00035 length=566 numreads=8 gene=isogroup00001 status=it_thresh
>contig00036 length=3571 numreads=8 gene=isogroup00001 status=it_thresh
>contig00037 length=1168 numreads=10 gene=isogroup00001 status=it_thresh
>contig00039 length=371 numreads=94 gene=isogroup00001 status=it_thresh
>contig00040 length=2505 numreads=15 gene=isogroup00001 status=it_thresh
>contig00042 length=620 numreads=11 gene=isogroup00001 status=it_thresh
>contig00044 length=1301 numreads=4 gene=isogroup00001 status=it_thresh
>contig00045 length=563 numreads=6 gene=isogroup00001 status=it_thresh
>contig00046 length=1046 numreads=44 gene=isogroup00001 status=it_thresh

```

```
>contig01373 length=178 numreads=33 gene=isogroup00042 status=isotig
>contig01374 length=509 numreads=10 gene=isogroup00042 status=isotig
>contig01375 length=522 numreads=5 gene=isogroup00042 status=isotig
>contig01378 length=575 numreads=57 gene=isogroup00042 status=isotig
>contig01379 length=124 numreads=56 gene=isogroup00042 status=isotig
>contig01380 length=1545 numreads=10 gene=isogroup00043 status=isotig
>contig01384 length=3094 numreads=71 gene=isogroup00043 status=isotig
>contig01385 length=1965 numreads=7 gene=isogroup00043 status=isotig
```

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
```

```
$ grep '>' my_filefasta2.fasta | head -n2
>contig00001 length=527 numreads=2 gene=isogroup00001 status=it_thresh
>contig00002 length=551 numreads=8 gene=isogroup00001 status=it_thresh
```

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
```

```
$ grep '>' my_filefasta2.fasta | cut -d ',' -f 4 | sort | uniq | wc -l
955
```

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
```

```
-master/unix/sandbox
$ #literal 7
```

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
```

```
$ grep '>' my_filefasta2.fasta | cut -d ',' -f 1,3 | sort '=' -k 2 -n -r | head
-n 1
sort: cannot read: '=': No such file or directory
```

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
-master/unix/sandbox
```

```
$ grep '>' my_filefasta2.fasta | cut -d ',' -f 1,3 | sort -t '=' -k 2 -n -r | he
ad -n 1
>contig01115 length=6087 numreads=185 gene=isogroup00030 status=isotig
```

## ejercicio 1.10.2

```
-master/unix/sandbox
$ # ejercicio 1.10.2
```

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
```

```
-master/unix/sandbox
$ head -n 3 ../data/Gesquiere2011_data.csv |
> ^C
```

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
```

```
-master/unix/sandbox
$ head -n 3 ../data/Gesquiere2011_data.csv
maleID GC T
1 66.9 64.57
1 51.09 35.57
```

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
```

```
-master/unix/sandbox
$ cut -f 1 ../data/Gesquiere2011_data.csv |head -n 3
maleID
1
1
```

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
```

```
-master/unix/sandbox
$ cut -f 1 ../data/Gesquiere2011_data.csv | grep -c -w 3
61
```

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
```

```
-master/unix/sandbox
$ cut -f 1 ../data/Gesquiere2011_data.csv | grep -c -w 27
5
```

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB
```

```
-master/unix/sandbox
$
```

```
# ejercicio 1.10.2
head -n 3 ../data/Gesquiere2011_data.csv
cut -f 1 ../data/Gesquiere2011_data.csv | head -n 3
cut -f 1 ../data/Gesquiere2011_data.csv | grep -c -w 3
cut -f 1 ../data/Gesquiere2011_data.csv | grep -c -w 27
```

### ejercicio 1.10.3

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/univercidad/BIOINFO3/CSB-master (1)/CSB-master/unix/san
$ #ejercicio 1.10.4
```

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/univercidad/BIOINFO3/CSB-master (1)/CSB-master/unix/san
$ #literal 1
```

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/univercidad/BIOINFO3/CSB-master (1)/CSB-master/unix/san
$ cd ../data/
```

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/univercidad/BIOINFO3/CSB-master (1)/CSB-master/unix/data
$ cd Saavedra2013
```

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/univercidad/BIOINFO3/CSB-master (1)/CSB-master/unix/data/Saavedra2013
$ echo "El numero de columnas es:" ; head -n1 n1.txt | grep -o " " | wc -l ; echo "
El numero de filas es:" ; wc -l n1.txt
El numero de columnas es:
80
El numero de filas es:
97 n1.txt
```

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/univercidad/BIOINFO3/CSB-master (1)/CSB-master/unix/data/Saavedra2013
$ #literal 2
```

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/univercidad/BIOINFO3/CSB-master (1)/CSB-master/unix/data/Saavedra2013
$ for f in $(ls *.txt); do echo "El numero de columnas es:" ; head -n 1 $f | awk '{p
rint NF}' ; echo "El numero de filas es:"; cat $f | wc -l; done
bash: ls*.txt: command not found
```

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/univercidad/BIOINFO3/CSB-master (1)/CSB-master/unix/data/Saavedra2013
$ for f in $(ls *.txt); do echo "El numero de columnas es:" ; head -n 1 $f | awk '{
print NF}' ; echo "El numero de filas es:"; cat $f | wc -l; done
El numero de columnas es:
bash: {print: command not found
Usage: awk [POSIX or GNU style options] -f progfile [--] file ...
Usage: awk [POSIX or GNU style options] [--] 'program' file ...
POSIX options:      GNU long options: (standard)
    -f progfile      --file=progfile
    -F fs            --field-separator=fs
    -v var=val       --assign=var=val
Short options:      GNU long options: (extensions)
    -b               --characters-as-bytes
    -c               --traditional
    -C               --copyright
    -d[file]         --dump-variables[=file]
    -D[file]         --debug[=file]
    -e 'program-text' --source='program-text'
```



```
-S          --sandbox
-t          --lint-old
-V          --version
```

To report bugs, see node `Bugs' in `gawk.info' which is section `Reporting Problems and Bugs' in the printed version. This same information may be found at [https://www.gnu.org/software/gawk/manual/html\\_node/Bugs.html](https://www.gnu.org/software/gawk/manual/html_node/Bugs.html). PLEASE do NOT try to report bugs by posting in comp.lang.awk, or by using a web forum such as Stack Overflow.

gawk is a pattern scanning and processing language. By default it reads standard input and writes standard output.

Examples:

```
gawk '{ sum += $1 }; END { print sum }' file
gawk -F: '{ print $1 }' /etc/passwd
```

El numero de filas es:

12

:C 😞

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB-master/unix/data/Saavedra2013
$ nano ejercicio3.sh

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB-master/unix/data/Saavedra2013
$ bash ejercicio3.sh
El numero de columna es:
80
el numero de filas es:
97
El numero de columna es:
20
el numero de filas es:
14
El numero de columna es:
91
el numero de filas es:
270
El numero de columna es:
72
el numero de filas es:
```

ejercicio 1.10.4

```
asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB-master/unix/data/Saavedra2013
$ #ejercicio 4

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB-master/unix/data/Saavedra2013
$ #literal 1

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB-master/unix/data/Saavedra2013
$ cd ../

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB-master/unix/data
$ cut -d ',' -f 7 ../data/Buzzard2015_data.csv | head -n 1
biomass

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB-master/unix/data
$ #punto 2

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB-master/unix/data
$ cut -d ',' -f 7 ../data/Buzzard2015_data.csv | tail -n +2 | sort | uniq | wc -l
285

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB-master/unix/data
$ #punto 3

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB-master/unix/data
$ cut -d ',' -f 7 ../data/Buzzard2015_data.csv | tail -n +2 | sort -n | head -n 1
1.048466198

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB-master/unix/data
$ #punto 4

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB-master/unix/data
$ cut -d ',' -f 7 ../data/Buzzard2015_data.csv | tail -n +2 | sort -n | tail -n 1
14897.29471

asus@LAPTOP-4S1EJHL9 MINGW64 ~/Documents/universidad/BIOINFO3/CSB-master (1)/CSB-master/unix/data
$
```