Shell Commands

grep [-v] [$ ^ . *]

Synopsis

grep [OPTIONS] PATTERN [FILE...]

Description

grep searches the named input FILEs (or standard input if no files are named, or if a single hyphen-minus (-) is given as file name) for lines containing a match to the given PATTERN. By default, grep prints the matching lines.

Examples

```
s4258788@moss:~/csse2310/exam$ cat foo
apples
bananas
capsicums
drugs
eggplants
fennels

s4258788@moss:~/csse2310/exam$ grep an foo
bananas
eggplants
```

-v, --invert match

Invert the sense of matching, to select non-matching lines.

Examples

```
s4258788@moss:~/csse2310/exam$ grep -v an foo
apples
capsicums
drugs
fennels
```

* (asterisk)

The preceding item will be matched zero or more times

. (period)

Matches any single (one) character

^ (carat)

Matches the empty string at the beginning of a line

$ (dollar)

Matches the empty string at the end of a line

ls [-ladi]

Synopsis

ls [OPTION]... [FILE]...

Description

List information about the FILEs (the current directory by default). Sort entries

alphabetically if none of -cftuvSUX nor --sort.

-a, --all

do not ignore entries starting with .

-i, --inode

print the index number of each file

-l

use a long listing format

-d, --directory

list directory entries instead of contents, and do not dereference symbolic links

Examples

```
s4258788@moss:~/csse2310/exam$ ls -a
.  ..  .bar  baz  foo  mydir  myfile
```

```
s4258788@moss:~/csse2310/exam$ ls -l
total 12
-rw-r--r-- 1 s4258788 students    0 Apr 16 15:34 baz
-rw-r--r-- 1 s4258788 students   49 Apr 16 14:58 foo
drwxr-xr-x 2 s4258788 students 4096 Apr 16 15:36 mydir
-rw-r--r-- 1 s4258788 students   14 Apr 16 15:34 myfile
```

```
s4258788@moss:~/csse2310/exam$ ls -li
total 12
33974218 -rw-r--r-- 1 s4258788 students    0 Apr 16 15:34 baz
28434368 -rw-r--r-- 1 s4258788 students   49 Apr 16 14:58 foo
32850991 drwxr-xr-x 2 s4258788 students 4096 Apr 16 15:36 mydir
 8965819 -rw-r--r-- 1 s4258788 students   14 Apr 16 15:34 myfile
```

```
s4258788@moss:~/csse2310/exam$ ls -ld
drwxr-xr-x 3 s4258788 students 4096 Apr 16 15:36 .
```

ps [-ef]

Synopsis

ps [options]

Description

ps displays information about a selection of the active processes.

-e

Select all processes. Identical to -A.

-f

Does full format listing.

Examples

```
s4258788@moss:~/csse2310/exam$ ps
  PID TTY          TIME CMD
52410 pts/167  00:00:00 bash
64185 pts/167  00:00:00 ps
s4258788@moss:~/csse2310/exam$ ps -f
UID        PID  PPID  C STIME TTY          TIME CMD
s4258788 52410 52409  0 14:45 pts/167  00:00:00 -bash
s4258788 64187 52410 29 15:43 pts/167  00:00:00 ps -f
s4258788@moss:~/csse2310/exam$ ps -e
  PID TTY          TIME CMD
    1 ?        00:01:00 init
    2 ?        00:00:02 kthreadd
    3 ?        00:00:01 migration/0
    4 ?        00:00:13 ksoftirqd/0
    5 ?        00:00:00 migration/0
    6 ?        00:00:00 watchdog/0
    7 ?        00:00:06 migration/1
    8 ?        00:00:00 migration/1
    9 ?        00:04:21 ksoftirqd/1
… etc…
65097 ?        00:06:56 tmux
65098 pts/25   00:00:00 bash
65109 pts/167  00:00:00 ps
65110 pts/167  00:00:00 less
65264 ?        00:10:15 tmux
65265 pts/113  00:00:00 bash
```

sort [-r -k]

Synopsis

sort [OPTION]... [FILE]...

Description

Write sorted concatenation of all FILE(s) to standard output.

-r, --reverse

reverse the result of comparisons

-k, --key=POS1[,POS2]

start a key at POS1 (origin 1), end it at POS2 (default end of line)

Examples

```
s4258788@moss:~/csse2310/exam$ cat 1sort
apple
guava
banana
```

```
s4258788@moss:~/csse2310/exam$ sort 1sort
apple
banana
guava
```

```
s4258788@moss:~/csse2310/exam$ sort -r 1sort
guava
banana
apple
```

```
s4258788@moss:~/csse2310/exam$ ls -l
total 12
-rw-r--r-- 1 s4258788 students 19 Apr 16 16:21 1sort
-rw-r--r-- 1 s4258788 students  7 Apr 16 16:21 3sort
-rw-r--r-- 1 s4258788 students 63 Apr 16 16:22 6sort
```

```
s4258788@moss:~/csse2310/exam$ ls -l | sort -k 5
total 12
-rw-r--r-- 1 s4258788 students  7 Apr 16 16:21 3sort
-rw-r--r-- 1 s4258788 students 19 Apr 16 16:21 1sort
-rw-r--r-- 1 s4258788 students 63 Apr 16 16:22 6sort
```

(Sorted by the 5th column)

uniq [-c]

uniq – report or omit repeated lines

Synopsis

uniq [OPTION]... [INPUT [OUTPUT]]

Description

Filter adjacent matching lines from INPUT (or standard input), writing to OUTPUT (or standard output).

With no options, matching lines are merged to the first occurrence.

-c, --count

prefix lines by the number of occurrences

Examples

```
s4258788@moss:~/csse2310/exam$ cat foo
this line is not repeated
this line is repeated 4 times
this line is repeated 4 times
this line is repeated 4 times
this line is repeated 4 times
this line is not
but this line is
but this line is
what about me?
nope, you aren't! but i am
nope, you aren't! but i am
```

```
s4258788@moss:~/csse2310/exam$ uniq foo
this line is not repeated
this line is repeated 4 times
this line is not
but this line is
what about me?
nope, you aren't! but i am
```

```
s4258788@moss:~/csse2310/exam$ uniq -c foo
      1 this line is not repeated
      4 this line is repeated 4 times
      1 this line is not
      2 but this line is
      1 what about me?
      2 nope, you aren't! but i am
```

cat

cat – concatenate files and print on the standard output

Synopsis

cat [OPTION]... [FILE]...

Description

Concatenate FILE(s), or standard input, to standard output.

Examples

```
s4258788@moss:~/csse2310/exam$ cat
hello (input in italics)
hello
you there?
you there?
bye
bye
^D (Control-D.  ‘End of File’) (Not shown on console)

s4258788@moss:~/csse2310/exam$ cat bar
Hello, World!

s4258788@moss:~/csse2310/exam$ cat baz
Another file.

s4258788@moss:~/csse2310/exam$ cat bar baz
Hello, World!
Another file.

s4258788@moss:~/csse2310/exam$ cat bar - baz
Hello, World!
this is input
this is input
^D
Another file.
```

head [-]

head – output the first part of files

Synopsis

head [OPTION]... [FILE]...

Description

Print the first 10 lines of each FILE to standard output. With more than one FILE,

precede each with a header giving the file name. With no FILE, or when FILE is -,

read standard input.

-n (number)

prints the first "n" lines instead of the first 10

Examples

```
s4258788@moss:~/csse2310/exam$ head -4 foo
This is a file with more than 10 lines.
I'm not going to include it, you'll just have to trust me on this one.
What? You don't trust me? Well too bad, so sad.
Monkey see, monkey do

s4258788@moss:~/csse2310/exam$ head bar
I think this file has a few less than ten lines.
Yep! and I can prove it
or can i?

s4258788@moss:~/csse2310/exam$ head -2 foo bar
==> foo <==
This is a file with more than 10 lines.
I'm not going to include it, you'll just have to trust me on this one.

==> bar <==
I think this file has a few less than ten lines.
Yep! and I can prove it

s4258788@moss:~/csse2310/exam$ grep and foo | head
and why did he want a face?
well... i can tell you and i won't feel too bad or sad
or mad or mad and sand
like a sand castle
or a jumping castle that is bouncy and fun
```

tail[-]

Look at head and reverse it.

cut [-f -d]

cut - remove sections from each line of files

Synopsis

cut OPTION... [FILE]...

Description

Print selected parts of lines from each FILE to standard output.

-f, --fields=LIST

select only these fields; also print any line that contains no delimiter character, unless the -s option is specified

-d, --delimiter=DELIM

use DELIM instead of TAB for field delimiter

Examples

(Not really sure on this one, sorry)

wc [-l]

wc - print newline, word, and byte counts for each file

Synopsis

wc [OPTION]... [FILE]...

Description

Print newline, word, and byte counts for each FILE, and a total line if more than one FILE is specified. With no FILE, or when FILE is -, read standard input.

-l, --lines

print the newline counts

Examples

```
s4258788@moss:~/csse2310/exam$ wc foo
 19 100 469 foo
```

```
s4258788@moss:~/csse2310/exam$ wc foo -l
19 foo
```

```
s4258788@moss:~/csse2310/exam$ wc foo bar baz -l
 19 foo
  3 bar
  1 baz
 23 total
```

diff

Synopsis

diff [OPTION]... FILES

Description

diff - compare files line by line

Examples

```
s4258788@moss:~/csse2310/exam$ cat foo
these files are almost the same
but not quite.
something is different

s4258788@moss:~/csse2310/exam$ cat bar
These files are almost the same.
But something is a little different.

s4258788@moss:~/csse2310/exam$ cat baz
These files are completely
and utterly identical
Seriously, one is a direct copy of the other

s4258788@moss:~/csse2310/exam$ cat faz
These files are completely
and utterly identical
Seriously, one is a direct copy of the other

s4258788@moss:~/csse2310/exam$ diff foo bar
1,3c1,2
< these files are almost the same
< but not quite.
< something is different
---
> These files are almost the same.
> But something is a little different.

s4258788@moss:~/csse2310/exam$ diff faz baz
s4258788@moss:~/csse2310/exam$
```

chmod [all major options]

chmod - change file mode bits

Synopsis

chmod [OPTION]... MODE[,MODE]... FILE...

Description

chmod changes the file mode bits of each given file according to mode, which can be either a symbolic representation of changes to make, or an octal number representing the bit pattern for the new mode bits.

+ adds em, **-** takes em away!

A combination of the letters **ugoa** controls which users' access to the file will be changed:

u - the user who owns it

g - other users in the file's group

o - other users not in the file's group

a - all users

The letters **rwxXst** select file mode bits for the affected users:

r - read

w - write

x - execute (or search for directories)

X - x only if the file is a directory or already has execute permission for some user

s - set user or group ID on execution

t - restricted deletion flag or sticky bit

A numeric mode is from **one** to **four** octal digits **(0-7)**, derived by adding up the bits with values **4**, **2**, and **1**. Omitted digits are assumed to be leading zeros.

First digit - Set user ID**(4)**, Set group ID**(2)**, restricted deletion or sticky attributes**(1)**

Second digit - Select permissions for user who owns the file. Read**(4)**, write**(2)**, execute**(1)**

Third digit - Select permissions for other users in the file's group. Same values ^

Fourth digit - Other users not in the file's group. Same values ^

-v, --verbose

output a diagnostic for every file processed

-c, --changes

like verbose but report only when a change is made

-f, --silent, --quiet

suppress most error messages

-R, --recursive

change files and directories recursively

Examples

```
s4258788@moss:~/csse2310/exam$ ls -l
total 0
-rw-r--r-- 1 s4258788 students 0 Apr 17 11:34 foo

s4258788@moss:~/csse2310/exam$ chmod a-r foo
s4258788@moss:~/csse2310/exam$ ls -l
total 0
--w------- 1 s4258788 students 0 Apr 17 11:34 foo

s4258788@moss:~/csse2310/exam$ chmod u+rwx foo
s4258788@moss:~/csse2310/exam$ ls -l
total 0
-rwx------ 1 s4258788 students 0 Apr 17 11:34 foo (executables are shown in green)

s4258788@moss:~/csse2310/exam$ chmod g+wr,o+r foo
s4258788@moss:~/csse2310/exam$ ls -l
total 0
-rwxrw-r-- 1 s4258788 students 0 Apr 17 11:34 foo

s4258788@moss:~/csse2310/exam$ chmod 777 foo
s4258788@moss:~/csse2310/exam$ ls -l
total 0
-rwxrwxrwx 1 s4258788 students 0 Apr 17 11:34 foo

s4258788@moss:~/csse2310/exam$ chmod 0 foo
s4258788@moss:~/csse2310/exam$ ls -l
total 0
---------- 1 s4258788 students 0 Apr 17 11:34 foo
```

ln [-s]

ln - make links between files

Synopsis

ln [OPTION]... TARGET (2nd form)

ln [OPTION]... TARGET... DIRECTORY (3rd form)

Description

In the 2nd form, create a link to TARGET in the current directory. In the 3rd and 4th forms, create links to each TARGET in DIRECTORY. Create hard links by default, symbolic links with --symbolic. When creating hard links, each TARGET must exist. Symbolic links can hold arbitrary text; if later resolved, a relative link is interpreted in relation to its parent directory.

-s, --symbolic

make symbolic links instead of hard links

Examples

```
s4258788@moss:~/csse2310/exam$ ls
foo  mydir (directories are dark blue)
s4258788@moss:~/csse2310/exam$ ls mydir/
bar  baz  foo  nesteddir
s4258788@moss:~/csse2310/exam$ ls mydir/nesteddir/
myfile
s4258788@moss:~/csse2310/exam$ cat mydir/baz
this is a file with one line in it

s4258788@moss:~/csse2310/exam$ ln mydir/baz baz-link
s4258788@moss:~/csse2310/exam$ cat baz-link
this is a file with one line in it

s4258788@moss:~/csse2310/exam$ ln -s mydir/nesteddir/ nesteddir-link
s4258788@moss:~/csse2310/exam$ ls
baz-link  foo  mydir nesteddir-link (symbolic links are cyan)
s4258788@moss:~/csse2310/exam$ touch nesteddir-link/mynewfile
s4258788@moss:~/csse2310/exam$ ls mydir/nesteddir/
myfile  mynewfile

s4258788@moss:~/csse2310/exam$ rm -rf mydir/nesteddir/*
s4258788@moss:~/csse2310/exam$ ls nesteddir-link/

s4258788@moss:~/csse2310/exam$ rm -rf mydir/*
s4258788@moss:~/csse2310/exam$ ls
baz-link  foo  mydir  nesteddir-link (a symbolic link with a non-existent destination (I removed it!))

s4258788@moss:~/csse2310/exam$ cat baz-link
this is a file with one line in it
s4258788@moss:~/csse2310/exam$ ls mydir/
```

rm [-rf]

rm - remove files or directories

Synopsis

rm [OPTION]... FILE...

Description

rm removes each specified file. By default, it does not remove directories.

-f, --force

ignore nonexistent files, never prompt. Remove all files whether write protected or not.

-r, -R, --recursive

remove directories and their contents recursively

Examples

```
s4258788@moss:~/csse2310/exam$ ls
1file  2file  3file  onedir  twodir
s4258788@moss:~/csse2310/exam$ ls onedir/
bar  baz  foo  reddir

s4258788@moss:~/csse2310/exam$ rm 3file
s4258788@moss:~/csse2310/exam$ ls
1file  2file  onedir  twodir

s4258788@moss:~/csse2310/exam$ rm onedir
rm: cannot remove `onedir': Is a directory

s4258788@moss:~/csse2310/exam$ rm -r onedir
s4258788@moss:~/csse2310/exam$ ls
1file  2file  twodir

s4258788@moss:~/csse2310/exam$ rm -f twodir/
rm: cannot remove `twodir/': Is a directory

s4258788@moss:~/csse2310/exam$ dir
1file  2file  twodir

s4258788@moss:~/csse2310/exam$ chmod a-w 1file 2file
s4258788@moss:~/csse2310/exam$ rm 1file
rm: remove write-protected regular empty file `1file'? y

s4258788@moss:~/csse2310/exam$ rm -f 2file
s4258788@moss:~/csse2310/exam$ ls
twodir
```

mkdir

mkdir - make directories

Synopsis

mkdir [OPTION]... DIRECTORY...

Description

Create the DIRECTORY(ies), if they do not already exist.

Examples

```
s4258788@moss:~/csse2310/exam$ ls
twodir
s4258788@moss:~/csse2310/exam$ mkdir mydir
s4258788@moss:~/csse2310/exam$ ls
mydir  twodir
```

rmdir

rmdir - remove empty directories

Synopsis

rmdir [OPTION]... DIRECTORY...

Description

Remove the DIRECTORY(ies), if they are empty.

Examples

```
s4258788@moss:~/csse2310/exam$ ls
twodir
s4258788@moss:~/csse2310/exam$ ls twodir/
bar  foo

s4258788@moss:~/csse2310/exam$ rmdir twodir/
rmdir: failed to remove `twodir/': Directory not empty

s4258788@moss:~/csse2310/exam$ rm -f twodir/*

s4258788@moss:~/csse2310/exam$ rmdir twodir/

s4258788@moss:~/csse2310/exam$ ls

s4258788@moss:~/csse2310/exam$
```

cp [-r]

cp - copy files and directories

Synopsis

cp [OPTION]... [-T] SOURCE DEST

cp [OPTION]... SOURCE... DIRECTORY

cp [OPTION]... -t DIRECTORY SOURCE...

Description

Copy SOURCE to DEST, or multiple SOURCE(s) to DIRECTORY.

-R, -r, --recursive

copy directories recursively

Examples

```
s4258788@moss:~/csse2310/exam$ ls
1dir  2dir  bar  foo
s4258788@moss:~/csse2310/exam$ cat foo
this file
has two lines
... NOT!

s4258788@moss:~/csse2310/exam$ cp foo ./2dir
s4258788@moss:~/csse2310/exam$ ls 2dir/
foo

s4258788@moss:~/csse2310/exam$ cat 2dir/foo
this file
has two lines
... NOT!

s4258788@moss:~/csse2310/exam$ ls 1dir/
apple  banana  orange
s4258788@moss:~/csse2310/exam$ cp -r 1dir/ 2dir/

s4258788@moss:~/csse2310/exam$ ls 2dir/
1dir  foo

s4258788@moss:~/csse2310/exam$ ls 2dir/1dir/
apple  banana  orange
```

mv

mv - move (rename) files

Synopsis

mv [OPTION]... [-T] SOURCE DEST

mv [OPTION]... SOURCE... DIRECTORY

mv [OPTION]... -t DIRECTORY SOURCE...

Description

Rename SOURCE to DEST, or move SOURCE(s) to DIRECTORY.

Examples

```
s4258788@moss:~/csse2310/exam$ ls
bar  foo  thatdir  thisdir

s4258788@moss:~/csse2310/exam$ mv foo foobar
s4258788@moss:~/csse2310/exam$ ls
bar  foobar  thatdir  thisdir

s4258788@moss:~/csse2310/exam$ mv foobar thatdir/
s4258788@moss:~/csse2310/exam$ ls thatdir/
foobar
s4258788@moss:~/csse2310/exam$ ls
bar  thatdir  thisdir

s4258788@moss:~/csse2310/exam$ mv thatdir/foobar ./foo
s4258788@moss:~/csse2310/exam$ ls
bar  foo  thatdir  thisdir
s4258788@moss:~/csse2310/exam$ ls thatdir/
s4258788@moss:~/csse2310/exam$
```