



MY_LS

LISTING COMMAND-LIKE



MY_LS



binary name: my_ls

language: C

compilation: via Makefile, including re, clean and fclean rules



- ✓ The totality of your source files, except all useless files (binary, temp files, obj files,...), must be included in your delivery.
- ✓ All the bonus files (including a potential specific Makefile) should be in a directory named bonus.
- ✓ Error messages have to be written on the error output, and the program should then exit with the 84 error code (0 if there is no error).

Lore: The Song of Stones and the Echo of Lost Machines

Five hundred years after our era, the world has become a vast, arid desert where relentless sandstorms sweep over the remnants of past civilizations. Technology, once omnipresent, is now just a myth. Machines, once dominant, are seen as magical relics. The few who know their secrets guard them jealously.

In this universe, a perilous profession has emerged: the “stone seekers.” These adventurers brave the most dangerous parts of the desert to uncover precious, glimmering stones sought after by the elites. But what few realize is that some of these stones are, in fact, fragments of ancient technology, imprinted with mysterious powers.

The Heroine: Aki and the Book of UNIX

Aki, a young stone seeker, grew up in a village where only the ancient tales of UNIX are passed down from generation to generation. In these tales, there is talk of ancient machines capable of controlling entire worlds using lines of code, but to the villagers, it sounds like magic. Fascinated by these stories, Aki has always dreamed of finding an artifact from the past that would reveal the hidden secrets behind these myths.

One day, during an expedition in a remote desert area, Aki is caught in a violent sandstorm. Swept away by the wind, she falls into quicksand and loses consciousness. When she awakens, she finds herself in a vast underground cavern, facing a gigantic wreck that seems to date back to before the apocalypse.

The Wreck and the Terminal: The Gate of Forgotten Knowledge

In the twilight glow of the vast underground cave, the wreck looms before Aki, a massive and ominous silhouette. The rusted walls of the ancient ship reveal centuries of neglect, covered in layers of sand deposited by forgotten storms. Once a masterpiece of technology, this wreck is now only a silent carcass, stranded in the darkness like a relic of the golden age of technology.

As Aki approaches cautiously, she feels a strange sensation, as if the place were still breathing. The ship's metal structure seems alive, a distant echo of its former glory. She runs her hands over the frozen walls, tracing the faded lines of ancient symbols—engravings from an era when humanity mastered the stars.

An electric jolt shoots through her fingers. A vibration. A sound.

Driven by an inexplicable intuition, she ventures deeper into the ship, her footsteps echoing through the deserted metal corridors. Every corner of the wreck seems to hold forgotten secrets, mysteries untouched for centuries. The path leads her to a room at the center of the ship, half-buried under debris.

The Vault Room

This room, once known to the ancients as the vault room, is different from the other parts of the wreck. Its walls are covered with technological engravings, strange diagrams, and glowing patterns that seem to pulse softly, as though the energy of that era still slumbers somewhere within. A throne of cables and circuits rises at the center of the room, guarded by a massive console—the only relic still intact amidst this sea of ruins.

Before her stands a commanding interface: a terminal, mysteriously still powered. Its black screen, streaked with dead pixels, casts a faint green glow, barely illuminating the surroundings. The terminal is old, its keys worn down by time, but it still functions, as if it has been waiting patiently for someone to awaken its dormant powers.

Aki approaches, mesmerized. She has never seen such complex technology in her life, and yet... she feels she understands it. The tales she read in the Book of UNIX, passed down by generations of storytellers, come back to her. Those stories of machines obeying human commands are no longer just legends. This terminal is real, and she stands before it, ready to unlock its secrets.

My_Ls: Unveiling the Forgotten

Still awestruck by her discovery of the wreck, Aki knows that one of the first obstacles to overcome is understanding the digital environment of this dormant carcass. The ancient terminal flickers faintly before her, a remnant of forgotten technology. But, for now, nothing is accessible. The legends of the Book of UNIX spoke of a command capable of revealing a system's files and directories—ls, like a spell to unveil the hidden.

Unfortunately, this ancient magic no longer works here. The ship has suffered too much, and the original ls command seems corrupted or lost. Aki realizes that she'll need to recreate it herself: she must forge her own My_Ls, a tool that will allow her to probe the ship's depths and uncover files forgotten for centuries.

Her first attempts are unsuccessful. The terminal responds with incomprehensible errors, and the ship's innards remain stubbornly hidden. Yet, she persists, reworking the code, rewriting functions lost in the darkness of time. Every line of code feels like a battle against the inertia of the past, but she refuses to give up.

The project

You must recode the **ls [-alRdrt] [FILE]** command.
Options can be given in either order:

```
Terminal
~/B-PSU-100> ./my_ls -l -t
...
~/B-PSU-100> ./my_ls -lRt
...
~/B-PSU-100> ./my_ls -lt -R -t
```

It must be possible to pass a list of files/folders as parameters:

```
Terminal
~/B-PSU-100> ./my_ls -l /dev /usr/sbin
...
~/B-PSU-100> ./my_ls -l -r file1 file2
...
```



Handling the column formatting without the `-l` option would be considered as a bonus point, as well as **sorting** and **coloring**.

As a bonus, you could also handle others options, such as `-uFgf`.

Examples

```
Terminal
~/B-PSU-100> ./my_ls -l -R
.:
total 156
drwxr-xr-x 2 johan johan 4096 Nov 9 15:31 dir
-rwxr-xr-x 1 johan johan 151352 Nov 30 14:32 my_ls
-rw-r-r- 1 johan johan 0 Nov 9 15:30 '#test#'
-rw-r-r- 1 johan johan 80 Nov 9 15:30 test~

./dir:
total 0
-rw-r-r- 1 johan johan 0 Nov 9 15:31 test
~/B-PSU-100> ./my_ls /bin
bash date kmod nano su uncompress
bunzip2 dd less netstat sync vdir
bzcat df lessecho networkctl systemctl wdctl
bzcmp dir lessfile nisdomainname systemd which
bzdiff dmesg lesskey pidof systemd-ask-password wslpath
bzegrep dnsdomainname lesspipe ping systemd-escape ypdomainname
bzexe domainname ln ping4 systemd-hwdb zcat
bzfgrep echo login ping6 systemd-inhibit zcmp
bzgrep egrep loginctl ps systemd-machine-id-setup zdiff
bzip2 false ls pwd systemd-notify zegrep
bzip2recover fgrep lsblk rbash systemd-sysusers zfgrep
bzless findmnt lsmod readlink systemd-tmpfiles zforce
bzmre fuser mkdir rm systemd-tty-ask-password-agent zgrep
cat grep mknod rmdir tar zless
chgrp gunzip mktemp rnano tcsh zmore
chmod gzexe more run-parts tempfile znew
chown gzip mount sed touch
cp hostname mountpoint sh true
cpio ip mt sleep udevadm
csh journalctl mt-gnu ss umount
dash kill mv stty uname
```

Authorized Functions

The only system calls allowed are the following ones:

- ✓ opendir, readdir, closedir, stat, lstat, write,
- ✓ getpwuid, getgrgid, time, ctime, readlink,
- ✓ va_start, va_arg, va_end,
- ✓ malloc, free, perror, strerror, exit.

{EPITECH}

