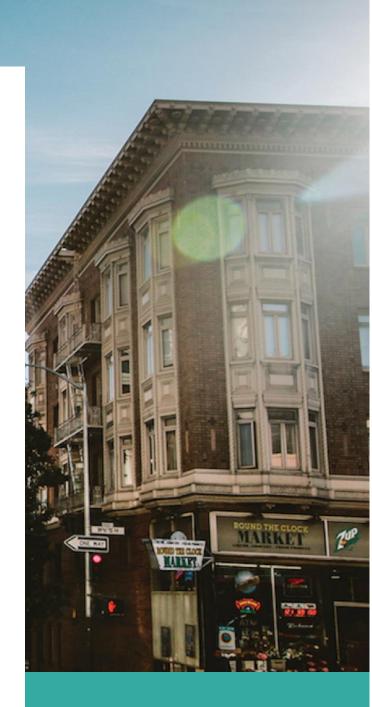# S_LINUX_04
# Making a Report

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**LINUX – DEVOPS**

# The Linux Command Line

Part 1 – Learning The Shell

**date**          **current time and date**

**cal**          **calendar**

**df**          **free space of the disk drives**

**free**          **free memory space**

**exit**          **end the terminal session**

**pwd**          **print current working dirctory path**

**cd**          **change directory**
      **cd      direct to home directoy**
      **cd -    direct to previous directory**
      **cd ~   direct to home directory of the user**

**ls**          **list the content of the directory**
      **ls -l    more details of the content**
      **ls -a    display all files and dirs including the hidden**
      **ls -A   display all except the current dir and its parent "." and ".."**
      **ls -d   display the details of the directory it self without the content**
      **ls -F   with merging "/" will classify/append indicator character to end of each file**
      **ls -h   display file size in human readable not in bytes**
      **ls -r   display content in reverse order (ascending by default)**
      **ls -S   sort by file size**
      **ls -t   sort by modification time**

**file**        identify the file type

**less**       display file content

**cp**        copy files and directories
           **cp -u**  update > copy only when it's newer version or missing
           **cp -a**  copy files with the ownership and persmissions
           **cp -i**   interactive message will popup to confirm overwrite
           **cp -r**   recursive copy all contents
           **cp -v**  verbose display informative msg after performing the copy

**mv**        move or rename files and directories

**mkdir**     create directories

**rm**        remove files and directories
           **rm -f**  force, ignore nonexistent files and overrides the -i interactive
           **rm -rf** delete file/dir and if it is not exist will continue silently

**rmdir**     remove directories

**ln**        create hard and symbolic links
           **ln**     create hard link
           **ln -s**  create symbolic link

**type**      Indicate how a command name is interpreted

**which**    Display which executable program will be executed

**help**      Get help for shell builtins

**man**      Display a command's manual page

**apropos**     Display a list of appropriate commands

**info**        Display a command's info entry

**whatis**          Display a very brief description of a command

**alias**       Create an alias for a command - create a command of our own using

     example of create alias:  alias foo='cd /usr; ls; cd -'

     example of decreate alias:      unalias foo

**Redirecting Standard Output:**
    ls -l /usr/bin > ls-output.txt

    append redirected output to a file instead of overwriting
    ls -l /usr/bin >> ls-output.txt

**Redirecting Standard Error:**
    ls -l /bin/usr 2> ls-error.txt

**Redirecting Standard Output And Standard Error To One File:**
    ls -l /bin/usr > ls-output.txt 2>&1
    ls -l /bin/usr &> ls-output.txt
    ls -l /bin/usr &>> ls-output.txt

**Disposing Of Unwanted Output:**
    ls -l /bin/usr 2> /dev/null

**Pipelines:  command1 | command2**

      **cat - Concatenate files**

      **head - Output the first part of a file**
          **head -n5 txt >> display head 5 lines**

      **tail - Output the last part of a file**
          **tail -f text    >> continues to monitor the file immediately display new lines**

      **sort - Sort lines of text**

      **uniq - Report or omit repeated lines**

      **grep - Print lines matching a pattern**

      **wc - Print newline, word, and byte counts for each file**

      **tee - Read from standard input and write to standard output and files**

**echo**      **Display a line of text**
      **Expansion:**
          **echo a{A{1,2},B{3,4}}b**
      **Pathname Expansion:**
          **echo [[:upper:]]***
      **Arithmetic Expansion:**      **$((expression))**
          **\*\* Exponentiation**
          **echo $(((5\*\*2) \* 3))**
      **Brace Expansion:**
          **echo Number_{1..5}**

**Parameter Expansion:**

    **echo $USER**

**Quoting:**

    **Double Quotes:**

        **parameter expansion, arithmetic, and command substitution take place within double quotes**

        **echo "$USER $((2+2)) $(cal)"**

    **Single Quotes:**

        **will ignore any expersions**

    **Comparison of unquoted, double quotes, and single quotes:**

    **echo text ~/*.txt {a,b} $(echo foo) $((2+2)) $USER >> text /home/me/ls-output.txt a b foo 4 me**

    **echo "text ~/*.txt {a,b} $(echo foo) $((2+2)) $USER" >> text ~/*.txt {a,b} foo 4 me**

    **echo 'text ~/*.txt {a,b} $(echo foo) $((2+2)) $USER' >> text ~/*.txt {a,b} $(echo foo) $((2+2)) $USER**

```
                                    kdawoud@localhost:/usr/bin                              ×
File   Edit   View   Search   Terminal   Help
[kdawoud@localhost bin]$ date
Sat Apr  8 22:13:26 +03 2023
[kdawoud@localhost bin]$ cal
     April 2023
Su Mo Tu We Th Fr Sa
                   1
 2  3  4  5  6  7  8
 9 10 11 12 13 14 15
16 17 18 19 20 21 22
23 24 25 26 27 28 29
30
[kdawoud@localhost bin]$ df
Filesystem          1K-blocks     Used Available Use% Mounted on
devtmpfs              2343592        0   2343592   0% /dev
tmpfs                 2373896        0   2373896   0% /dev/shm
tmpfs                 2373896    85732   2288164   4% /run
tmpfs                 2373896        0   2373896   0% /sys/fs/cgroup
/dev/mapper/cs-root  36678148  6450672  30227476  18% /
/dev/nvme0n1p1        1038336   264132    774204  26% /boot
tmpfs                  474776       52    474724   1% /run/user/1000
[kdawoud@localhost bin]$ free
              total        used        free      shared  buff/cache   available
Mem:        4747792     1699852     1815364      104616     1232576     2650544
Swap:       4194300           0     4194300
[kdawoud@localhost bin]$ pwd
/usr/bin
[kdawoud@localhost bin]$ exit
exit
[root@localhost bin]# su
[root@localhost bin]# su kdawoud
[kdawoud@localhost bin]$ cd
[kdawoud@localhost ~]$ cd -
```

```
                                    kdawoud@localhost:~                                     ×
File   Edit   View   Search   Terminal   Help
/usr/bin
[kdawoud@localhost bin]$ cd ~
[kdawoud@localhost ~]$ ls
Desktop  dir1  docs  Documents  Downloads  lodaa  Music  oldpasswd  Pictures  Public  Study  Templates  test1  Videos
[kdawoud@localhost ~]$ ls -a
.               .bash_logout    .cache    dir1        Downloads    .lesshst    .mozilla    Pictures    .ssh        test1
..              .bash_profile   .config   docs        .esd_auth    .local      Music       .pki        Study       Videos
.bash_history   .bashrc         Desktop   Documents   .ICEauthority           lodaa       oldpasswd   Public      Templates   .zshrc
[kdawoud@localhost ~]$ ls -l
total 4
drwxr-xr-x. 3 kdawoud kdawoud   81 Apr  8 22:15 Desktop
drwxrwxr-x. 3 kdawoud kdawoud   19 Apr  7 20:39 dir1
drwxrwxr-x. 2 kdawoud kdawoud   18 Apr  7 20:28 docs
drwxr-xr-x. 3 kdawoud kdawoud  118 Nov  5 14:07 Documents
drwxr-xr-x. 2 kdawoud kdawoud   33 Oct 27 17:58 Downloads
drwxrwxr-x. 2 kdawoud kdawoud   20 Nov  2 20:46 lodaa
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Music
-rw-r--r--. 1 kdawoud kdawoud 2880 Apr  7 20:55 oldpasswd
drwxr-xr-x. 2 kdawoud kdawoud   53 Oct 27 18:20 Pictures
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Public
drwxrwxr-x. 3 kdawoud kdawoud   16 Oct 27 18:07 Study
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Templates
drwxrwxr-x. 4 kdawoud kdawoud   52 Apr  7 17:42 test1
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Videos
[kdawoud@localhost ~]$ ls -A
.bash_history   .bash_profile   .cache    Desktop    docs         Downloads   .ICEauthority   .local   .mozilla   oldpasswd   .pki   .ssh   Templates   Videos
.bash_logout    .bashrc         .config   dir1       Documents    .esd_auth   .lesshst        lodaa    Music      Pictures    Public Study  test1       .zshrc
[kdawoud@localhost ~]$ ls -d
.
[kdawoud@localhost ~]$ ls -dl
drwx------. 21 kdawoud kdawoud 4096 Apr  7 20:56 .
[kdawoud@localhost ~]$
```

kdawoud@localhost:~    ✕

File   Edit   View   Search   Terminal   Help

```
[kdawoud@localhost ~]$ ls -dl
drwx------. 21 kdawoud kdawoud 4096 Apr  7 20:56 .
[kdawoud@localhost ~]$ ls -F
Desktop/  dir1/  docs/  Documents/  Downloads/  lodaa/  Music/  oldpasswd  Pictures/  Public/  Study/  Templates/  test1/  Videos/
[kdawoud@localhost ~]$ ls -h
Desktop  dir1  docs  Documents  Downloads  lodaa  Music  oldpasswd  Pictures  Public  Study  Templates  test1  Videos
[kdawoud@localhost ~]$ ls -hl
total 4.0K
drwxr-xr-x. 3 kdawoud kdawoud   94 Apr  8 22:17 Desktop
drwxrwxr-x. 3 kdawoud kdawoud   19 Apr  7 20:39 dir1
drwxrwxr-x. 2 kdawoud kdawoud   18 Apr  7 20:28 docs
drwxr-xr-x. 3 kdawoud kdawoud  118 Nov  5 14:07 Documents
drwxr-xr-x. 2 kdawoud kdawoud   33 Oct 27 17:58 Downloads
drwxrwxr-x. 3 kdawoud kdawoud   20 Nov  2 20:46 lodaa
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Music
-rw-r--r--. 1 kdawoud kdawoud 2.9K Apr  7 20:55 oldpasswd
drwxr-xr-x. 2 kdawoud kdawoud   53 Oct 27 18:20 Pictures
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Public
drwxrwxr-x. 3 kdawoud kdawoud   16 Oct 27 18:07 Study
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Templates
drwxr-xr-x. 4 kdawoud kdawoud   52 Apr  7 17:42 test1
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Videos
[kdawoud@localhost ~]$ ls -lr
total 4
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Videos
drwxr-xr-x. 4 kdawoud kdawoud   52 Apr  7 17:42 test1
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Templates
drwxrwxr-x. 3 kdawoud kdawoud   16 Oct 27 18:07 Study
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Public
drwxr-xr-x. 2 kdawoud kdawoud   53 Oct 27 18:20 Pictures
-rw-r--r--. 1 kdawoud kdawoud 2880 Apr  7 20:55 oldpasswd
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Music
```

kdawoud@localhost:~    ✕

File   Edit   View   Search   Terminal   Help

```
[kdawoud@localhost ~]$ ls -lS
total 4
-rw-r--r--. 1 kdawoud kdawoud 2880 Apr  7 20:55 oldpasswd
drwxr-xr-x. 3 kdawoud kdawoud  118 Nov  5 14:07 Documents
drwxr-xr-x. 3 kdawoud kdawoud  107 Apr  8 22:19 Desktop
drwxr-xr-x. 2 kdawoud kdawoud   53 Oct 27 18:20 Pictures
drwxrwxr-x. 4 kdawoud kdawoud   52 Apr  7 17:42 test1
drwxr-xr-x. 2 kdawoud kdawoud   33 Oct 27 17:58 Downloads
drwxrwxr-x. 2 kdawoud kdawoud   20 Nov  2 20:46 lodaa
drwxrwxr-x. 3 kdawoud kdawoud   19 Apr  7 20:39 dir1
drwxrwxr-x. 2 kdawoud kdawoud   18 Apr  7 20:28 docs
drwxrwxr-x. 3 kdawoud kdawoud   16 Oct 27 18:07 Study
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Music
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Public
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Templates
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Videos
[kdawoud@localhost ~]$ ls -lt
total 4
drwxr-xr-x. 3 kdawoud kdawoud  107 Apr  8 22:19 Desktop
-rw-r--r--. 1 kdawoud kdawoud 2880 Apr  7 20:55 oldpasswd
drwxrwxr-x. 3 kdawoud kdawoud   19 Apr  7 20:39 dir1
drwxrwxr-x. 2 kdawoud kdawoud   18 Apr  7 20:28 docs
drwxrwxr-x. 4 kdawoud kdawoud   52 Apr  7 17:42 test1
drwxr-xr-x. 3 kdawoud kdawoud  118 Nov  5 14:07 Documents
drwxrwxr-x. 2 kdawoud kdawoud   20 Nov  2 20:46 lodaa
drwxr-xr-x. 2 kdawoud kdawoud   53 Oct 27 18:20 Pictures
drwxrwxr-x. 3 kdawoud kdawoud   16 Oct 27 18:07 Study
drwxr-xr-x. 2 kdawoud kdawoud   33 Oct 27 17:58 Downloads
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Music
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Public
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Templates
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Videos
```

**8**

```
drwxr-xr-x. 3 kdawoud kdawoud  107 Apr  8 22:19 Desktop
drwxr-xr-x. 2 kdawoud kdawoud   53 Oct 27 18:20 Pictures
drwxrwxr-x. 4 kdawoud kdawoud   52 Apr  7 17:42 test1
drwxr-xr-x. 3 kdawoud kdawoud   33 Oct 27 17:58 Downloads
drwxrwxr-x. 3 kdawoud kdawoud   20 Nov  2 20:46 lodaa
drwxrwxr-x. 3 kdawoud kdawoud   19 Apr  7 20:39 dir1
drwxrwxr-x. 3 kdawoud kdawoud   18 Apr  7 20:28 docs
drwxrwxr-x. 3 kdawoud kdawoud   16 Oct 27 18:07 Study
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Music
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Public
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Templates
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Videos
[kdawoud@localhost ~]$ ls -lt
total 4
drwxr-xr-x. 3 kdawoud kdawoud  107 Apr  8 22:19 Desktop
-rw-r--r--. 1 kdawoud kdawoud 2880 Apr  7 20:55 oldpasswd
drwxrwxr-x. 3 kdawoud kdawoud   19 Apr  7 20:39 dir1
drwxrwxr-x. 3 kdawoud kdawoud   18 Apr  7 20:28 docs
drwxrwxr-x. 4 kdawoud kdawoud   52 Apr  7 17:42 test1
drwxrwxr-x. 3 kdawoud kdawoud  118 Nov  5 14:07 Documents
drwxrwxr-x. 3 kdawoud kdawoud   20 Nov  2 20:46 lodaa
drwxr-xr-x. 2 kdawoud kdawoud   53 Oct 27 18:20 Pictures
drwxr-xr-x. 3 kdawoud kdawoud   16 Oct 27 18:07 Study
drwxr-xr-x. 2 kdawoud kdawoud   33 Oct 27 17:58 Downloads
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Music
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Public
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Templates
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Videos
[kdawoud@localhost ~]$ file oldpasswd
oldpasswd: ASCII text
[kdawoud@localhost ~]$ less oldpasswd
[kdawoud@localhost ~]$ cp oldpasswd newPasswd
[kdawoud@localhost ~]$ ls
Desktop  dir1  docs  Documents  Downloads  lodaa  Music  newPasswd  oldpasswd  Pictures  Public  Study  Templates  test1  Videos
[kdawoud@localhost ~]$ cp -i newPasswd newPasswd2
[kdawoud@localhost ~]$ cp -i newPasswd newPasswd2
cp: overwrite 'newPasswd2'? 
```

```
Desktop  dir1  docs  Documents  Downloads  lodaa  Music  newPasswd  oldpasswd  Pictures  Public  Study  Templates  test1  Videos
[kdawoud@localhost ~]$ cp -i newPasswd newPasswd2
[kdawoud@localhost ~]$ cp -i newPasswd newPasswd2
cp: overwrite 'newPasswd2'? y
[kdawoud@localhost ~]$ cp -v newPasswd newPasswd2
'newPasswd' -> 'newPasswd2'
[kdawoud@localhost ~]$ cp -r test1 test2
[kdawoud@localhost ~]$ ls
Desktop  dir1  docs  Documents  Downloads  lodaa  Music  newPasswd  newPasswd2  oldpasswd  Pictures  Public  Study  Templates  test1  test2  Videos
[kdawoud@localhost ~]$ ls test2
dir1  file_passwd  test1.1
[kdawoud@localhost ~]$ mv newPasswd2 test2/
[kdawoud@localhost ~]$ ls test2
dir1  file_passwd  newPasswd2  test1.1
[kdawoud@localhost ~]$ mv test2/newPasswd2 test2/newPasswd3
[kdawoud@localhost ~]$ ls test2/
dir1  file_passwd  newPasswd3  test1.1
[kdawoud@localhost ~]$ mkdir test2/createDir
[kdawoud@localhost ~]$ ls test2/
createDir  dir1  file_passwd  newPasswd3  test1.1
[kdawoud@localhost ~]$ mkdir test2/createDir2
[kdawoud@localhost ~]$ ls test2/
createDir  createDir2  dir1  file_passwd  newPasswd3  test1.1
[kdawoud@localhost ~]$ rm /test2/newPasswd
rm: cannot remove '/test2/newPasswd': No such file or directory
[kdawoud@localhost ~]$ rm test2/newPasswd3
[kdawoud@localhost ~]$ ls test2/
createDir  createDir2  dir1  file_passwd  test1.1
[kdawoud@localhost ~]$ rm test2/createDir2
rm: cannot remove 'test2/createDir2': Is a directory
[kdawoud@localhost ~]$ rm -r test2/createDir2
[kdawoud@localhost ~]$ ls test2/
createDir  dir1  file_passwd  test1.1
[kdawoud@localhost ~]$ rm -f test2/createDir/
rm: cannot remove 'test2/createDir/': Is a directory
[kdawoud@localhost ~]$ ls test2/createDir/
[kdawoud@localhost ~]$ rm -f test2/createDir/file1
[kdawoud@localhost ~]$ rm -rf test2/createDir
```

kdawoud@localhost:~      ×

File   Edit   View   Search   Terminal   Help

```
[kdawoud@localhost ~]$ ls
Desktop  dir1  docs  Documents  Downloads  lodaa  Music  newPasswd  oldpasswd  Pictures  Public  Study  Templates  test1  test2  Videos
[kdawoud@localhost ~]$ ls dir1/
dir12
[kdawoud@localhost ~]$ ls dir1/
dir12
[kdawoud@localhost ~]$ ls dir1/dir12/
file1
[kdawoud@localhost ~]$ rmdir dir1/dir12/
rmdir: failed to remove 'dir1/dir12/': Directory not empty
[kdawoud@localhost ~]$ rmdir -f dir1/dir12/
rmdir: invalid option -- 'f'
Try 'rmdir --help' for more information.
[kdawoud@localhost ~]$ rmdir -r dir1/dir12/
rmdir: invalid option -- 'r'
Try 'rmdir --help' for more information.
[kdawoud@localhost ~]$ ls -l
total 8
drwxr-xr-x. 3 kdawoud kdawoud  146 Apr  8 22:34 Desktop
drwxrwxr-x. 3 kdawoud kdawoud   19 Apr  7 20:39 dir1
drwxrwxr-x. 2 kdawoud kdawoud   18 Apr  7 20:28 docs
drwxr-xr-x. 3 kdawoud kdawoud  118 Nov  5 14:07 Documents
drwxr-xr-x. 2 kdawoud kdawoud   33 Oct 27 17:58 Downloads
drwxrwxr-x. 3 kdawoud kdawoud   20 Nov  2 20:46 lodaa
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Music
-rw-r--r--. 1 kdawoud kdawoud 2880 Apr  8 22:23 newPasswd
-rw-r--r--. 1 kdawoud kdawoud 2880 Apr  7 20:55 oldpasswd
drwxr-xr-x. 2 kdawoud kdawoud   53 Oct 27 18:20 Pictures
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Public
drwxrwxr-x. 3 kdawoud kdawoud   16 Oct 27 18:07 Study
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Templates
drwxrwxr-x. 4 kdawoud kdawoud   52 Apr  7 17:42 test1
```

kdawoud@localhost:~      ×

File   Edit   View   Search   Terminal   Help

```
drwxrwxr-x. 5 kdawoud kdawoud   64 Apr  8 22:43 test2
drwxr-xr-x. 2 kdawoud kdawoud    6 Oct 26 06:38 Videos
[kdawoud@localhost ~]$ ls -l test2/
total 4
drwxrwxr-x. 2 kdawoud kdawoud   19 Apr  8 22:25 dir1
drwxrwxr-x. 2 kdawoud kdawoud   77 Apr  8 22:46 dir2
-rw-r--r--. 1 kdawoud kdawoud 2880 Apr  8 22:25 file_passwd
drwxrwxr-x. 2 kdawoud kdawoud   21 Apr  8 22:25 test1.1
[kdawoud@localhost ~]$ ls -l test2/dir2/
total 12
-rw-r--r--. 3 kdawoud kdawoud 2880 Apr  8 22:44 newPasswd
-rw-r--r--. 3 kdawoud kdawoud 2880 Apr  8 22:44 testLink
-rw-r--r--. 3 kdawoud kdawoud 2880 Apr  8 22:44 testLink2
lrwxrwxrwx. 1 kdawoud kdawoud    9 Apr  8 22:46 testSymbLink1 -> newPasswd
[kdawoud@localhost ~]$ type ls
ls is aliased to `ls --color=auto'
[kdawoud@localhost ~]$ which ls
alias ls='ls --color=auto'
        /usr/bin/ls
[kdawoud@localhost ~]$ ls --help
Usage: ls [OPTION]... [FILE]...
List information about the FILEs (the current directory by default).
Sort entries alphabetically if none of -cftuvSUX nor --sort is specified.

Mandatory arguments to long options are mandatory for short options too.
  -a, --all                  do not ignore entries starting with .
  -A, --almost-all           do not list implied . and ..
      --author               with -l, print the author of each file
  -b, --escape               print C-style escapes for nongraphic characters
      --block-size=SIZE      with -l, scale sizes by SIZE when printing them;
                               e.g., '--block-size=M'; see SIZE format below
  -B, --ignore-backups       do not list implied entries ending with ~
```

kdawoud@localhost:~      ✕

File   Edit   View   Search   Terminal   Help

```
Full documentation at: <https://www.gnu.org/software/coreutils/ls>
or available locally via: info '(coreutils) ls invocation'
[kdawoud@localhost ~]$ man ls
[kdawoud@localhost ~]$ apropos ls
_llseek (2)            - reposition read/write file offset
aconnect (1)           - ALSA sequencer connection manager
afs_syscall (2)        - unimplemented system calls
alsa-info.sh (1)       - command-line utility to gather information about the ALSA subsystem
alsactl (1)            - advanced controls for ALSA soundcard driver
alsactl_init (7)       - alsa control management - initialization
alsaloop (1)           - command-line PCM loopback
alsamixer (1)          - soundcard mixer for ALSA soundcard driver, with ncurses interface
alsaunmute (1)         - a simple script to initialize ALSA sound devices
amidi (1)              - read from and write to ALSA RawMIDI ports
amixer (1)             - command-line mixer for ALSA soundcard driver
aplay (1)              - command-line sound recorder and player for ALSA soundcard driver
arecord (1)            - command-line sound recorder and player for ALSA soundcard driver
aseqdump (1)           - show the events received at an ALSA sequencer port
aseqnet (1)            - ALSA sequencer connectors over network
assert (3)             - abort the program if assertion is false
axfer (1)              - command-line sound recorder and player for sound devices and nodes supported by Linux sound subsystem (Advanced Linux Sound ...
backtrace_symbols (3) - support for application self-debugging
backtrace_symbols_fd (3) - support for application self-debugging
blockdev (8)           - call block device ioctls from the command line
break (2)              - unimplemented system calls
c++filt (1)            - Demangle C++ and Java symbols.
certtool (1)           - GnuTLS certificate tool
charnames (3pm)        - access to Unicode character names and named character sequences; also define character names
cifscreds (1)          - manage NTLM credentials in kernel keyring
cockpit-tls (8)        - TLS proxy for Cockpit web service
console_ioctl (4)      - ioctls for console terminal and virtual consoles
credentials (7)        - process identifiers
```

kdawoud@localhost:~      ✕

File   Edit   View   Search   Terminal   Help

```
[kdawoud@localhost ~]$ info ls
[kdawoud@localhost ~]$ whatis ls
ls (1)                 - list directory contents
ls (1p)                - list directory contents
[kdawoud@localhost ~]$ alias foo='cd /usr; ls'
[kdawoud@localhost ~]$ foo
bin  config  games  include  lib  lib64  libexec  local  sbin  share  src  tmp
[kdawoud@localhost usr]$ unalias foo
[kdawoud@localhost usr]$ foo
bash: foo: command not found...
[kdawoud@localhost usr]$ ls -l /usr
total 276
dr-xr-xr-x.   2 root root 53248 Oct 26 02:27 bin
drwxr-xr-x.   2 root root    22 Oct 26 02:19 config
drwxr-xr-x.   2 root root     6 Jun 22  2021 games
drwxr-xr-x.   4 root root    43 Oct 26 02:21 include
dr-xr-xr-x.  43 root root  4096 Oct 26 02:22 lib
dr-xr-xr-x. 140 root root 90112 Oct 26 02:28 lib64
drwxr-xr-x.  51 root root 12288 Oct 26 02:22 libexec
drwxr-xr-x.  12 root root   131 Oct 26 02:13 local
dr-xr-xr-x.   2 root root 20480 Oct 26 02:22 sbin
drwxr-xr-x. 248 root root  8192 Oct 26 02:22 share
drwxr-xr-x.   4 root root    34 Oct 26 02:13 src
lrwxrwxrwx.   1 root root    10 Jun 22  2021 tmp -> ../var/tmp
[kdawoud@localhost usr]$ ls -l /usr/bin/ > ls_output.txt
bash: ls_output.txt: Permission denied
[kdawoud@localhost usr]$ su ls -l /usr/bin/ > ls_output.txt
bash: ls_output.txt: Permission denied
[kdawoud@localhost usr]$ sudo ls -l /usr/bin/ > ls_output.txt
bash: ls_output.txt: Permission denied
[kdawoud@localhost usr]$ cd
[kdawoud@localhost ~]$ sudo ls -l /usr/bin/ > ls_output.txt
```

```
kdawoud@localhost:~                                        ×

File  Edit  View  Search  Terminal  Help
[sudo] password for kdawoud:
^C[kdawoud@localhost ~]$
[kdawoud@localhost ~]$ ls -l /usr/bin/ > ls_output.txt
[kdawoud@localhost ~]$ cat ls_output.txt
total 170068
-rwxr-xr-x. 1 root root      54872 Jun 23  2022 [
-rwxr-xr-x. 1 root root      33864 May 11  2019 ac
-rwxr-xr-x. 1 root root      25056 Jul 11  2022 aconnect
-rwxr-xr-x. 1 root root      34080 Sep 23  2022 addr2line
-rwxr-xr-x. 1 root root         29 Apr  8  2022 alias
-rwxr-xr-x. 1 root root      84064 Jul 11  2022 alsaloop
-rwxr-xr-x. 1 root root      81520 Jul 11  2022 alsamixer
-rwxr-xr-x. 1 root root        123 Jul 11  2022 alsaunmute
lrwxrwxrwx. 1 root root         26 Oct 26 02:27 alt-java -> /etc/alternatives/alt-java
-rwxr-xr-x. 1 root root      25024 Jul 11  2022 amidi
-rwxr-xr-x. 1 root root      62440 Jul 11  2022 amixer
-rwxr-xr-x. 1 root root       2668 Jun 27  2022 amuFormat.sh
-rwxr-xr-x. 1 root root       2756 Sep 14  2022 anaconda-cleanup
-rwxr-xr-x. 1 root root        102 Sep 14  2022 anaconda-disable-nm-ibft-plugin
-rwxr-xr-x. 1 root root       8111 Sep 14  2022 analog
-rwxr-xr-x. 1 root root      82856 Jul 11  2022 aplay
-rwxr-xr-x. 1 root root      25080 Jul 11  2022 aplaymidi
-rwxr-xr-x. 1 root root      34024 May 11  2019 appstream-compose
-rwxr-xr-x. 1 root root     121208 May 11  2019 appstream-util
lrwxrwxrwx. 1 root root          6 Jun 29  2021 apropos -> whatis
-rwxr-xr-x. 1 root root      63432 Sep 23  2022 ar
-rwxr-xr-x. 1 root root      38224 Jun 23  2022 arch
lrwxrwxrwx. 1 root root          5 Jul 11  2022 arecord -> aplay
-rwxr-xr-x. 1 root root      29192 Jul 11  2022 arecordmidi
-rwxr-xr-x. 1 root root      12096 Oct  3  2022 arpaname
-rwxr-xr-x. 1 root root     911248 Sep 23  2022 as
-rwxr-xr-x. 1 root root      20912 Jul 11  2022 aseqdump
```

```
kdawoud@localhost:~                                        ×

File  Edit  View  Search  Terminal  Help
-rwxr-xr-x. 1 root root       4552 Apr 27  2022 znew
-rwxr-xr-x. 1 root root     866160 Jun  9  2022 zsh
lrwxrwxrwx. 1 root root          6 May 28  2019 zsoelim -> soelim
[kdawoud@localhost ~]$ cat ls_output.txt | less
[kdawoud@localhost ~]$ cat ls_output.txt | sort less
sort: cannot read: less: No such file or directory
[kdawoud@localhost ~]$ cat ls_output.txt | sort | less
[kdawoud@localhost ~]$ cat ls_output.txt | uniq | less
[kdawoud@localhost ~]$ wc ls_output.txt
 1667 15322 99606 ls_output.txt
[kdawoud@localhost ~]$ cat ls_output.txt | grep zip
lrwxrwxrwx. 1 root root          5 May 11  2019 bunzip2 -> bzip2
lrwxrwxrwx. 1 root root          5 May 11  2019 bzcat -> bzip2
-rwxr-xr-x. 1 root root      38472 May 11  2019 bzip2
-rwxr-xr-x. 1 root root      17560 May 11  2019 bzip2recover
-rwxr-xr-x. 1 root root      37496 Jan 28  2022 funzip
-rwxr-xr-x. 1 root root       3525 Aug 31  2022 gpg-zip
-rwxr-xr-x. 1 root root       2345 Apr 27  2022 gunzip
-rwxr-xr-x. 1 root root      96984 Apr 27  2022 gzip
lrwxrwxrwx. 1 root root          6 Jun 27  2022 mzip -> mtools
-rwxr-xr-x. 1 root root       5656 Oct 26  2021 preunzip
-rwxr-xr-x. 1 root root       5656 Oct 26  2021 prezip
-rwxr-xr-x. 1 root root      12136 Oct 26  2021 prezip-bin
-rwxr-xr-x. 2 root root     206704 Jan 28  2022 unzip
-rwxr-xr-x. 1 root root     103896 Jan 28  2022 unzipsfx
-rwxr-xr-x. 1 root root     234496 May 11  2019 zip
-rwxr-xr-x. 1 root root     105376 May 11  2019 zipcloak
-rwxr-xr-x. 1 root root       2953 Oct 10  2008 zipgrep
-rwxr-xr-x. 2 root root     206704 Jan 28  2022 zipinfo
-rwxr-xr-x. 1 root root     100104 May 11  2019 zipnote
-rwxr-xr-x. 1 root root     100112 May 11  2019 zipsplit
[kdawoud@localhost ~]$
```

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```
-rwxr-xr-x. 1 root root        5656 Oct 26  2021 preunzip
-rwxr-xr-x. 1 root root        5656 Oct 26  2021 prezip
-rwxr-xr-x. 1 root root       12136 Oct 26  2021 prezip-bin
-rwxr-xr-x. 2 root root      206704 Jan 28  2022 unzip
-rwxr-xr-x. 1 root root      103896 Jan 28  2022 unzipsfx
-rwxr-xr-x. 1 root root      234496 May 11  2019 zip
-rwxr-xr-x. 1 root root      105376 May 11  2019 zipcloak
-rwxr-xr-x. 1 root root        2953 Oct 10  2008 zipgrep
-rwxr-xr-x. 2 root root      206704 Jan 28  2022 zipinfo
-rwxr-xr-x. 1 root root      100104 May 11  2019 zipnote
-rwxr-xr-x. 1 root root      100112 May 11  2019 zipsplit
[kdawoud@localhost ~]$ head -5n ls_output.txt
head: invalid trailing option -- n
Try 'head --help' for more information.
[kdawoud@localhost ~]$ head -n5 ls_output.txt
total 170068
-rwxr-xr-x. 1 root root       54872 Jun 23  2022 [
-rwxr-xr-x. 1 root root       33864 May 11  2019 ac
-rwxr-xr-x. 1 root root       25056 Jul 11  2022 aconnect
-rwxr-xr-x. 1 root root       34080 Sep 23  2022 addr2line
[kdawoud@localhost ~]$ tail  ls_output.txt
-rwxr-xr-x. 1 root root      105376 May 11  2019 zipcloak
-rwxr-xr-x. 1 root root        2953 Oct 10  2008 zipgrep
-rwxr-xr-x. 2 root root      206704 Jan 28  2022 zipinfo
-rwxr-xr-x. 1 root root      100104 May 11  2019 zipnote
-rwxr-xr-x. 1 root root      100112 May 11  2019 zipsplit
-rwxr-xr-x. 1 root root        2205 Apr 27  2022 zless
-rwxr-xr-x. 1 root root        1841 Apr 27  2022 zmore
-rwxr-xr-x. 1 root root        4552 Apr 27  2022 znew
-rwxr-xr-x. 1 root root      866160 Jun  9  2022 zsh
lrwxrwxrwx. 1 root root           6 May 28  2019 zsoelim -> soelim
[kdawoud@localhost ~]$
```

```
-rwxr-xr-x. 2 root root      206704 Jan 28  2022 zipinfo
-rwxr-xr-x. 1 root root      100104 May 11  2019 zipnote
-rwxr-xr-x. 1 root root      100112 May 11  2019 zipsplit
[kdawoud@localhost ~]$ head -5n ls_output.txt
head: invalid trailing option -- n
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[kdawoud@localhost ~]$ head -n5 ls_output.txt
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-rwxr-xr-x. 1 root root       54872 Jun 23  2022 [
-rwxr-xr-x. 1 root root       33864 May 11  2019 ac
-rwxr-xr-x. 1 root root       25056 Jul 11  2022 aconnect
-rwxr-xr-x. 1 root root       34080 Sep 23  2022 addr2line
[kdawoud@localhost ~]$ tail  ls_output.txt
-rwxr-xr-x. 1 root root      105376 May 11  2019 zipcloak
-rwxr-xr-x. 1 root root        2953 Oct 10  2008 zipgrep
-rwxr-xr-x. 2 root root      206704 Jan 28  2022 zipinfo
-rwxr-xr-x. 1 root root      100104 May 11  2019 zipnote
-rwxr-xr-x. 1 root root      100112 May 11  2019 zipsplit
-rwxr-xr-x. 1 root root        2205 Apr 27  2022 zless
-rwxr-xr-x. 1 root root        1841 Apr 27  2022 zmore
-rwxr-xr-x. 1 root root        4552 Apr 27  2022 znew
-rwxr-xr-x. 1 root root      866160 Jun  9  2022 zsh
lrwxrwxrwx. 1 root root           6 May 28  2019 zsoelim -> soelim
[kdawoud@localhost ~]$ echo [[:upper:]]*
Desktop Documents Downloads Music Pictures Public Study Templates Videos
[kdawoud@localhost ~]$ echo $((2 + 2))
4
[kdawoud@localhost ~]$ echo a{A{1,2},B{3,4}}b
aA1b aA2b aB3b aB4b
[kdawoud@localhost ~]$ echo $USER
kdawoud
[kdawoud@localhost ~]$
```