Question-1.

1. - use a command to show the current working directory

- list the directory contents in the short and long format

(with file permissions,owner,size etc,.).

Explore attributes given in long format e.g. file type, file permissions, file size, file owner etc.

- list all files along with hidden files in current working directory.

- list only hidden files in the directory

```
root@HARSHAL-PC:/home/harshalkamble134# ls
cdac  cdac1  f1.txt  file.txt
root@HARSHAL-PC:/home/harshalkamble134# cd .
root@HARSHAL-PC:/home/harshalkamble134# ls -l
total 12
drwxr-xr-x 3 harshalkamble134 harshalkamble134 4096 Mar  9 18:22 cdac
drwxr-xr-x 2 harshalkamble134 harshalkamble134 4096 Mar  9 16:35 cdac1
-rw-r--r-- 1 harshalkamble134 harshalkamble134   17 Mar 10 12:06 f1.txt
-rwxrwxrwx 1 harshalkamble134 harshalkamble134    0 Mar 10 10:19 file.txt
root@HARSHAL-PC:/home/harshalkamble134# ls -S -l
total 12
drwxr-xr-x 3 harshalkamble134 harshalkamble134 4096 Mar  9 18:22 cdac
drwxr-xr-x 2 harshalkamble134 harshalkamble134 4096 Mar  9 16:35 cdac1
-rw-r--r-- 1 harshalkamble134 harshalkamble134   17 Mar 10 12:06 f1.txt
-rwxrwxrwx 1 harshalkamble134 harshalkamble134    0 Mar 10 10:19 file.txt
root@HARSHAL-PC:/home/harshalkamble134# ls -s
total 12
4 cdac  4 cdac1  4 f1.txt  0 file.txt
root@HARSHAL-PC:/home/harshalkamble134# pwd
/home/harshalkamble134
root@HARSHAL-PC:/home/harshalkamble134# ls -a
```

```
.  .bash_history  .bashrc   .local     .profile              .viminfo  cdac1   file.txt
..  .bash_logout   .landscape  .motd_shown  .sudo_as_admin_successful  cdac     f1.txt
root@HARSHAL-PC:/home/harshalkamble134# ls -ad .*
.  .bash_history  .bashrc   .local     .profile              .viminfo
..  .bash_logout   .landscape  .motd_shown  .sudo_as_admin_successful
root@HARSHAL-PC:/home/harshalkamble134#
```

2. Make a directory and name it as cdac-dir and change the current working directory to the new directory.(Hint : use mkdir,cd commands). 3. Create following nested directories inside current directory by invoking single command for only one time.

Note : here root_dir is current directory.

```
root@HARSHAL-PC:/home/harshalkamble134# cd
root@HARSHAL-PC:~# cd ..
root@HARSHAL-PC:/# ls
bin   dev  home  lib   lib64   lost+found  mnt  proc  run   snap  sys  usr
boot  etc  init  lib32  libx32  media      opt  root  sbin  srv   tmp  var
root@HARSHAL-PC:/# mkdir cdac-dir
root@HARSHAL-PC:/# ls
bin   cdac-dir  etc   init  lib32  libx32     media  opt   root  sbin  srv  tmp  var
boot  dev      home  lib   lib64  lost+found  mnt    proc  run   snap  sys  usr
root@HARSHAL-PC:/# cd cdac-dir
root@HARSHAL-PC:/cdac-dir# mkdir -p a1/b1 a1/b2 a2/c1 a2/c2
root@HARSHAL-PC:/cdac-dir# ls
a1  a2
root@HARSHAL-PC:/cdac-dir# tree
.
├── a1
|   ├── b1
|   └── b2
```

```
└── a2
    ├── c1
    └── c2

6 directories, 0 files
root@HARSHAL-PC:/cdac-dir# rm -rf a1 a2
root@HARSHAL-PC:/cdac-dir# mkdir -p a1/b1/c1 a2/b2/c2
root@HARSHAL-PC:/cdac-dir# tree
.
├── a1
│   └── b1
│       └── c1
└── a2
    └── b2
        └── c2

6 directories, 0 files
root@HARSHAL-PC:/cdac-dir#
```

4. List the directories(folders), then remove the cdac-dir directory and list the folders again to show that it is no longer present.(Hint : use rm, ls command).

```
root@HARSHAL-PC:/cdac-dir# cd ..
root@HARSHAL-PC:/# ls
bin   cdac-dir  etc   init  lib32  libx32     media  opt   root  sbin  srv  tmp  var
boot  dev       home  lib   lib64  lost+found  mnt    proc  run   snap  sys  usr
root@HARSHAL-PC:/# rm cdac-dir
rm: cannot remove 'cdac-dir': Is a directory
root@HARSHAL-PC:/# rm -rf cdac-dir
root@HARSHAL-PC:/# ls
bin   dev  home  lib   lib64   lost+found  mnt  proc  run   snap  sys  usr
```

boot etc init lib32 libx32 media   opt root sbin srv   tmp var

root@HARSHAL-PC:/#

Question-2.

1. Display the man-page for ls , but redirect the output into temp.txt , then use the cat, less , and more commands to display the new file

root@HARSHAL-PC:/# ls

bin   dev home lib   lib64   lost+found mnt proc run   snap sys usr

boot etc init lib32 libx32 media   opt root sbin srv   tmp var

root@HARSHAL-PC:/# man ls >>temp.txt

root@HARSHAL-PC:/# ls

bin   dev home lib   lib64   lost+found mnt proc run   snap sys   tmp var

boot etc init lib32 libx32 media   opt root sbin srv   temp.txt usr

root@HARSHAL-PC:/# cat temp.txt

LS(1) User Commands LS(1)

NAME

ls - list directory contents

SYNOPSIS

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

DESCRIPTION

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 ~

-c with -lt: sort by, and show, ctime (time of last modification of file status information); with -l:

show ctime and sort by name; otherwise: sort by ctime, newest first

-C list entries by columns

--color[=WHEN]

colorize the output; WHEN can be 'always' (default if omitted), 'auto', or 'never'; more info below

-d, --directory

list directories themselves, not their contents

-D, --dired

generate output designed for Emacs' dired mode

-f do not sort, enable -aU, disable -ls --color

-F, --classify

  append indicator (one of */=>@|) to entries

--file-type

  likewise, except do not append '*'

--format=WORD

  across -x, commas -m, horizontal -x, long -l, single-column -1, verbose -l, vertical -C

--full-time

  like -l --time-style=full-iso

-g like -l, but do not list owner

--group-directories-first

  group directories before files;

  can be augmented with a --sort option, but any use of --sort=none (-U) disables grouping

-G, --no-group

  in a long listing, don't print group names

-h, --human-readable

  with -l and -s, print sizes like 1K 234M 2G etc.

--si likewise, but use powers of 1000 not 1024

-H, --dereference-command-line

follow symbolic links listed on the command line

--dereference-command-line-symlink-to-dir

follow each command line symbolic link

that points to a directory

--hide=PATTERN

do not list implied entries matching shell PATTERN (overridden by -a or -A)

--hyperlink[=WHEN]

hyperlink file names; WHEN can be 'always' (default if omitted), 'auto', or 'never'

--indicator-style=WORD

append indicator with style WORD to entry names: none (default), slash (-p), file-type (--file-type),

classify (-F)

-i, --inode

print the index number of each file

-I, --ignore=PATTERN

do not list implied entries matching shell PATTERN

-k, --kibibytes

default to 1024-byte blocks for disk usage; used only with -s and per directory totals

-l use a long listing format

-L, --dereference

when showing file information for a symbolic link, show information for the file the link references

rather than for the link itself

-m fill width with a comma separated list of entries

-n, --numeric-uid-gid

like -l, but list numeric user and group IDs

-N, --literal

print entry names without quoting

-o like -l, but do not list group information

-p, --indicator-style=slash

append / indicator to directories

-q, --hide-control-chars

print ? instead of nongraphic characters

--show-control-chars

show nongraphic characters as-is (the default, unless program is 'ls' and output is a terminal)

-Q, --quote-name

enclose entry names in double quotes

--quoting-style=WORD

use quoting style WORD for entry names: literal, locale, shell, shell-always, shell-escape, shell-es-

cape-always, c, escape (overrides QUOTING_STYLE environment variable)

-r, --reverse

reverse order while sorting

-R, --recursive

list subdirectories recursively

-s, --size

print the allocated size of each file, in blocks

-S sort by file size, largest first

--sort=WORD

sort by WORD instead of name: none (-U), size (-S), time (-t), version (-v), extension (-X)

--time=WORD

with -l, show time as WORD instead of default modification time: atime or access or use (-u); ctime or

status (-c); also use specified time as sort key if --sort=time (newest first)

--time-style=TIME_STYLE

time/date format with -l; see TIME_STYLE below

-t sort by modification time, newest first

-T, --tabsize=COLS

assume tab stops at each COLS instead of 8

-u with -lt: sort by, and show, access time; with -l: show access time and sort by name; otherwise: sort

by access time, newest first

-U do not sort; list entries in directory order

-v natural sort of (version) numbers within text

-w, --width=COLS

set output width to COLS. 0 means no limit

-x list entries by lines instead of by columns

-X sort alphabetically by entry extension

-Z, --context

print any security context of each file

-1 list one file per line. Avoid '\n' with -q or -b

--help display this help and exit

--version

output version information and exit

The SIZE argument is an integer and optional unit (example: 10K is 10*1024). Units are K,M,G,T,P,E,Z,Y (pow-

ers of 1024) or KB,MB,... (powers of 1000).

The TIME_STYLE argument can be full-iso, long-iso, iso, locale, or +FORMAT. FORMAT is interpreted like in

date(1). If FORMAT is FORMAT1<newline>FORMAT2, then FORMAT1 applies to non-recent files and FORMAT2 to recent

files. TIME_STYLE prefixed with 'posix-' takes effect only outside the POSIX locale. Also the TIME_STYLE en-

vironment variable sets the default style to use.

Using color to distinguish file types is disabled both by default and with --color=never. With --color=auto,

ls emits color codes only when standard output is connected to a terminal. The LS_COLORS environment variable

can change the settings. Use the dircolors command to set it.

Exit status:

0 if OK,

1 if minor problems (e.g., cannot access subdirectory),

2 if serious trouble (e.g., cannot access command-line argument).

AUTHOR

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REPORTING BUGS

GNU coreutils online help: <https://www.gnu.org/software/coreutils/>

Report ls translation bugs to <https://translationproject.org/team/>

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SEE ALSO

Full documentation at: <https://www.gnu.org/software/coreutils/ls>

or available locally via: info '(coreutils) ls invocation'

2. Display the initial 10 lines and final 5 lines of temp.txt with the obvious Linux commands.(Hint: use head and tail commands).

root@HARSHAL-PC:/# head -n 10 temp.txt

LS(1) User Commands LS(1)

NAME

ls - list directory contents

SYNOPSIS

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

DESCRIPTION

List information about the FILEs (the current directory by default). Sort entries alphabetically if none of

root@HARSHAL-PC:/# tail -n 5 temp.txt

SEE ALSO

Full documentation at: <https://www.gnu.org/software/coreutils/ls>

or available locally via: info '(coreutils) ls invocation'

GNU coreutils 8.30 September 2019 LS(1)

root@HARSHAL-PC:/#

3. Copy temp.txt to another directory and rename it there.

(Hint : use cp to copy and mv command to rename).

root@HARSHAL-PC:/# mkdir cdac

root@HARSHAL-PC:/# ls

bin cdac etc init lib32 libx32 media opt root sbin srv temp.txt usr

boot dev home lib lib64 lost+found mnt proc run snap sys tmp var

root@HARSHAL-PC:/# cp temp.txt cdac

root@HARSHAL-PC:/# cd cdac

```
root@HARSHAL-PC:/cdac# ls
temp.txt
root@HARSHAL-PC:/cdac# mv temp.txt ls.txt
root@HARSHAL-PC:/cdac# ls
ls.txt
root@HARSHAL-PC:/cdac# cat ls.txt
```

4. Display the number of lines, words and characters in file using Linux command (Hint : use wc command).

```
root@HARSHAL-PC:/cdac# touch temp.txt
root@HARSHAL-PC:/cdac# ls
ls.txt  temp.txt
root@HARSHAL-PC:/cdac# cat > temp.txt
hello,
everyone My name is Harshal
I am your Classmate of PG DBDA gharghar
thanks^C
root@HARSHAL-PC:/cdac# wc temp.txt
 3 14 75 temp.txt
root@HARSHAL-PC:/cdac#
```

5. Use history command to display last 10 commands used.
(Hint : use history command).

```
root@HARSHAL-PC:/cdac# history 10
  265  cat ls.txt
  266  clear
  267  touch temp.txt
  268  ls
  269  cat > temp.txt
```

```
 270  wc temp.txt
 271  histry -n 10
 272  history
 273  history -n 10
 274  history 10
```

Question-3.

1. Create tar archive file of any directory present in your home directory.

(Hint : use tar command)

- list the contents of the archive file without extracting.

```
root@HARSHAL-PC:/home/harshalkamble134# cat > tarfile.txt
a s d f g fffefhgfdvfdbf fngnb^Z
[2]+  Stopped                 cat > tarfile.txt
root@HARSHAL-PC:/home/harshalkamble134# ls
cdac  cdac1  f1.txt  file.txt  tarfile.txt
root@HARSHAL-PC:/home/harshalkamble134# tar cf tarfile.tar  tarfile.txt
root@HARSHAL-PC:/home/harshalkamble134# ls
cdac  cdac1  f1.txt  file.txt  tarfile.tar  tarfile.txt
root@HARSHAL-PC:/home/harshalkamble134# tar tf tarfile.tar
tarfile.txt
```

2. Create zip file of another directory. (Hint : use zip command) -

list the contents of the zip file without extracting.

```
root@HARSHAL-PC:/home/harshalkamble134# ls
cdac  cdac1  f1.txt  tarfile.txt
root@HARSHAL-PC:/home/harshalkamble134# cat >file.txt
hi harshal^C
root@HARSHAL-PC:/home/harshalkamble134# gzip file.txt
root@HARSHAL-PC:/home/harshalkamble134# zmore file.txt.gz
```

```
root@HARSHAL-PC:/home/harshalkamble134# gzip -d file.txt.gz
root@HARSHAL-PC:/home/harshalkamble134# ls
cdac  cdac1  f1.txt  file.txt  tarfile.txt
root@HARSHAL-PC:/home/harshalkamble134# cat file.txt
```

3. Give read, write & execute permissions to your file. (Hint : use chmod command)

```
root@HARSHAL-PC:/home/harshalkamble134# ls -l
total 12
drwxr-xr-x 3 harshalkamble134 harshalkamble134 4096 Mar  9 18:22 cdac
drwxr-xr-x 2 harshalkamble134 harshalkamble134 4096 Mar  9 16:35 cdac1
-rw-r--r-- 1 harshalkamble134 harshalkamble134   17 Mar 10 12:06 f1.txt
-rw-r--r-- 1 root          root             0 Mar 11 09:02 file.txt
-rw-r--r-- 1 root          root             0 Mar 11 08:29 tarfile.txt
root@HARSHAL-PC:/home/harshalkamble134# chmod 777 file.txt
root@HARSHAL-PC:/home/harshalkamble134# ls
cdac  cdac1  f1.txt  file.txt  tarfile.txt
root@HARSHAL-PC:/home/harshalkamble134# ls -l
total 12
drwxr-xr-x 3 harshalkamble134 harshalkamble134 4096 Mar  9 18:22 cdac
drwxr-xr-x 2 harshalkamble134 harshalkamble134 4096 Mar  9 16:35 cdac1
-rw-r--r-- 1 harshalkamble134 harshalkamble134   17 Mar 10 12:06 f1.txt
-rwxrwxrwx 1 root          root             0 Mar 11 09:02 file.txt
-rw-r--r-- 1 root          root             0 Mar 11 08:29 tarfile.txt
root@HARSHAL-PC:/home/harshalkamble134#
```

4. Change ownership of that file.(Hint : use chown command)

```
root@HARSHAL-PC:/home/harshalkamble134# ls -l
total 12
```

```
drwxr-xr-x 3 harshalkamble134 harshalkamble134 4096 Mar  9 18:22 cdac
drwxr-xr-x 2 harshalkamble134 harshalkamble134 4096 Mar  9 16:35 cdac1
-rw-r--r-- 1 harshalkamble134 harshalkamble134   17 Mar 10 12:06 f1.txt
-rwxrwxrwx 1 root             root               0 Mar 11 09:02 file.txt
-rw-r--r-- 1 root             root               0 Mar 11 08:29 tarfile.txt
root@HARSHAL-PC:/home/harshalkamble134# chown harshalkamble134 tarfile.txt
root@HARSHAL-PC:/home/harshalkamble134# ls -l
total 12
drwxr-xr-x 3 harshalkamble134 harshalkamble134 4096 Mar  9 18:22 cdac
drwxr-xr-x 2 harshalkamble134 harshalkamble134 4096 Mar  9 16:35 cdac1
-rw-r--r-- 1 harshalkamble134 harshalkamble134   17 Mar 10 12:06 f1.txt
-rwxrwxrwx 1 root             root               0 Mar 11 09:02 file.txt
-rw-r--r-- 1 harshalkamble134 root               0 Mar 11 08:29 tarfile.txt
root@HARSHAL-PC:/home/harshalkamble134#
```

5. List processes running in shell, all running processes(Hint : use man page of ps command) and show top processes in decreasing order of their resource utilization.(Hint : use top command).

```
root@HARSHAL-PC:/home/harshalkamble134# ps
  PID TTY          TIME CMD
   68 pts/0    00:00:00 sudo
   69 pts/0    00:00:00 su
   70 pts/0    00:00:00 bash
  223 pts/0    00:00:00 cat
  252 pts/0    00:00:00 cat
  295 pts/0    00:00:00 gzip
  324 pts/0    00:00:00 cat
  419 pts/0    00:00:00 ps
root@HARSHAL-PC:/home/harshalkamble134# top
top - 09:19:33 up  3:06,  0 users,  load average: 0.00, 0.00, 0.00
```

Tasks: 12 total, 1 running, 7 sleeping, 4 stopped, 0 zombie

%Cpu(s): 0.0 us, 0.0 sy, 0.0 ni,100.0 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st

MiB Mem : 7856.5 total, 7669.1 free, 88.2 used, 99.2 buff/cache

MiB Swap: 2048.0 total, 2048.0 free, 0.0 used. 7589.8 avail Mem

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1	root	20	0	1744	1080	1016	S	0.0	0.0	0:00.05	init
7	root	20	0	1752	68	0	S	0.0	0.0	0:00.00	init
8	root	20	0	1752	76	0	S	0.0	0.0	0:00.81	init
9	harshal+	20	0	10032	4948	3244	S	0.0	0.1	0:00.03	bash
68	root	20	0	11024	4508	3812	S	0.0	0.1	0:00.01	sudo
69	root	20	0	9988	3664	3244	S	0.0	0.0	0:00.00	su
70	root	20	0	8964	4072	3420	S	0.0	0.1	0:00.54	bash
223	root	20	0	7376	520	456	T	0.0	0.0	0:00.00	cat
252	root	20	0	7376	584	520	T	0.0	0.0	0:00.00	cat
295	root	20	0	3256	656	588	T	0.0	0.0	0:00.00	gzip
324	root	20	0	7376	588	520	T	0.0	0.0	0:00.00	cat
420	root	20	0	10876	3716	3200	R	0.0	0.0	0:00.00	top

Question-4.

1. Display current time and calendar (Hint : use date, cal commands)

root@HARSHAL-PC:/home/harshalkamble134# date

Fri Mar 11 09:22:41 IST 2022

root@HARSHAL-PC:/home/harshalkamble134# cal

March 2022

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 31

root@HARSHAL-PC:/home/harshalkamble134#

2. Change the current date and time of the system to following 14th

March 2017, 10:10 AM

3. Explore following commands

who, whoami, whatis, whereis, (Hint : use man pages).

root@HARSHAL-PC:/home/harshalkamble134# date -d "14th march 2017 10:10 am"

date: invalid date ‘14th march 2017 10:10 am’

root@HARSHAL-PC:/home/harshalkamble134# date -d '14 march 2017 10:10 am'

Tue Mar 14 10:10:00 IST 2017

root@HARSHAL-PC:/home/harshalkamble134# who

root@HARSHAL-PC:/home/harshalkamble134# whoami

root

root@HARSHAL-PC:/home/harshalkamble134# whatis who

who (1) - show who is logged on

root@HARSHAL-PC:/home/harshalkamble134# whatis man

man (1) - an interface to the system reference manuals

man (7) - macros to format man pages

root@HARSHAL-PC:/home/harshalkamble134# whereis cdac

cdac:

root@HARSHAL-PC:/home/harshalkamble134# whatis whereis

whereis (1) - locate the binary, source, and manual page files for a command

root@HARSHAL-PC:/home/harshalkamble134# whereis man

man: /usr/bin/man /usr/local/man /usr/share/man /usr/share/man/man1/man.1.gz /usr/share/man/man7/man.7.gz

root@HARSHAL-PC:/home/harshalkamble134#