EXP-:1

Practice basic bash, IO redirection, pipe, file and directory operations, searching files, process management and vi/nano editor commands.

NO1

$whoami   To display the system's username

$whoami [OPTION]

$whoami –help It gives the help message and exit.

$whoami –version   It gives the version information and exit.

NO2

 $who [options] [filename]

```
onworks@sonali:~$ whoami
onworks
onworks@sonali:~$ who
onworks  tty7        2019-08-30 19:49 (:0)
onworks@sonali:~$ whoami --help
Usage: whoami [OPTION]...
Print the user name associated with the current effective user ID.
Same as id -un.

     --help     display this help and exit
     --version  output version information and exit

GNU coreutils online help: <http://www.gnu.org/software/coreutils/>
Full documentation at: <http://www.gnu.org/software/coreutils/whoami>
or available locally via: info '(coreutils) whoami invocation'
onworks@sonali:~$ whoami --version
whoami (GNU coreutils) 8.25
Copyright (C) 2016 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>.
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.

Written by Richard Mlynarik.
onworks@sonali:~$ man whoami
onworks@sonali:~$ man who
onworks@sonali:~$ who -H
NAME     LINE       TIME              COMMENT
onworks  tty7       2019-08-30 19:49 (:0)
onworks@sonali:~$ who --boot
         system boot  2019-08-30 19:49
onworks@sonali:~$ who -b
         system boot  2019-08-30 19:49
onworks@sonali:~$ who -k "who"
who: invalid option -- 'k'
Try 'who --help' for more information.
onworks@sonali:~$ man -k "who"
bsd-from (1)      - print names of those who have sent mail
from (1)          - print names of those who have sent mail
w (1)             - Show who is logged on and what they are doing.
w.procps (1)      - Show who is logged on and what they are doing.
who (1)           - show who is logged on
whoami (1)        - print effective userid
onworks@sonali:~$
```

NO3

 pwd stands for Print Working Directory. It prints the path of the working directory, starting from the root.
pwd is shell built-in command(pwd) or an actual binary(/bin/pwd).
$PWD is an environment variable which stores the path of the current directory

-L,--logical	If the environment variable PWD contains an absolute name of the current directory with "." or ".." components, then output those contents, even if they contain symbolic links. Otherwise, fall back to default (-P) behavior.

-P, --physical	Print a fully resolved name for the current directory, where all components of the name a actual directory names, and not symbolic links.
--help	Display a help message, and exit.
--version	Display version information, and exit.

NO4

ls is a Linux shell command that lists directory contents of files and directories

$ ls

'file name.txt'   filename.txt

$ ls /home/linuxconfig

$ ls -l   To show long listing information about the file/directory.

$ls -1   Display One File Per Line

$ ls -ltr   Order Files Based on Last Modified Time (In Reverse Order)

$ ls -I   Display File Inode Number

$ ls -A To show the hidden files, but not the '.' (current directory) and '..' (parent directory).

$ ls -lh   (h stands for human readable form) : To display file size in easy to read format. i.e i.e M for MB, K for KB, G for GB

$ ls -lt   Order Files Based on Last Modified Time

$ ls -R   Display Files Recursively

$ ls -a   Display Hidden Files Using ls -a

$ls -t   Open Last Edited File

$ ls -i   Hide Control Characters

```
onworks@sonali:~$ ls -S
examples.desktop  Documents    Music      Public      Videos    files
Desktop                        Downloads  Pictures    Templates  file      user_ln
onworks@sonali:~$ ls -Sr
user_ln   file     Templates  Pictures   Downloads  Desktop
files     Videos   Public     Music      Documents  examples.desktop
onworks@sonali:~$ ls -F
Desktop/     Downloads/                file@     Music/      Public/       user_ln@
Documents/   examples.desktop   files@   Pictures/   Templates/   Videos/
onworks@sonali:~$ ls -alF
total 112
drwxr-xr-x 17 onworks onworks 4096 Okt  2 18:27 ./
drwxr-xr-x  3 root    root    4096 Mai  5  2019 ../
-rw-------  1 onworks onworks   94 Mai 31  2019 .bash_history
-rw-r--r--  1 onworks onworks  220 Mai  5  2019 .bash_logout
-rw-r--r--  1 onworks onworks 3771 Mai  5  2019 .bashrc
drwx------ 12 onworks onworks 4096 Okt  2 18:01 .cache/
drwx------  3 onworks onworks 4096 Mai  5  2019 .compiz/
drwx------ 14 onworks onworks 4096 Mai  5  2019 .config/
drwxr-xr-x  2 onworks onworks 4096 Mai  5  2019 Desktop/
drwxr-xr-x  3 onworks onworks 4096 Okt  2 18:36 Documents/
drwxr-xr-x  2 onworks onworks 4096 Mai  5  2019 Downloads/
-rw-r--r--  1 onworks onworks 8980 Mai  5  2019 examples.desktop
lrwxrwxrwx  1 onworks onworks    7 Okt  2 18:26 file -> /Misic/
lrwxrwxrwx  1 onworks onworks    7 Okt  2 18:26 files -> /Music/
drwx------  2 onworks onworks 4096 Mai  5  2019 .gconf/
drwx------  3 onworks onworks 4096 Aug 30  2019 .gnupg/
-rw-------  1 onworks onworks 3496 Aug 30  2019 .ICEauthority
drwx------  3 onworks onworks 4096 Mai  5  2019 .local/
drwxr-xr-x  2 onworks onworks 4096 Mai  5  2019 Music/
drwxrwxr-x  2 onworks onworks 4096 Okt  2 18:27 .nano/
drwxr-xr-x  2 onworks onworks 4096 Mai  5  2019 Pictures/
-rw-r--r--  1 onworks onworks  655 Mai  5  2019 .profile
drwxr-xr-x  2 onworks onworks 4096 Mai  5  2019 Public/
-rw-r--r--  1 onworks onworks    0 Mai  5  2019 .sudo_as_admin_successful
drwxr-xr-x  2 onworks onworks 4096 Mai  5  2019 Templates/
lrwxrwxrwx  1 onworks onworks    6 Okt  2 18:14 user_ln -> /user/
drwxr-xr-x  2 onworks onworks 4096 Mai  5  2019 Videos/
-rw-------  1 onworks onworks   81 Aug 30  2019 .Xauthority
-rw-------  1 onworks onworks   82 Aug 30  2019 .xsession-errors
-rw-------  1 onworks onworks   82 Mai 31  2019 .xsession-errors.old
```

```
onworks@sonali:~$ ls -a
.               .cache      Downloads          .gnupg          Pictures                    user_ln
..              .compiz     examples.desktop   .ICEauthority   .profile                    Videos
.bash_history   .config     file               .local          Public                      .Xauthority
.bash_logout    Desktop     files              Music           .sudo_as_admin_successful   .xsession-errors
.bashrc         Documents   .gconf             .nano           Templates                   .xsession-errors.old
onworks@sonali:~$ ls -1
Desktop
Documents
Downloads
examples.desktop
file
files
Music
Pictures
Public
Templates
user_ln
Videos
onworks@sonali:~$ ls -lh
total 44K
drwxr-xr-x 2 onworks onworks 4,0K Mai  5  2019 Desktop
drwxr-xr-x 3 onworks onworks 4,0K Okt  2 18:36 Documents
drwxr-xr-x 2 onworks onworks 4,0K Mai  5  2019 Downloads
-rw-r--r-- 1 onworks onworks 8,8K Mai  5  2019 examples.desktop
lrwxrwxrwx 1 onworks onworks    7 Okt  2 18:26 file -> /Misic/
lrwxrwxrwx 1 onworks onworks    7 Okt  2 18:26 files -> /Music/
drwxr-xr-x 2 onworks onworks 4,0K Mai  5  2019 Music
drwxr-xr-x 2 onworks onworks 4,0K Mai  5  2019 Pictures
drwxr-xr-x 2 onworks onworks 4,0K Mai  5  2019 Public
drwxr-xr-x 2 onworks onworks 4,0K Mai  5  2019 Templates
lrwxrwxrwx 1 onworks onworks    6 Okt  2 18:14 user_ln -> /user/
drwxr-xr-x 2 onworks onworks 4,0K Mai  5  2019 Videos
onworks@sonali:~$
```

```
onworks@sonali:~$ ls -i
1572173 Desktop     1582073 examples.desktop   1572181 Music      1572178 Templates
1572180 Documents   1588471 file                1572182 Pictures   1588470 user_ln
1572177 Downloads   1588472 files               1572179 Public     1572183 Videos
onworks@sonali:~$ ls -1 -t
Documents
files
file
user_ln
Desktop
Downloads
Music
Pictures
Public
Templates
Videos
examples.desktop
onworks@sonali:~$
```

```
onworks@sonali:~$ ls
Desktop  Documents  Downloads  examples.desktop  Music  Pictures  Public  Templates  Videos
onworks@sonali:~$ cd Videos
onworks@sonali:~/Videos$ pwd
/home/onworks/Videos
onworks@sonali:~/Videos$
```

NO5

 cd is a shell builtin, and its behavior may slightly differ from shell to shell.

cd <dirname>

cd < current directory> <specified directory>

cd ~ Navigate to the Home Directory

cd - Navigate to the Previous Directory

cd ../ To switch to the /usr/local directory (one level up from the current directory

cd ~username navigate to another user's home

$cd Dir1/Dir2/Dir3.... To move two levels up to the /usr directory (the parent's parent),


```
onworks@sonali:~$ cd Documents
onworks@sonali:~/Documents$ cd ~
onworks@sonali:~$ pwd
/home/onworks
onworks@sonali:~$
```

```
onworks@sonali:~$ cd Documents
onworks@sonali:~/Documents$ cd /
onworks@sonali:/$ pwd
/
onworks@sonali:/$
```

```
onworks@sonali:~/Documents$ cd ..
onworks@sonali:~$ pwd
/home/onworks
onworks@sonali:~$
```

```
onworks@sonali:~/Documents$ cd ../..
onworks@sonali:/home$ pwd
/home
onworks@sonali:/home$
```

```
onworks@sonali:~/Music$ mkdir "new folder"
onworks@sonali:~/Music$ cd new folder
bash: cd: new: No such file or directory
onworks@sonali:~/Music$ cd "new folder"
onworks@sonali:~/Music/new folder$ 
```

NO6

The most common way to start a vi session is to tell it which file to edit. To edit a file named filename, use the command:

$vi filename

```
onworks@sonali:~/Documents$ ls
f1.txt  f2.txt  f3.txt
onworks@sonali:~/Documents$ vi f1.txt
onworks@sonali:~/Documents$ vi f4.txt
onworks@sonali:~/Documents$ ls
f1.txt  f2.txt  f3.txt  f4.txt
onworks@sonali:~/Documents$ cat f4.txt
this is my file 4
onworks@sonali:~/Documents$ vi f4.txt
onworks@sonali:~/Documents$ cat f4.txt
press i for writing

press esc and then del for erase

use j,k for scroll

save :wq
```

NO7

$nano filename Opening and Creating File

$nano –version check if it is installed on your system type

```
onworks@sonali:~/Documents$ nano file1.txt
onworks@sonali:~/Documents$ cat file1.txt
file created by nano command
onworks@sonali:~/Documents$ 
```

NO8

 The echo command in Linux is used to display a string provided by the user.

$echo [option] [string]

$echo -e 'Hello, \vWorld, \vthis \vis \vPNAP!'Use \v to create vertical tab spaces

$echo -e 'Hello, \tWorld!' Add horizontal tab spaces by using \t

$sudo echo -e 'Hello, World! \nThis is PNAP!' >> test.txtUse > or >> to include the string in an echo command in a file

$echo -e 'Hello, World! \c This is PNAP!' option allows you to use escape characters

$/bin/echo –help ;Use the --help argument to list all available echo command options:

```
onworks@sonali:~$ echo sonali
sonali
onworks@sonali:~$ echo -e "sonali \ntandon"
sonali
tandon
onworks@sonali:~$ echo -e "sonali \ttandon"
sonali  tandon
onworks@sonali:~$ a="53"
onworks@sonali:~$ b="rollno"
onworks@sonali:~$ echo $a $b
53 rollno
onworks@sonali:~$ echo -n "commnd on same line"
commnd on same lineonworks@sonali:~$ echo "os" echo "lab"
os echo lab
onworks@sonali:~$ echo -n "commnd on same line"
commnd on same lineonworks@sonali:~$ echo "os" && echo "lab"
os
lab
onworks@sonali:~$ echo "os\b lab work"
os\b lab work
onworks@sonali:~$ echo -e "os\b lab work"
o lab work
onworks@sonali:~$ echo -e "os\n lab work"
os
 lab work
onworks@sonali:~$ 
```

NO9

$ sudo hostnamectl set-hostname newNameHere To change the currently set hostname, type the following hostnamectl command

$ hostnamectl Once the name is updated, you can verify the updates using

```
onworks@sonali:~$ man hostname
onworks@sonali:~$ hostname
sonali
onworks@sonali:~$ 
```

NO10

 $touch FILE   Creating a single file

$touch FILE1 FILE2 FILE3 The syntax to create multiple files

$touch -a FILE change the Access time

NO11

 $man [opt] The command-line prograym man is used for displaying Unix and Linux manual pages (usually called manpages).

NO12

$mkdir [option] dir_name

$mkdir linux

$mkdir ls -R show recursive directory tree

$ mkdir book_titles Create a simple directory at current folder/directory

$ mkdir -p [directories]   This option enables the user to create parent directories as per the requirement.

$ mkdir -v [directories] This option displays a verbose information of each directory that is created

$ mkdir –version   This option will print the information of the version and exit

```
onworks@sonali:~$ pwd
/home/onworks
onworks@sonali:~$ mkdir directory1
onworks@sonali:~$ ls
bingo     directory1  Downloads       Music       Public      Videos
Desktop   Documents   examples.desktop  Pictures  Templates
onworks@sonali:~$
```



```
onworks@sonali:~$ pwd
/home/onworks
onworks@sonali:~$ mkdir directory1
onworks@sonali:~$ ls
bingo     directory1  Downloads       Music       Public      Videos
Desktop   Documents   examples.desktop  Pictures  Templates
onworks@sonali:~$ mkdir ~/another_folder
onworks@sonali:~$ ls
another_folder  Desktop     Documents  examples.desktop  Pictures  Templates
bingo           directory1  Downloads  Music             Public    Videos
onworks@sonali:~$
```



```
onworks@sonali:~$ mkdir -p a1/d1/g1
onworks@sonali:~$ ls
a1              bingo       directory1  Downloads       Music      Public      Videos
another_folder  Desktop     Documents   examples.desktop  Pictures  Templates
onworks@sonali:~$ cd a1/
onworks@sonali:~/a1$ ls
d1
onworks@sonali:~/a1$ cd d1/
onworks@sonali:~/a1/d1$ ls
g1
onworks@sonali:~/a1/d1$
```

NO13

$Cat [option] [file] general syntax of cat

$cat filename view a single file

$cat file1 file2 To view multiple files

$cat -n filename   view contents of a file preceding with line numbers


```
onworks@sonali:~$ ls
a1              bingo       directory1  Downloads       Music      Public      Videos
another_folder  Desktop     Documents   examples.desktop  Pictures  Templates
onworks@sonali:~$ cat bingo
use of
mv
command
onworks@sonali:~$ mv bingo ./Public/
onworks@sonali:~$ ls
a1              Desktop     Documents  examples.desktop  Pictures  Templates
another_folder  directory1  Downloads  Music             Public    Videos
onworks@sonali:~$ cd Public/
onworks@sonali:~/Public$ ls
bingo
onworks@sonali:~/Public$ cat bingo
use of
mv
command
onworks@sonali:~/Public$
```

NO14

$mv [option] source destinction

$mv [options] source_file target_file_location

$mv filename other_directory   Move files from one location to another

$mv file1 file2 file3 destination_directory Move multiple files simultaneously

$mv dir another_directory Move a directory from one place to another

```
onworks@sonali:~/Desktop$ ls
1.txt  2.txt  dir  fa  Fa  file2.txt
onworks@sonali:~/Desktop$ mv 1.txt 2.txt
onworks@sonali:~/Desktop$ cat 2.txt
file 1 context
onworks@sonali:~/Desktop$
```

```
onworks@sonali:~/Desktop$ ls
2.txt  dir  fa  Fa  file2.txt
onworks@sonali:~/Desktop$ mv 2.txt 3.txt
onworks@sonali:~/Desktop$ cat 3.txt
file 1 context
onworks@sonali:~/Desktop$
```

```
onworks@sonali:~/Desktop$ ls
dir  fa  Fa  file2.txt
onworks@sonali:~/Desktop$ mv file2.txt dir/
onworks@sonali:~/Desktop$ ls dir/
file1.txt  file2.txt
onworks@sonali:~/Desktop$
```

NO 15

 Cp [..file/dir-src][dest]

$cp -R Src_directory Dest_directory   Two directory names

$cp {options} source_file target_file   copy a file to another file

$cp {options} source_file   target_directory Copy File(s) to another directory or folder

 $cp {options} source_directory target_directory copy directory to directory

```
onworks@sonali:~$ pwd
/home/onworks
onworks@sonali:~$ mkdir src dest
onworks@sonali:~$ touch src/1 src/2
onworks@sonali:~$ ls src/
1  2
onworks@sonali:~$ ls
a1              Desktop  directory1  Downloads       file1.txt  Music     Public     Templates
another_folder  dest     Documents   examples.desktop  file2.txt  Pictures  src        Videos
onworks@sonali:~$ cp src/1 dest/
onworks@sonali:~$ ls dest/
1
onworks@sonali:~$ touch src/3
onworks@sonali:~$ ls src/
1  2  3
onworks@sonali:~$ ls dist/
ls: cannot access 'dist/': No such file or directory
onworks@sonali:~$ ls dest/
1
onworks@sonali:~$ cp src/2 src/3 dest/
onworks@sonali:~$ ls dest/
1  2  3
onworks@sonali:~$
```

NO 16

$cat [opt] [file].. display contents of file

$cat test test1 view multiple files

$cat >test2 create a file with cat

$cat song.txt | more

$cat song.txt | less

```
onworks@sonali:~/Music$ cat file.txt
this is the
use of
-n
command

onworks@sonali:~/Music$ cat -b file.txt
     1  this is the
     2  use of
     3  -n
     4  command

onworks@sonali:~/Music$
```

```
onworks@sonali:~/Music$ cat file.txt
this is the

use of
-n
command
onworks@sonali:~/Music$ cat -s file.txt
this is the

use of
-n
command

onworks@sonali:~/Music$
```

```
onworks@sonali:~/Desktop$ cat con.txt
content file 1
onworks@sonali:~/Desktop$ cat noc.txt
content file2
onworks@sonali:~/Desktop$ cat con.txt>>noc.txt
onworks@sonali:~/Desktop$ cat noc.txt
content file2
content file 1
onworks@sonali:~/Desktop$ cat con.txt noc.txt>>ccc.txt
onworks@sonali:~/Desktop$ cat ccc.txt
content file 1
content file2
content file 1
onworks@sonali:~/Desktop$
```

NO17

$rm [OPTION]... FILE...

rm command is used to remove objects such as files, directories, symbolic links and so on from the file system like UNIX

$ rm b.txt c.txt Removing more than one file at a time

$ rm a.txt Removing one file at a time

$ rm -i d.txt remove regular empty file

$ rm e.txt remove write-protected regular empty file

```
onworks@sonali:~$ cat >rat.txt
rm command^C
onworks@sonali:~$ rm rat.txt
onworks@sonali:~$ ls
a1              Desktop  dir1        Documents  examples.desktop  file2.txt  Music     Public  Templates
another_folder  dest     directory1  Downloads  file1.txt         jio        Pictures  src     Videos
onworks@sonali:~$
```

```
onworks@sonali:~$ cat >rattt.txt
jio^C
onworks@sonali:~$ cat >rajjj.txt
koi^C
onworks@sonali:~$ rm rattt.txt rajjj.txt
onworks@sonali:~$ ls
a1              Desktop   dir1          Documents  examples.desktop  file2.txt  Music     Public    Templates
another_folder  dest      directory1  Downloads  file1.txt                    jio        Pictures  src       Videos
onworks@sonali:~$
```

```
onworks@sonali:~$ mkdir d1
onworks@sonali:~$ rm -r d1
onworks@sonali:~$ ls
a1              Desktop   dir1          Documents  examples.desktop  file2.txt  Music     Public    Templates
another_folder  dest      directory1  Downloads  file1.txt                    jio        Pictures  src       Videos
onworks@sonali:~$
```

```
onworks@sonali:~$ cd Documents
onworks@sonali:~/Documents$ mkdir D1
onworks@sonali:~/Documents$ cd D1
onworks@sonali:~/Documents/D1$ cat >file1.txt
new dir delection ^C
onworks@sonali:~/Documents/D1$ cd ..
onworks@sonali:~/Documents$ rm -r D1
onworks@sonali:~/Documents$ LS
The program 'LS' is currently not installed. You can install it by typing:
sudo apt install sl
onworks@sonali:~/Documents$ ls
onworks@sonali:~/Documents$
```

```
onworks@sonali:~/Documents$ cat >doc.txt
use of -i^C
onworks@sonali:~/Documents$ rm -i doc.txt
rm: remove regular empty file 'doc.txt'? y
onworks@sonali:~/Documents$
```

NO 18

$grep [options] pattern [files]

$grep -I ünix"file.txt search for a string case

$grep -w ünix"file.txt checking for whole words in a file

```
onworks@sonali:~/Desktop$ grep "miet" con.txt
miet
onworks@sonali:~/Desktop$ grep -i "miet" con.txt
miet
onworks@sonali:~/Desktop$ clear
```

```
onworks@sonali:~/Desktop$ grep -i "miet" con.txt
miet
MIET
onworks@sonali:~/Desktop$
```

```
onworks@sonali:~/Desktop$ grep -n "miet" con.txt
1:miet
onworks@sonali:~/Desktop$
```

```
onworks@sonali:~/Desktop$ grep -ic "miet" con.txt
2
onworks@sonali:~/Desktop$ grep -in "miet" con.txt
1:miet
4:MIET
onworks@sonali:~/Desktop$ grep -iv "miet" con.txt

content file 1
onworks@sonali:~/Desktop$ grep -iE "miet" con.txt
miet
MIET
onworks@sonali:~/Desktop$
```

NO19

$date current time and date

$date[option]..[+format]

```
onworks@sonali:~$ date
Mo 3. Okt 03:36:54 CEST 2022
onworks@sonali:~$ date "+%d/%m/%y"
03/10/22
onworks@sonali:~$ date "+%H/%M/%S"
03/38/10
onworks@sonali:~$ date "+%B"
Oktober
onworks@sonali:~$ date "+%A"
Montag
onworks@sonali:~$
```

NO 20

$bc to perform any arithmetic operations

```
onworks@sonali:~$ bc
bc 1.06.95
Copyright 1991-1994, 1997, 1998, 2000, 2004, 2006 Free Software Foundation, Inc.
This is free software with ABSOLUTELY NO WARRANTY.
For details type `warranty'.
2+9
11
onworks@sonali:~$ bc
bc 1.06.95
Copyright 1991-1994, 1997, 1998, 2000, 2004, 2006 Free Software Foundation, Inc.
This is free software with ABSOLUTELY NO WARRANTY.
For details type `warranty'.
4+0;7*9
4
63
ibase =9
ibase = 9
01
1
obase = 2
5
101
89
1010000
```

NO 21

$top   Display process id

K FOR kill any process.

d For change the delay time interval.

h For help.

NO 22

$kill -l   to display all the available signals

$ps to display a list of running processes.

$kill pid to show how to use pid with Kill Command.

$kill {-signal | -s signal} pid to show how to send signal to processes.

NO 23 and NO 24

$head is used to show the first part of the file.

$head f1.txt f2.txt to show multiple files.

$head -n3 file.txt to show the 3 lines.

$tail is used to show the last part of the file to file

$tail -n3 file.txt to show the 3 lines.

```
onworks@sonali:~$ nano large.txt
onworks@sonali:~$ head large.txt
1
2
3
q
w
e
r
t
y
u
onworks@sonali:~$ tail large.txt
v
'               I
fb
f

d
cscsc
scsccd
f
b
```

```
onworks@sonali:~$ head -n3 large.txt
1
2
3
onworks@sonali:~$ tail -n3 large.txt
scsccd
f
b
```

.