

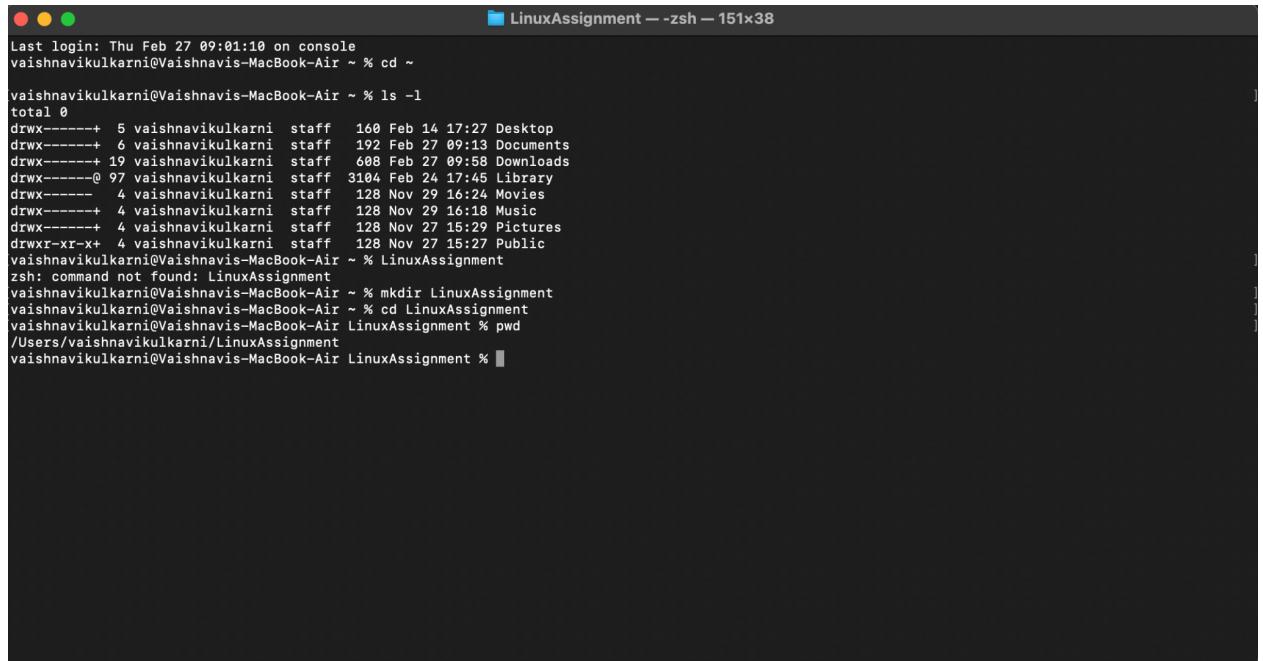
CDAC MUMBAI

Concepts of Operating System Assignment 1

Problem 1: Read the instructions carefully and answer accordingly. If there is any need to insert some data then do that as well.

a) Navigate and List:

- Start by navigating to your home directory and list its contents. Then, move into a directory named "LinuxAssignment" if it exists; otherwise, create it.



```
Last login: Thu Feb 27 09:01:10 on console
vaishnavikulkarni@Vaishnavis-MacBook-Air ~ % cd ~
vaishnavikulkarni@Vaishnavis-MacBook-Air ~ % ls -l
total 0
drwx-----+ 5 vaishnavikulkarni staff 160 Feb 14 17:27 Desktop
drwx-----+ 6 vaishnavikulkarni staff 192 Feb 27 09:13 Documents
drwx-----+ 19 vaishnavikulkarni staff 688 Feb 27 09:58 Downloads
drwx-----@ 97 vaishnavikulkarni staff 3104 Feb 24 17:45 Library
drwx----- 4 vaishnavikulkarni staff 128 Nov 29 16:24 Movies
drwx-----+ 4 vaishnavikulkarni staff 128 Nov 29 16:18 Music
drwx-----+ 4 vaishnavikulkarni staff 128 Nov 27 15:29 Pictures
drwxr-xr-x+ 4 vaishnavikulkarni staff 128 Nov 27 15:27 Public
vaishnavikulkarni@Vaishnavis-MacBook-Air ~ % LinuxAssignment
zsh: command not found: LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air ~ % mkdir LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air ~ % cd LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % pwd
/Users/vaishnavikulkarni/LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment %
```

b) File Management:

- Inside the "LinuxAssignment" directory, create a new file named "file1.txt".
Display its contents.

```

Last login: Thu Feb 27 09:01:10 on console
vaishnavikulkarni@Vaishnavis-MacBook-Air ~ % cd ~
vaishnavikulkarni@Vaishnavis-MacBook-Air ~ % ls -l
total 0
drwx-----+ 5 vaishnavikulkarni staff 160 Feb 14 17:27 Desktop
drwx-----+ 6 vaishnavikulkarni staff 192 Feb 27 09:13 Documents
drwx-----+ 19 vaishnavikulkarni staff 608 Feb 27 09:58 Downloads
drwx-----+ 97 vaishnavikulkarni staff 3104 Feb 24 17:45 Library
drwx-----+ 4 vaishnavikulkarni staff 128 Nov 29 16:24 Movies
drwx-----+ 4 vaishnavikulkarni staff 128 Nov 29 16:18 Music
drwx-----+ 4 vaishnavikulkarni staff 128 Nov 27 15:29 Pictures
drwxr-xr-x+ 4 vaishnavikulkarni staff 128 Nov 27 15:27 Public
vaishnavikulkarni@Vaishnavis-MacBook-Air ~ % LinuxAssignment
zsh: command not found: LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air ~ % mkdir LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air ~ % cd LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % pwd
/Users/vaishnavikulkarni/LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % touch file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % ls -l
total 0
-rw-r--r-- 1 vaishnavikulkarni staff 0 Feb 27 12:25 file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % cat file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % echo "Hello, This is a test file for LinuxAssignment." > file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % cat file1.txt
Hello, This is a test file for LinuxAssignment.
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % echo "Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt" > file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % cat file1.txt
Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment %

```

c) Directory Management:

- Create a new directory named "docs" inside the "LinuxAssignment" directory.

```

drwxr-xr-x+ 4 vaishnavikulkarni staff 128 Nov 27 15:27 Public
vaishnavikulkarni@Vaishnavis-MacBook-Air ~ % LinuxAssignment
zsh: command not found: LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air ~ % mkdir LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air ~ % cd LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % pwd
/Users/vaishnavikulkarni/LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % touch file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % ls -l
total 0
-rw-r--r-- 1 vaishnavikulkarni staff 0 Feb 27 12:25 file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % cat file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % echo "Hello, This is a test file for LinuxAssignment." > file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % cat file1.txt
Hello, This is a test file for LinuxAssignment.
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % echo "Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt" > file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % cat file1.txt
Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % cd ~/LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % pwd
/Users/vaishnavikulkarni/LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % mkdir docs
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % ls -l
total 8
drwxr-xr-x 2 vaishnavikulkarni staff 64 Feb 27 12:35 docs
-rw-r--r-- 1 vaishnavikulkarni staff 88 Feb 27 12:29 file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % ls -ld docs
drwxr-xr-x 2 vaishnavikulkarni staff 64 Feb 27 12:35 docs
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment %

```

d) Copy and Move Files:

- Copy the "file1.txt" file into the "docs" directory and rename it to "file2.txt".

```

vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % ls -l
total 0
-rw-r--r--  1 vaishnavikulkarni  staff  0 Feb 27 12:25 file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % cat file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % echo "Hello, This is a test file for LinuxAssignment." > file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % cat file1.txt
Hello, This is a test file for LinuxAssignment.
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % echo "Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt" > file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % cat file1.txt
Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % cd ~/LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % pwd
/Users/vaishnavikulkarni/LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % mkdir docs
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % ls -l
total 8
drwxr-xr-x  2 vaishnavikulkarni  staff  64 Feb 27 12:35 docs
-rw-r--r--  1 vaishnavikulkarni  staff  88 Feb 27 12:29 file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % ls -ld docs
drwxr-xr-x  2 vaishnavikulkarni  staff  64 Feb 27 12:35 docs
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % cd ~/LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % pwd
/Users/vaishnavikulkarni/LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % cp file1.txt docs/file2.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % ls -l docs
total 8
-rw-r--r--  1 vaishnavikulkarni  staff  88 Feb 27 12:40 file2.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % cat docs/file2.txt
Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment %

```

e) Permissions and Ownership:

- Change the permissions of "file2.txt" to allow read, write, and execute permissions for the owner and only read permissions for others. Then, change the owner of "file2.txt" to the current user.

```

vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % cat file1.txt
Hello, This is a test file for LinuxAssignment.
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % echo "Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt" > file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % cat file1.txt
Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % cd ~/LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % pwd
/Users/vaishnavikulkarni/LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % mkdir docs
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % ls -l
total 8
drwxr-xr-x  2 vaishnavikulkarni  staff  64 Feb 27 12:35 docs
-rw-r--r--  1 vaishnavikulkarni  staff  88 Feb 27 12:29 file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % ls -ld docs
drwxr-xr-x  2 vaishnavikulkarni  staff  64 Feb 27 12:35 docs
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % cd ~/LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % pwd
/Users/vaishnavikulkarni/LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % cp file1.txt docs/file2.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % ls -l docs
total 8
-rw-r--r--  1 vaishnavikulkarni  staff  88 Feb 27 12:40 file2.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % cat docs/file2.txt
Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % cd ~/LinuxAssignment
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % chmod u=rwx,g=r,o=r docs/file2.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % ls -l docs/file2.txt
-rwxr--r--  1 vaishnavikulkarni  staff  88 Feb 27 12:40 docs/file2.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment %

```

f) Final Checklist:

- Finally, list the contents of the "LinuxAssignment" directory and the root directory to ensure that all operations were performed correctly.

```
total 8
-rw-r--r--  1 vaishnavikulkarni  staff  88 Feb 27 12:40 file2.txt
vaishnavikulkarni@Vaishnavi-Air:~/Desktop/LinuxAssignment % cat docs/file2.txt

Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt
vaishnavikulkarni@Vaishnavi-Air:~/Desktop/LinuxAssignment % cd ~/LinuxAssignment

vaishnavikulkarni@Vaishnavi-Air:~/Desktop/LinuxAssignment % chmod u=rwx,g=r,o=r docs/file2.txt

vaishnavikulkarni@Vaishnavi-Air:~/Desktop/LinuxAssignment % ls -l docs/file2.txt

-rw-r--r--  1 vaishnavikulkarni  staff  88 Feb 27 12:40 docs/file2.txt
vaishnavikulkarni@Vaishnavi-Air:~/Desktop/LinuxAssignment % ls -l ~/LinuxAssignment

total 8
drwxr-xr-x  3 vaishnavikulkarni  staff  96 Feb 27 12:40 docs
-rw-r--r--  1 vaishnavikulkarni  staff  88 Feb 27 12:29 file1.txt
vaishnavikulkarni@Vaishnavi-Air:~/Desktop/LinuxAssignment % ls -l ~/LinuxAssignment/docs

total 8
-rw-r--r--  1 vaishnavikulkarni  staff  88 Feb 27 12:40 file2.txt
vaishnavikulkarni@Vaishnavi-Air:~/Desktop/LinuxAssignment % ls -l ~/LinuxAssignment/docs/file2.txt

-rw-r--r--  1 vaishnavikulkarni  staff  88 Feb 27 12:40 /Users/vaishnavikulkarni/Desktop/LinuxAssignment/docs/file2.txt
vaishnavikulkarni@Vaishnavi-Air:~/Desktop/LinuxAssignment % ls -l /
```

```
total 10
drwxrwxr-x  9 root  admin  288 Feb 27 10:00 Applications
drwxr-xr-x  66 root  wheel  2112 Feb 24 09:08 Library
drwxr-xr-x@ 10 root  wheel  320 Nov 15 10:29 System
drwxr-xr-x  5 root  admin  168 Dec  4 15:33 Users
drwxr-xr-x  3 root  wheel  96 Feb 27 08:59 Volumes
drwxr-xr-x@ 39 root  wheel  1248 Nov 15 10:29 bin
drwxr-xr-x  2 root  wheel  64 Jul 11  2023 cores
dr-xr-xr-x  4 root  wheel  4792 Feb 27 08:59 dev
lrwxr-xr-x@ 1 root  wheel  11 Nov 15 10:29 etc -> private/etc
lrwxr-xr-x@ 1 root  wheel  25 Feb 27 08:59 home -> /System/Volumes/Data/home
drwxr-xr-x  2 root  wheel  64 Jul 11  2023 opt
drwxr-xr-x  6 root  wheel  192 Feb 27 08:59 private
drwxr-xr-x@ 77 root  wheel  2464 Nov 15 10:29 sbin
drwxr-xr-x@ 11 root  wheel  352 Nov 15 10:29 usr
lrwxr-xr-x@ 3 root  wheel  11 Nov 15 10:29 var -> private/var
vaishnavikulkarni@Vaishnavi-Air:~/Desktop/LinuxAssignment %
```

g) File Searching:

- Search for all files with the extension ".txt" in the current directory and its subdirectories.
- Display lines containing a specific word in a file (provide a file name and the specific word to search).

```
total 10
drwxrwxr-x  9 root  admin  288 Feb 27 10:00 Applications
drwxr-xr-x  66 root  wheel  2112 Feb 24 09:08 Library
drwxr-xr-x@ 10 root  wheel  320 Nov 15 10:29 System
drwxr-xr-x  5 root  admin  168 Dec  4 15:33 Users
drwxr-xr-x  3 root  wheel  96 Feb 27 08:59 Volumes
drwxr-xr-x@ 39 root  wheel  1248 Nov 15 10:29 bin
drwxr-xr-x  2 root  wheel  64 Jul 11  2023 cores
dr-xr-xr-x  4 root  wheel  4792 Feb 27 08:59 dev
lrwxr-xr-x@ 1 root  wheel  11 Nov 15 10:29 etc -> private/etc
lrwxr-xr-x@ 1 root  wheel  25 Feb 27 08:59 home -> /System/Volumes/Data/home
drwxr-xr-x  2 root  wheel  64 Jul 11  2023 opt
drwxr-xr-x  6 root  wheel  192 Feb 27 08:59 private
drwxr-xr-x@ 77 root  wheel  2464 Nov 15 10:29 sbin
lrwxr-xr-x@ 1 root  wheel  11 Nov 15 10:29 tmp -> private/tmp
drwxr-xr-x@ 11 root  wheel  352 Nov 15 10:29 usr
lrwxr-xr-x@ 1 root  wheel  11 Nov 15 10:29 var -> private/var
vaishnavikulkarni@Vaishnavi-Air:~/Desktop/LinuxAssignment % find . -type f -name "*.txt"

./file1.txt
./docs/file2.txt
vaishnavikulkarni@Vaishnavi-Air:~/Desktop/LinuxAssignment % grep "Vaishnavi" file-name.txt

grep: file-name.txt: No such file or directory
vaishnavikulkarni@Vaishnavi-Air:~/Desktop/LinuxAssignment % grep "Vaishnavi" file1.txt

grep: file1.txt: No such file or directory
vaishnavikulkarni@Vaishnavi-Air:~/Desktop/LinuxAssignment % grep "Linux" file1.txt

Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt
vaishnavikulkarni@Vaishnavi-Air:~/Desktop/LinuxAssignment % grep -i "Hello" file1.txt

Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt
vaishnavikulkarni@Vaishnavi-Air:~/Desktop/LinuxAssignment % grep --color "Hello" file1.txt

Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt
vaishnavikulkarni@Vaishnavi-Air:~/Desktop/LinuxAssignment % grep "Hello" *.txt

Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt
vaishnavikulkarni@Vaishnavi-Air:~/Desktop/LinuxAssignment % grep -r "Hello" .

./file1.txt:Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt
./docs/file2.txt:Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt
vaishnavikulkarni@Vaishnavi-Air:~/Desktop/LinuxAssignment %
```

h) System Information:

- Display the current system date and time.

```
LinuxAssignment -- zsh -- 184x46

drwxr-xr-x  2 root  wheel  64 Jul 11  2023 cores
dr-xr-xr-x  4 root  wheel  4792 Feb 27  08:59 dev
lrwxr-xr-x@ 1 root  wheel   11 Nov 15 10:29 etc -> private/etc
lrwxr-xr-x  1 root  wheel   25 Feb 27  08:59 home -> /System/Volumes/Data/home
drwxr-xr-x  2 root  wheel   64 Jul 11  2023 opt
drwxr-xr-x  6 root  wheel  1092 Feb 27  08:59 private
drwxr-xr-x@ 1 root  wheel   246 Nov 15 10:29 sbin
lrwxr-xr-x@ 1 root  wheel   11 Nov 15 10:29 tmp -> private/tmp
drwxr-xr-x@ 11 root  wheel   352 Nov 15 10:29 usr
lrwxr-xr-x@ 1 root  wheel   11 Nov 15 10:29 var -> private/var
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % find . -type f -name "*.txt"

./file1.txt
./docs/file2.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % grep "Vaishnavi" file-name.txt

grep: file-name.txt: No such file or directory
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % grep "Vaishnavi" file1.txttt

grep: file1.txttt: No such file or directory
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % grep "Linux" file1.txt

Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % grep -i "Hello" file1.txt

Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % grep --color "Hello" file1.txt

Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % grep "Hello" *.txt

Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % grep -r "Hello" .

./file1.txt:Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt
./docs/file2.txt:Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % date

Thu Feb 27 13:26:06 IST 2025
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % Tue Feb 27 14:30:45 IST 2025

zsh: command not found: Tue
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % date

Thu Feb 27 13:26:35 IST 2025
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment %
```

i) Networking:

- Display the IP address of the system.

```
LinuxAssignment -- zsh -- 185x46

Thu Feb 27 13:26:35 IST 2025
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % ipconfig getifaddr en0

192.168.1.2
vaishnavikulkarni@Vaishnavis-MacBook-Air LinuxAssignment % ifconfig

lo0: flags=8049<UP,LOOPBACK,RUNNING,MULTICAST> mtu 16384
    options=1283<RXCSUM,TXCSUM,TXSTATUS,SW_TIMESTAMP>
    inet 127.0.0.1 netmask 0xffffffff
        inetd :1 prefixlen 128
        inetd fe80::1%lo0 prefixlen 64 scopeid 0x1
            nd6 options=201<PERFORMNUD,DAD>
gif0: flags=8010<POINTOPOINT,MULTICAST> mtu 1280
stf0: flags=<UP> mtu 1280
anp1: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
    options=400<CHANNEL_IO>
    ether fe:be:2e:12:04:a6
    media: none
    status: inactive
anp10: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
    options=400<CHANNEL_IO>
    ether fe:be:2e:12:04:a5
    media: none
    status: inactive
en3: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
    options=400<CHANNEL_IO>
    ether fe:be:2e:12:04:85
    nd6 options=201<PERFORMNUD,DAD>
    media: none
    status: inactive
en4: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
    options=400<CHANNEL_IO>
    ether fe:be:2e:12:04:86
    nd6 options=201<PERFORMNUD,DAD>
    media: none
    status: inactive
en1: flags=8963<UP,BROADCAST,SMART,RUNNING,PROMISC,SIMPLEX,MULTICAST> mtu 1500
    options=468<TS04,TS06,CHANNEL_IO>
    ether 36:75:82:cf:26:40
    media: autoselect <full-duplex>
    status: inactive
en2: flags=8963<UP,BROADCAST,SMART,RUNNING,PROMISC,SIMPLEX,MULTICAST> mtu 1500
    options=468<TS04,TS06,CHANNEL_IO>
    ether 36:75:82:cf:26:44
    media: autoselect <full-duplex>
```

- b. Ping a remote server to check connectivity (provide a remote server address to ping).

```

root id 0:0:0:0 priority 0 ifcost 0 port 0
ipfilter disabled flags 0x0
member: en1 flags=3<LEARNING,DISCOVER>
    imaxaddr 0 port 8 priority 0 path cost 0
member: en2 flags=3<LEARNING,DISCOVER>
    imaxaddr 0 port 9 priority 0 path cost 0
ndd options=2&4<PERFORMNUD,DAD>
media: unknown type
status: inactive
awdl0: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
options=4460<TSO4,TSO6,CHANNEL_IO,PARTIAL_CSUM,ZEROINVERT_CSUM>
ether ae:3a:00:ba:c2:df
inet6 fe80::ac3a:ffffbe:2d9%awdl0 prefixlen 64 scopeid 0xd
ndd options=2&4<PERFORMNUD,DAD>
media: autoselect
status: active
llw0: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
options=400<CHANNEL_IO>
ether ae:3a:00:ba:c2:df
inet6 fe80::ac3a:ffffbe:c2d9%llw0 prefixlen 64 scopeid 0xe
ndd options=2&4<PERFORMNUD,DAD>
media: autoselect (none)
utun0: flags=8851<UP,POINTOPOINT,RUNNING,MULTICAST> mtu 1380
inet6 fe80::d835:36de:1db1:1fb%utun0 prefixlen 64 scopeid 0xf
ndd options=2&4<PERFORMNUD,DAD>
utun1: flags=8851<UP,POINTOPOINT,RUNNING,MULTICAST> mtu 1500
inet6 fe80::f46e:7892:fb01:3612%utun1 prefixlen 64 scopeid 0x10
ndd options=2&4<PERFORMNUD,DAD>
utun2: flags=8851<UP,POINTOPOINT,RUNNING,MULTICAST> mtu 2000
inet6 fe80::7bf1:c5b1:8c81:874b%utun2 prefixlen 64 scopeid 0x11
ndd options=2&4<PERFORMNUD,DAD>
utun3: flags=8851<UP,POINTOPOINT,RUNNING,MULTICAST> mtu 1000
inet6 fe80::ce81:b1c:bd2c:69e%utun3 prefixlen 64 scopeid 0x12
ndd options=2&4<PERFORMNUD,DAD>
vaishnavikulkarni@Vaishnavis-MacBook-Air:~/LinuxAssignment % ping -c 4 google.com
PING google.com (142.250.183.46): 56 data bytes
64 bytes from 142.250.183.46: icmp_seq=0 ttl=117 time=41.302 ms
64 bytes from 142.250.183.46: icmp_seq=1 ttl=117 time=41.207 ms
64 bytes from 142.250.183.46: icmp_seq=2 ttl=117 time=40.932 ms
64 bytes from 142.250.183.46: icmp_seq=3 ttl=117 time=40.618 ms
--- google.com ping statistics ---
4 packets transmitted, 4 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 40.618/41.015/41.302/0.266 ms
vaishnavikulkarni@Vaishnavis-MacBook-Air:~/LinuxAssignment %

```

j) File Compression:

- Compress the "docs" directory into a zip file.
- Extract the contents of the zip file into a new directory.

```

status: active
1lw0: flags=863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
options=68<CHANNEL_IO>
ether e3:00:bc:c2:df
inet6 fe80::e3:00bc:c2:df
    nd6 options=201<PERFORMNUD,DAD>
    media: autoselect (none)
    flags=8051<UP,POINTOPOINT,RUNNING,MULTICAST> mtu 1380
    inet6 fe80::d835:36de:10b1:1fbkulutun0 prefixlen 64 scopeid 0xe
        nd6 options=201<PERFORMNUD,DAD>
utun0: flags=8051<UP,POINTOPOINT,RUNNING,MULTICAST> mtu 1500
    inet6 fe80::f46e:f892:f601:3612kulutun1 prefixlen 64 scopeid 0xf
        nd6 options=201<PERFORMNUD,DAD>
utun1: flags=8051<UP,POINTOPOINT,RUNNING,MULTICAST> mtu 1500
    inet6 fe80::7b4:c5bc:e8ca:874bkulutun2 prefixlen 64 scopeid 0x10
        nd6 options=201<PERFORMNUD,DAD>
utun2: flags=8051<UP,POINTOPOINT,RUNNING,MULTICAST> mtu 2000
    inet6 fe80::7b4:c5bc:e8ca:874bkulutun2 prefixlen 64 scopeid 0x11
        nd6 options=201<PERFORMNUD,DAD>
utun3: flags=8051<UP,POINTOPOINT,RUNNING,MULTICAST> mtu 1000
    inet6 fe80::ce81:b1c:bd2c:69ekulutun3 prefixlen 64 scopeid 0x12
        nd6 options=201<PERFORMNUD,DAD>
[vaishnavikulkarni@vaishnavis-MacBook-Air LinuxAssignment % ping -c 4 google.com
PING google.com (142.250.183.46): 56 data bytes
64 bytes from 142.250.183.46: icmp_seq=0 ttl=17 time=41.302 ms
64 bytes from 142.250.183.46: icmp_seq=1 ttl=17 time=41.287 ms
64 bytes from 142.250.183.46: icmp_seq=2 ttl=17 time=40.932 ms
64 bytes from 142.250.183.46: icmp_seq=3 ttl=17 time=40.618 ms
--- google.com ping statistics ---
4 packets transmitted, 4 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 40.618/41.015/41.302/0.266 ms
[vaishnavikulkarni@vaishnavis-MacBook-Air LinuxAssignment % zip -r docs.zip docs
adding: docs/ (stored 0%)
adding: docs/file2.txt (deflated 8%)
[vaishnavikulkarni@vaishnavis-MacBook-Air LinuxAssignment % mkdir extracted_docs
[vaishnavikulkarni@vaishnavis-MacBook-Air LinuxAssignment % unzip docs.zip -d extracted_docs
Archive: docs.zip
  creating: extracted_docs/docs/
  inflating: extracted_docs/docs/file2.txt
[vaishnavikulkarni@vaishnavis-MacBook-Air LinuxAssignment % ls -l extracted_docs/docs
total 8
-rw-r--r--  1 vaishnavikulkarni  staff  88 Feb 27 12:40 file2.txt
[vaishnavikulkarni@vaishnavis-MacBook-Air LinuxAssignment %

```

k) File Editing:

- Open the "file1.txt" file in a text editor and add some text to it.
- Replace a specific word in the "file1.txt" file with another word (provide the original word and the word to replace it with).

```

status: active
1lw0: flags=863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
options=68<CHANNEL_IO>
ether e3:00:bc:c2:df
inet6 fe80::e3:00bc:c2:df
    nd6 options=201<PERFORMNUD,DAD>
    media: autoselect (none)
    flags=8051<UP,POINTOPOINT,RUNNING,MULTICAST> mtu 1380
    inet6 fe80::d835:36de:10b1:1fbkulutun0 prefixlen 64 scopeid 0xe
        nd6 options=201<PERFORMNUD,DAD>
utun0: flags=8051<UP,POINTOPOINT,RUNNING,MULTICAST> mtu 1500
    inet6 fe80::f46e:f892:f601:3612kulutun1 prefixlen 64 scopeid 0xf
        nd6 options=201<PERFORMNUD,DAD>
utun1: flags=8051<UP,POINTOPOINT,RUNNING,MULTICAST> mtu 1500
    inet6 fe80::7b4:c5bc:e8ca:874bkulutun2 prefixlen 64 scopeid 0x10
        nd6 options=201<PERFORMNUD,DAD>
utun2: flags=8051<UP,POINTOPOINT,RUNNING,MULTICAST> mtu 2000
    inet6 fe80::7b4:c5bc:e8ca:874bkulutun2 prefixlen 64 scopeid 0x11
        nd6 options=201<PERFORMNUD,DAD>
utun3: flags=8051<UP,POINTOPOINT,RUNNING,MULTICAST> mtu 1000
    inet6 fe80::ce81:b1c:bd2c:69ekulutun3 prefixlen 64 scopeid 0x12
        nd6 options=201<PERFORMNUD,DAD>
[vaishnavikulkarni@vaishnavis-MacBook-Air LinuxAssignment % ping -c 4 google.com
PING google.com (142.250.183.46): 56 data bytes
64 bytes from 142.250.183.46: icmp_seq=0 ttl=17 time=41.302 ms
64 bytes from 142.250.183.46: icmp_seq=1 ttl=17 time=41.287 ms
64 bytes from 142.250.183.46: icmp_seq=2 ttl=17 time=40.932 ms
64 bytes from 142.250.183.46: icmp_seq=3 ttl=17 time=40.618 ms
--- google.com ping statistics ---
4 packets transmitted, 4 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 40.618/41.015/41.302/0.266 ms
[vaishnavikulkarni@vaishnavis-MacBook-Air LinuxAssignment % zip -r docs.zip docs
adding: docs/ (stored 0%)
adding: docs/file2.txt (deflated 8%)
[vaishnavikulkarni@vaishnavis-MacBook-Air LinuxAssignment % mkdir extracted_docs
[vaishnavikulkarni@vaishnavis-MacBook-Air LinuxAssignment % unzip docs.zip -d extracted_docs
Archive: docs.zip
  creating: extracted_docs/docs/
  inflating: extracted_docs/docs/file2.txt
[vaishnavikulkarni@vaishnavis-MacBook-Air LinuxAssignment % ls -l extracted_docs/docs
total 8
-rw-r--r--  1 vaishnavikulkarni  staff  88 Feb 27 12:40 file2.txt
[vaishnavikulkarni@vaishnavis-MacBook-Air LinuxAssignment % nano file1.txt
[vaishnavikulkarni@vaishnavis-MacBook-Air LinuxAssignment % cat file1.txt
Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment names as file1.txt
This is a new text file that i have just created.
[vaishnavikulkarni@vaishnavis-MacBook-Air LinuxAssignment % sed -i '' 's/names/named/g' file1.txt
[vaishnavikulkarni@vaishnavis-MacBook-Air LinuxAssignment % cat file1.txt
Hello, I am Vaishnavi Kulkarni, This is anew file in LinuxAssignment named as file1.txt
This is a new text file that i have just created.
[vaishnavikulkarni@vaishnavis-MacBook-Air LinuxAssignment %

```

Problem 2: Read the instructions carefully and answer accordingly. If there is any need to insert some data then do that as well.

- a. Suppose you have a file named "data.txt" containing important information. Display the first 10 lines of this file to quickly glance at its contents using a command.
- b. Now, to check the end of the file for any recent additions, display the last 5 lines of "data.txt" using another command.
- c. In a file named "numbers.txt," there are a series of numbers. Display the first 15 lines of this file to analyze the initial data set.
- d. To focus on the last few numbers of the dataset, display the last 3 lines of "numbers.txt".
- e. Imagine you have a file named "input.txt" with text content. Use a command to translate all lowercase letters to uppercase in "input.txt" and save the modified text in a new file named "output.txt."
- f. In a file named "duplicate.txt," there are several lines of text, some of which are duplicates. Use a command to display only the unique lines from "duplicate.txt."
- g. In a file named "fruit.txt," there is a list of fruits, but some fruits are repeated. Use a command to display each unique fruit along with the count of its occurrences in "fruit.txt."

Submission Guidelines:

- Document each step of your solution and any challenges faced.
- Upload it on your GitHub repository

Additional Tips:

- Experiment with different options and parameters of each command to explore their functionalities.