

screenshot of Current working directory

```
root@assignment:~/Caleb_data_engineering/raw_data#  
root@assignment:~/Caleb_data_engineering/raw_data# pwd  
/root/Caleb_data_engineering/raw_data  
root@assignment:~/Caleb_data_engineering/raw_data# |
```

Screenshot of Re-running a previous command

```
root@assignment:~/Caleb_data_engineering/processed_data# ls
cleaned_stock_data_v1.csv  stock_data_backup.csv
root@assignment:~/Caleb_data_engineering/processed_data# !!
ls
cleaned_stock_data_v1.csv  stock_data_backup.csv
root@assignment:~/Caleb_data_engineering/processed_data# |
```

screenshot of Username verification

```
root@assignment:~# cd Caleb_data_engineering
root@assignment:~/Caleb_data_engineering# whoami
root
root@assignment:~/Caleb_data_engineering# id
uid=0(root) gid=0(root) groups=0(root)
root@assignment:~/Caleb_data_engineering#
```

```
root@assignment:~# ls
Aomar_data_engineering      Stephen
Caleb_data_engineering      Stephen_Tinega_DE
Dabo_data_engineering        copiyo_data_engineering
Gwambua_data_engineering    davidkungu_data_engineering
Gmunyi_data_engineering     fmwangi_data_engineering
INjuguna_data_engineering   godwinbett_data_engineering
Jwambui_data_engineering    julietm_data_engineering
KevOsoma_data_engineering   kenneth
LNjagi_data_engineering     ndiritu-muriithi_data_engineering
Larry_data_engineering      peterouma_data_engineering
SOPHIE_MWANGI               russell_data_engineering
root@assignment:~#
```

screenshot of Folder creation

```
root@assignment:~# cd Caleb_data_engineering
root@assignment:~/Caleb_data_engineering# mkdir raw_data
root@assignment:~/Caleb_data_engineering# cd raw_data
root@assignment:~/Caleb_data_engineering/raw_data# cd
root@assignment:~# cd Caleb_data_engineering
root@assignment:~/Caleb_data_engineering# mkdir processed_data
root@assignment:~/Caleb_data_engineering# mkdir logs
root@assignment:~/Caleb_data_engineering# mkdir scripts
root@assignment:~/Caleb_data_engineering# ls
logs processed_data raw_data scripts
root@assignment:~/Caleb_data_engineering#
```

screenshot of Re-running a previous command

```
a.csv processed_data/cleaned_stock_data_v1.csv
mv: cannot stat 'processed_data/cleaned_stock_data.csv': No such file or directory
root@assignment:~/Caleb_data_engineering/processed_data# ls
cleaned_data.csv  stock_data_backup.csv
root@assignment:~/Caleb_data_engineering/processed_data# mv cleaned_data.csv cleaned_stock
ata_v1.csv
root@assignment:~/Caleb_data_engineering/processed_data# ls
cleaned_stock_data_v1.csv  stock_data_backup.csv
root@assignment:~/Caleb_data_engineering/processed_data# cd ..
root@assignment:~/Caleb_data_engineering# cd raw_data
root@assignment:~/Caleb_data_engineering/raw_data# ls
stock_data.csv
root@assignment:~/Caleb_data_engineering/raw_data# cd ~
root@assignment:~# chmod 700 Caleb_data_engineering
chmod 600 Caleb_data_engineering/raw_data/stock_data.csv
chmod 600 Caleb_data_engineering/processed_data/cleaned_stock_data_v1.csv
chmod 600 Caleb_data_engineering/logs/inventory_update.log
chmod 700 Caleb_data_engineering/scripts/process_stock.sh
root@assignment:~# ls -l Caleb_data_engineering
ls -l Caleb_data_engineering/raw_data
ls -l Caleb_data_engineering/processed_data
ls -l Caleb_data_engineering/logs
ls -l Caleb_data_engineering/scripts
total 16
drwxr-xr-x 2 root root 4096 Mar 29 15:17 logs
drwxr-xr-x 2 root root 4096 Mar 29 16:42 processed_data
drwxr-xr-x 2 root root 4096 Mar 29 16:34 raw_data
drwxr-xr-x 2 root root 4096 Mar 29 15:24 scripts
total 4
-rw----- 1 root root 276 Mar 29 15:10 stock_data.csv
total 8
-rw----- 1 root root 222 Mar 29 15:14 cleaned_stock_data_v1.csv
-rw-r--r-- 1 root root 276 Mar 29 15:29 stock_data_backup.csv
total 4
-rw----- 1 root root 109 Mar 29 15:17 inventory_update.log
total 0
-rwx----- 1 root root 0 Mar 29 14:55 process_stock.sh
root@assignment:~# ls -a
.
..
.bash_history
.bashrc
.cache
.cloud-locale-test.skip
.config
.lesshst
.local
.profile
.ssh
.viminfo
.wget-hsts
Aomar_data_engineering
Caleb_data_engineering
Dabo_data_engineering
Gwambua_data_engineering
Gmunyi_data_engineering
INjuguna_data_engineering
Jwambui_data_engineering
KevOsioma_data_engineering
LNjagi_data_engineering
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Stephen_Tinega_DE
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davidkungu_data_engineering
fmwangi_data_engineering
godwinbett_data_engineering
hosea_mutwiri_data_engineering
julietm_data_engineering
kenneth
naomi_data_engineering
ndiritu-muriithi_data_engineering
peterouma_data_engineering
russell_data_engineering
root@assignment:~# cd Caleb_data_engineering
root@assignment:~/Caleb_data_engineering#
```

screenshot of File creation

```
root@assignment:~# ^C
root@assignment:~# cd Caleb_data_engineering
root@assignment:~/Caleb_data_engineering# ls
logs processed_data raw_data scripts
root@assignment:~/Caleb_data_engineering# cd raw_data
root@assignment:~/Caleb_data_engineering/raw_data# touch stock_data.csv
root@assignment:~/Caleb_data_engineering/raw_data# cd processed_data
-bash: cd: processed_data: No such file or directory
root@assignment:~/Caleb_data_engineering/raw_data# ls
stock_data.csv
root@assignment:~/Caleb_data_engineering/raw_data# -cd
Command '-cd' not found, did you mean:
  command 'mcd' from deb mtools (4.0.43-1)
  command 'hcd' from deb hfsutils (3.2.6-15build2)
  command 'bcd' from deb bsdgames (2.17-30)
Try: apt install <deb name>
root@assignment:~/Caleb_data_engineering/raw_data# cd
root@assignment:~# cd processed_data
-bash: cd: processed_data: No such file or directory
root@assignment:~# cd Caleb_data_engineering
root@assignment:~/Caleb_data_engineering# cd processed_data
root@assignment:~/Caleb_data_engineering/processed_data# touch cleaned_data.csv
root@assignment:~/Caleb_data_engineering/processed_data# cd..
cd..: command not found
root@assignment:~/Caleb_data_engineering/processed_data# cd ..
root@assignment:~/Caleb_data_engineering# cd logs
root@assignment:~/Caleb_data_engineering/logs# inventory_update.log
inventory_update.log: command not found
root@assignment:~/Caleb_data_engineering/logs# touch inventory_update.log
root@assignment:~/Caleb_data_engineering/logs# cd ..
root@assignment:~/Caleb_data_engineering# cd logs
root@assignment:~/Caleb_data_engineering/logs# ls
inventory_update.log
root@assignment:~/Caleb_data_engineering/logs# cd ..
root@assignment:~/Caleb_data_engineering# cd script
-bash: cd: script: No such file or directory
root@assignment:~/Caleb_data_engineering# cd scripts
root@assignment:~/Caleb_data_engineering/scripts# touch process_data.sh
root@assignment:~/Caleb_data_engineering/scripts# ls
process_data.sh
root@assignment:~/Caleb_data_engineering/scripts#
```

screenshot of File copy, move, rename, and delete operations

```
root@assignment:~/Caleb_data_engineering# cd scripts
root@assignment:~/Caleb_data_engineering/scripts# touch process_data.sh
root@assignment:~/Caleb_data_engineering/scripts# ls
process_data.sh
root@assignment:~/Caleb_data_engineering/scripts# cd ..
root@assignment:~/Caleb_data_engineering# cd raw_data
root@assignment:~/Caleb_data_engineering/raw_data# cd stock_data.csv
-bash: cd: stock_data.csv: Not a directory
root@assignment:~/Caleb_data_engineering/raw_data# ls
root@assignment:~/Caleb_data_engineering/raw_data# cat stock_data.csv
item_id,item_name,category,quantity,unit_price,supplier
101,Sugar,Grocery,25,180,Mama Foods Ltd
102,Rice,Grocery,40,220,Best Grains Ltd
103,Soap,Cleaning,15,95,Fresh Home Supplies
104,Cooking Oil,Grocery,30,350,Golden Drops Ltd
105,Toothpaste,Toiletries,20,120,Smile Care Ltd
root@assignment:~/Caleb_data_engineering/raw_data# cd ..
root@assignment:~/Caleb_data_engineering# cd processed_data
root@assignment:~/Caleb_data_engineering/processed_data# ls
cleaned_data.csv
root@assignment:~/Caleb_data_engineering/processed_data# nano cleaned_data.csv
root@assignment:~/Caleb_data_engineering/processed_data# cat cleaned_data.csv
item_id,item_name,category,quantity,unit_price,total_value
101,Sugar,Grocery,25,180,4500
102,Rice,Grocery,40,220,8800
103,Soap,Cleaning,15,95,1425
104,Cooking Oil,Grocery,30,350,10500
105,Toothpaste,Toiletries,20,120,2400
root@assignment:~/Caleb_data_engineering/processed_data# cd ..
root@assignment:~/Caleb_data_engineering# cd logs
root@assignment:~/Caleb_data_engineering/logs# ls
inventory_update.log
root@assignment:~/Caleb_data_engineering/logs# nano inventory_update.log
root@assignment:~/Caleb_data_engineering/logs# cat inventory_update.log
Stock records imported successfully
Inventory cleaning process completed
Data moved to processed_data folder
root@assignment:~/Caleb_data_engineering/logs# cd ..
root@assignment:~/Caleb_data_engineering# cd scripts
root@assignment:~/Caleb_data_engineering/scripts# ls
process_data.sh
root@assignment:~/Caleb_data_engineering/scripts# nano process_data.sh
root@assignment:~/Caleb_data_engineering/scripts# ls
process_data.sh process_stock.sh
root@assignment:~/Caleb_data_engineering/scripts# mv "process_data.sh" "process_stock.sh"
root@assignment:~/Caleb_data_engineering/scripts# ls
process_stock.sh
root@assignment:~/Caleb_data_engineering/scripts# |
```

Successful server login

```
root@assignment: ~
Administrator@manu MINGW64 ~
$ ssh root@143.110.224.135
The authenticity of host '143.110.224.135 (143.110.224.135)' can't be established.
ED25519 key fingerprint is: SHA256:opB65E94v+EMKS6Kpwg1bThFrnR1UVJ+vIBXKZbgvbc
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '143.110.224.135' (ED25519) to the list of known hosts.
root@143.110.224.135's password:
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.8.0-71-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Sun Mar 22 20:35:02 UTC 2026

System load: 0.0          Processes:              103
Usage of /:  4.4% of 47.39GB   Users logged in:       1
Memory usage: 10%          IPv4 address for eth0: 143.110.224.135
Swap usage:  0%            IPv4 address for eth0: 10.48.0.5

Expanded Security Maintenance for Applications is not enabled.

166 updates can be applied immediately.
109 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

Last login: Sun Mar 22 20:22:33 2026 from 154.153.231.210
root@assignment:~#
```

Screenshot of Hidden files listing

```
root@assignment:~/Caleb_data_engineering# ls -la
total 24
drwx-----  6 root root 4096 Mar 25 19:16 .
drwx----- 31 root root 4096 Mar 30 13:24 ..
drwxr-xr-x   2 root root 4096 Mar 29 15:17 logs
drwxr-xr-x   2 root root 4096 Mar 29 16:42 processed_data
drwxr-xr-x   2 root root 4096 Mar 30 06:27 raw_data
drwxr-xr-x   2 root root 4096 Mar 29 15:24 scripts
root@assignment:~/Caleb_data_engineering# |
```

screenshot of Permission changes and script execution permission

```
a.csv processed_data/cleaned_stock_data_v1.csv
mv: cannot stat 'processed_data/cleaned_stock_data.csv': No such file or directory
root@assignment:~/Caleb_data_engineering/processed_data# ls
cleaned_data.csv  stock_data_backup.csv
root@assignment:~/Caleb_data_engineering/processed_data# mv cleaned_data.csv cleaned_stock
ata_v1.csv
root@assignment:~/Caleb_data_engineering/processed_data# ls
cleaned_stock_data_v1.csv  stock_data_backup.csv
root@assignment:~/Caleb_data_engineering/processed_data# cd ..
root@assignment:~/Caleb_data_engineering# cd raw_data
root@assignment:~/Caleb_data_engineering/raw_data# ls
stock_data.csv
root@assignment:~/Caleb_data_engineering/raw_data# cd ~
root@assignment:~# chmod 700 Caleb_data_engineering
chmod 600 Caleb_data_engineering/raw_data/stock_data.csv
chmod 600 Caleb_data_engineering/processed_data/cleaned_stock_data_v1.csv
chmod 600 Caleb_data_engineering/logs/inventory_update.log
chmod 700 Caleb_data_engineering/scripts/process_stock.sh
root@assignment:~# ls -l Caleb_data_engineering
ls -l Caleb_data_engineering/raw_data
ls -l Caleb_data_engineering/processed_data
ls -l Caleb_data_engineering/logs
ls -l Caleb_data_engineering/scripts
total 16
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drwxr-xr-x 2 root root 4096 Mar 29 16:42 processed_data
drwxr-xr-x 2 root root 4096 Mar 29 16:34 raw_data
drwxr-xr-x 2 root root 4096 Mar 29 15:24 scripts
total 4
-rw----- 1 root root 276 Mar 29 15:10 stock_data.csv
total 8
-rw----- 1 root root 222 Mar 29 15:14 cleaned_stock_data_v1.csv
-rw-r--r-- 1 root root 276 Mar 29 15:29 stock_data_backup.csv
total 4
-rw----- 1 root root 109 Mar 29 15:17 inventory_update.log
total 0
-rwx----- 1 root root 0 Mar 29 14:55 process_stock.sh
root@assignment:~# ls -a
.
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.bash_history
.bashrc
.cache
.cloud-locale-test.skip
.config
.lesshst
.local
.profile
.ssh
.viminfo
.wget-hsts
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Caleb_data_engineering
Dabo_data_engineering
Gwambua_data_engineering
Gmunyi_data_engineering
INjuguna_data_engineering
Jwambui_data_engineering
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fmwangi_data_engineering
godwinbett_data_engineering
hosea_mutwiri_data_engineering
julietm_data_engineering
kenneth
naomi_data_engineering
ndiritu-muriithi_data_engineering
peterouma_data_engineering
russell_data_engineering
root@assignment:~# cd Caleb_data_engineering
root@assignment:~/Caleb_data_engineering#
```