Title: Linux Command List Assessment

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File and Directory Operations:

ls: List files and directories

cd: Change directory

pwd: Print working

directory

mkdir: Make directory

touch: Create an empty file

cp: Copy files and directories

```
┌──(dharma⊛kali)-[~/Documents]
└─$ ls
Assignment1  a.txt

┌──(dharma⊛kali)-[~/Documents]
└─$ cp a.txt Assignment1

┌──(dharma⊛kali)-[~/Documents]
└─$ ls
Assignment1  a.txt
```

mv: Move or rename files and directories

```
┌──(dharma⊛kali)-[~/Documents/Assignment1]
└─$ ls
a.txt

┌──(dharma⊛kali)-[~/Documents/Assignment1]
└─$ mv a.txt b.txt

┌──(dharma⊛kali)-[~/Documents/Assignment1]
└─$ ls
b.txt
```

rm: Remove files and directories

```
┌──(dharma⊛kali)-[~/Documents/Assignment1]
└─$ cd /home/dharma/Documents

┌──(dharma⊛kali)-[~/Documents]
└─$ ls
Assignment1  a.txt

┌──(dharma⊛kali)-[~/Documents]
└─$ rm a.txt

┌──(dharma⊛kali)-[~/Documents]
└─$ ls
Assignment1
```

find: Search for files and directories

```
┌──(dharma⊛kali)-[~/Documents]
└─$ ls
Assignment1

┌──(dharma⊛kali)-[~/Documents]
└─$ find
.
./Assignment1
./Assignment1/b.txt
```

File Viewing and Editing:

cat: Concatenate and display file

content

```
┌──(dharma⊛kali)-[~/Documents/Assignment1]
└─$ cat b.txt
This is Dharma Teja
```

less: View file content with pagination

```
┌──(dharma☉kali)-[~/Documents/Assignment1]
└─$ less b.txt
File  Actions  Edit  View  Help
This is Dharma Teja
b.txt (END)
```

head: Display the beginning of a file

```
┌──(dharma☉kali)-[~/Documents/Assignment1]
└─$ head b.txt
This is Dharma Teja
```

tail: Display the end of a file

```
┌──(dharma☉kali)-[~/Documents/Assignment1]
└─$ tail b.txt
This is Dharma Teja
```

nano: Text editor for creating and editing files

```
┌──(dharma☉kali)-[~/Documents/Assignment1]
└─$ nano b.txt
```

```
  GNU nano 7.2                          b.txt
This is Dharma Teja




                          [ Read 1 line ]
^G Help        ^O Write Out  ^W Where Is   ^K Cut      ^T Execute
^X Exit        ^R Read File  ^\ Replace    ^U Paste    ^J Justify
```

vi/vim: Powerful text editor for experienced users

```
File  Actions  Edit  View  Help



                         VIM - Vi IMproved

                          version 9.0.1165
                       by Bram Moolenaar et al.
               Modified by team+vim@tracker.debian.org
              Vim is open source and freely distributable

                         Sponsor Vim development!
            type  :help sponsor<Enter>      for information

            type  :q<Enter>                 to exit
            type  :help<Enter>  or  <F1>  for on-line help
            type  :help version9<Enter>   for version info




                                                  0,0-1           All
```

File Permissions:

chmod: Change file permissions

```
┌──(dharma㉿kali)-[~/Documents/Assignment1]
└─$ chmod u+rwx b.txt
```

chown: Change file owner

```
┌──(dharma㉿kali)-[~/Documents/Assignment1]
└─$ chown dharma b.txt

┌──(dharma㉿kali)-[~/Documents/Assignment1]
└─$ ls -l b.txt
-rwxr--r-- 1 dharma dharma 20 May 23 06:29 b.txt
```
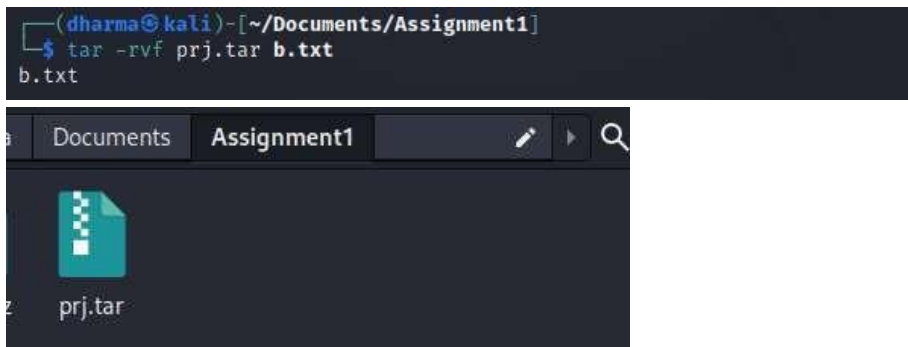
chgrp: Change file group

```
┌──(dharma㉿kali)-[~/Documents/Assignment1]
└─$ sudo chgrp dharma b.txt

┌──(dharma㉿kali)-[~/Documents/Assignment1]
└─$ ls -l
total 4
-rwxr--r-- 1 dharma dharma 20 May 23 06:29 b.txt
```
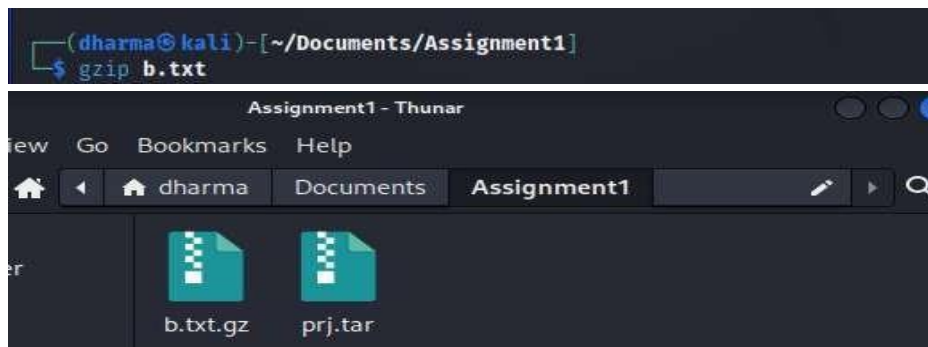
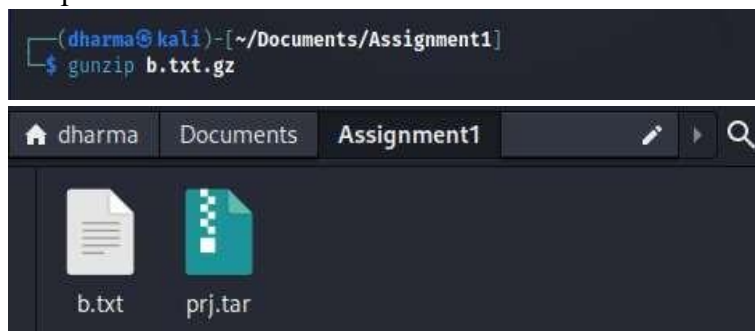## File Compression and Archiving:
 tar: Archive
files

```
┌──(dharma㊉kali)-[~/Documents/Assignment1]
└─$ tar -rvf prj.tar b.txt
b.txt
```
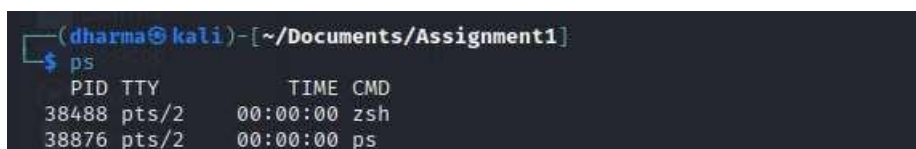
Documents **Assignment1**

prj.tar

gzip: Compress

files

```
┌──(dharma㊉kali)-[~/Documents/Assignment1]
└─$ gzip b.txt
```

Assignment1 - Thunar

iew Go Bookmarks Help

🏠 ◀ 🏠 dharma   Documents   **Assignment1**

b.txt.gz   prj.tar

unzip: Extract files from a ZIP archive

```
┌──(dharma㊉kali)-[~/Documents/Assignment1]
└─$ gunzip b.txt.gz
```

🏠 dharma   Documents   **Assignment1**

b.txt   prj.tar

Process Management:

ps: List running

processes

```
┌──(dharma㊉kali)-[~/Documents/Assignment1]
└─$ ps
    PID TTY          TIME CMD
  38488 pts/2    00:00:00 zsh
  38876 pts/2    00:00:00 ps
```

top: Display real-time system information and

processes

```
┌──(dharma㊉kali)-[~/Documents/Assignment1]
└─$ top
```

```
File  Actions  Edit  View  Help

top - 07:20:05 up  1:26,  1 user,  load average: 0.20, 0.07, 0.02
Tasks: 144 total,   1 running, 143 sleeping,   0 stopped,   0 zombie
%Cpu(s):  1.0 us,  2.0 sy,  0.0 ni, 96.9 id,  0.0 wa,  0.0 hi,  0.0 si,
MiB Mem :   3920.9 total,   2500.1 free,    971.3 used,    692.0 buff/cac
MiB Swap:    975.0 total,    975.0 free,      0.0 used.   2949.6 avail Me

   PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+
   572 root      20   0  452824 132544  74848 S   1.0   3.3   0:45.30
   900 dharma    20   0  217956   2392   2044 S   0.3   0.1   0:09.48
   957 dharma    20   0  647072 103280  78092 S   0.3   2.6   0:14.80
  1013 dharma    20   0  357664  38164  22224 S   0.3   1.0   0:10.11
     1 root      20   0  167732  12296   9064 S   0.0   0.3   0:00.92
     2 root      20   0       0      0      0 S   0.0   0.0   0:00.00
     3 root       0 -20       0      0      0 I   0.0   0.0   0:00.00
     4 root       0 -20       0      0      0 I   0.0   0.0   0:00.00
     5 root       0 -20       0      0      0 I   0.0   0.0   0:00.00
     6 root       0 -20       0      0      0 I   0.0   0.0   0:00.00
     8 root       0 -20       0      0      0 I   0.0   0.0   0:00.00
    10 root       0 -20       0      0      0 I   0.0   0.0   0:00.00
    11 root      20   0       0      0      0 I   0.0   0.0   0:00.00
    12 root      20   0       0      0      0 I   0.0   0.0   0:00.00
    13 root      20   0       0      0      0 I   0.0   0.0   0:00.00
    14 root      20   0       0      0      0 S   0.0   0.0   0:00.43
```

Kill: Terminate processes

```
┌──(dharma㊉kali)-[~/Documents/Assignment1]
└─$ kill -l
 HUP INT QUIT ILL TRAP IOT BUS FPE KILL USR1 SEGV USR2 PIPE ALRM TERM STKFLT
 CHLD CONT STOP TSTP TTIN TTOU URG XCPU XFSZ VTALRM PROF WINCH POLL PWR SYS
```

bg: Run processes in the background

```
┌──(dharma㊉kali)-[~/Documents/Assignment1]
└─$ bg
bg: no current job
```

fg: Bring background processes to the foreground

```
┌──(dharma㊉kali)-[~/Documents/Assignment1]
└─$ fg
fg: no current job
```

System Information:

uname: Print system

information

```
┌──(dharma㊉kali)-[~/Documents/Assignment1]
└─$ uname
Linux
```

df: Display disk space usage

```
┌──(dharma㊉kali)-[~/Documents/Assignment1]
└─$ df
Filesystem      1K-blocks      Used  Available Use% Mounted on
udev             1966956         0    1966956   0% /dev
tmpfs             401504       960     400544   1% /run
/dev/sda1       64753252  12741508   48689992  21% /
tmpfs            2007512         0    2007512   0% /dev/shm
tmpfs               5120         0       5120   0% /run/lock
tmpfs             401500        80     401420   1% /run/user/1000
```

free: Display memory usage

```
┌──(dharma㊉kali)-[~/Documents/Assignment1]
└─$ free
             total        used        free      shared  buff/cache   avail
able
Mem:       4015024      977568     2421316       23960      865664     303
7456
Swap:       998396           0      998396
```

uptime: Show system uptime

```
┌──(dharma㊉kali)-[~/Documents/Assignment1]
└─$ uptime
 07:24:42 up  1:31,  1 user,  load average: 0.04, 0.04, 0.00
```

who: Display logged-in users

```
┌──(dharma㊉kali)-[~/Documents/Assignment1]
└─$ who
```

w: Display logged-in users and their activities

```
┌──(dharma㊉kali)-[~/Documents/Assignment1]
└─$ w
 07:24:48 up  1:31,  1 user,  load average: 0.03, 0.04, 0.00
USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
dharma   tty7     :0               05:54    1:31m 46.98s  0.88s xfce4-sessi
```

Networking:

ifconfig: Configure network

interfaces

```
┌──(dharma㊉kali)-[~/Documents/Assignment1]
└─$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.0.2.15  netmask 255.255.255.0  broadcast 10.0.2.255
        inet6 fe80::a00:27ff:fe92:197c  prefixlen 64  scopeid 0×20<link>
        ether 08:00:27:92:19:7c  txqueuelen 1000  (Ethernet)
        RX packets 1103  bytes 975667 (952.7 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 763  bytes 92025 (89.8 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0×10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 4  bytes 240 (240.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 4  bytes 240 (240.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

ping: Send ICMP echo requests to a network host

```
┌──(dharma㊀kali)-[~/Documents/Assignment1]
└─$ ping 192.168.32.02
PING 192.168.32.02 (192.168.32.2) 56(84) bytes of data.
From 115.244.41.193 icmp_seq=1 Destination Net Unreachable
From 115.244.41.193 icmp_seq=3 Destination Net Unreachable
From 115.244.41.193 icmp_seq=7 Destination Net Unreachable
From 115.244.41.193 icmp_seq=10 Destination Net Unreachable
From 115.244.41.193 icmp_seq=13 Destination Net Unreachable
From 115.244.41.193 icmp_seq=17 Destination Net Unreachable
From 115.244.41.193 icmp_seq=18 Destination Net Unreachable
From 115.244.41.193 icmp_seq=26 Destination Net Unreachable
```

```
┌──(dharma㊀kali)-[~/Documents/Assignment1]
└─$ ping 127.0.0.1
PING 127.0.0.1 (127.0.0.1) 56(84) bytes of data.
64 bytes from 127.0.0.1: icmp_seq=1 ttl=64 time=0.016 ms
64 bytes from 127.0.0.1: icmp_seq=2 ttl=64 time=0.040 ms
64 bytes from 127.0.0.1: icmp_seq=3 ttl=64 time=0.044 ms
64 bytes from 127.0.0.1: icmp_seq=4 ttl=64 time=0.050 ms
64 bytes from 127.0.0.1: icmp_seq=5 ttl=64 time=0.039 ms
64 bytes from 127.0.0.1: icmp_seq=6 ttl=64 time=0.047 ms
64 bytes from 127.0.0.1: icmp_seq=7 ttl=64 time=0.044 ms
64 bytes from 127.0.0.1: icmp_seq=8 ttl=64 time=0.043 ms
64 bytes from 127.0.0.1: icmp_seq=9 ttl=64 time=0.035 ms
64 bytes from 127.0.0.1: icmp_seq=10 ttl=64 time=0.053 ms
64 bytes from 127.0.0.1: icmp_seq=11 ttl=64 time=0.043 ms
64 bytes from 127.0.0.1: icmp_seq=12 ttl=64 time=0.046 ms
64 bytes from 127.0.0.1: icmp_seq=13 ttl=64 time=0.048 ms
64 bytes from 127.0.0.1: icmp_seq=14 ttl=64 time=0.044 ms
```

```
┌──(dharma㊀kali)-[~/Documents/Assignment1]
└─$ ping 172.18.158.220
PING 172.18.158.220 (172.18.158.220) 56(84) bytes of data.
64 bytes from 172.18.158.220: icmp_seq=1 ttl=127 time=1.19 ms
64 bytes from 172.18.158.220: icmp_seq=2 ttl=127 time=1.44 ms
64 bytes from 172.18.158.220: icmp_seq=3 ttl=127 time=1.14 ms
64 bytes from 172.18.158.220: icmp_seq=4 ttl=127 time=1.65 ms
```

```
┌──(dharma㊀kali)-[~/Documents/Assignment1]
└─$ ping 172.19.49.115
PING 172.19.49.115 (172.19.49.115) 56(84) bytes of data.
64 bytes from 172.19.49.115: icmp_seq=1 ttl=127 time=0.990 ms
64 bytes from 172.19.49.115: icmp_seq=2 ttl=127 time=1.22 ms
64 bytes from 172.19.49.115: icmp_seq=3 ttl=127 time=1.13 ms
64 bytes from 172.19.49.115: icmp_seq=4 ttl=127 time=0.992 ms
64 bytes from 172.19.49.115: icmp_seq=5 ttl=127 time=1.07 ms
64 bytes from 172.19.49.115: icmp_seq=6 ttl=127 time=1.31 ms
64 bytes from 172.19.49.115: icmp_seq=7 ttl=127 time=1.19 ms
64 bytes from 172.19.49.115: icmp_seq=8 ttl=127 time=1.16 ms
64 bytes from 172.19.49.115: icmp_seq=9 ttl=127 time=1.48 ms
64 bytes from 172.19.49.115: icmp_seq=10 ttl=127 time=1.30 ms
64 bytes from 172.19.49.115: icmp_seq=11 ttl=127 time=1.35 ms
64 bytes from 172.19.49.115: icmp_seq=12 ttl=127 time=1.36 ms
64 bytes from 172.19.49.115: icmp_seq=13 ttl=127 time=1.07 ms
64 bytes from 172.19.49.115: icmp_seq=14 ttl=127 time=1.44 ms
64 bytes from 172.19.49.115: icmp_seq=15 ttl=127 time=1.11 ms
64 bytes from 172.19.49.115: icmp_seq=16 ttl=127 time=0.743 ms
64 bytes from 172.19.49.115: icmp_seq=17 ttl=127 time=0.705 ms
64 bytes from 172.19.49.115: icmp_seq=18 ttl=127 time=1.17 ms
64 bytes from 172.19.49.115: icmp_seq=19 ttl=127 time=0.918 ms
64 bytes from 172.19.49.115: icmp_seq=20 ttl=127 time=0.955 ms
64 bytes from 172.19.49.115: icmp_seq=21 ttl=127 time=1.25 ms
64 bytes from 172.19.49.115: icmp_seq=22 ttl=127 time=0.890 ms
```

ssh: Securely connect to a remote system

```
┌──(dharma㊀kali)-[~/Documents/Assignment1]
└─$ ssh dharma@172.18.158.220
ssh: connect to host 172.18.158.220 port 22: Connection refused
```

scp: Securely copy files between systems

```
  ┌──(dharma㉿kali)-[~/Documents/Assignment1]
  └─$ scp b.txt dharma@172.18.158.220:/home/dharma
ssh: connect to host 172.18.158.220 port 22: Connection refused
scp: Connection closed
```

wget: Download files from the web

```
  ┌──(dharma㉿kali)-[~/Documents/Assignment1]
  └─$ wget http://ftp.gnu.org/gnu/wget/wget2-2.0.0.tar.gz
--2023-05-23 07:47:43--  http://ftp.gnu.org/gnu/wget/wget2-2.0.0.tar.gz
Resolving ftp.gnu.org (ftp.gnu.org)... 209.51.188.20, 2001:470:142:3::b
Connecting to ftp.gnu.org (ftp.gnu.org)|209.51.188.20|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 3565643 (3.4M) [application/x-gzip]
Saving to: 'wget2-2.0.0.tar.gz'

wget2-2.0.0.tar.gz 100%[===================>]   3.40M  1.03MB/s    in 3.3s

2023-05-23 07:47:47 (1.03 MB/s) - 'wget2-2.0.0.tar.gz' saved [3565643/356564
3]
```

System Administration:

sudo: Execute commands with superuser privileges

```
  ┌──(dharma㉿kali)-[~/Documents/Assignment1]
  └─$ sudo
usage: sudo -h | -K | -k | -V
usage: sudo -v [-ABkNnS] [-g group] [-h host] [-p prompt] [-u user]
usage: sudo -l [-ABkNnS] [-g group] [-h host] [-p prompt] [-U user] [-u
            user] [command [arg ...]]
usage: sudo [-ABbEHkNnPS] [-r role] [-t type] [-C num] [-D directory] [-g
            group] [-h host] [-p prompt] [-R directory] [-T timeout] [-u
            user] [VAR=value] [-i | -s] [command [arg ...]]
usage: sudo -e [-ABkNnS] [-r role] [-t type] [-C num] [-D directory] [-g
            group] [-h host] [-p prompt] [-R directory] [-T timeout] [-u
            user] file ...
```

apt-get: Package management for Debian-based distributions

```
File  Actions  Edit  View  Help

  remove - Remove packages
  purge - Remove packages and config files
  autoremove - Remove automatically all unused packages
  dist-upgrade - Distribution upgrade, see apt-get(8)
  dselect-upgrade - Follow dselect selections
  build-dep - Configure build-dependencies for source packages
  satisfy - Satisfy dependency strings
  clean - Erase downloaded archive files
  autoclean - Erase old downloaded archive files
  check - Verify that there are no broken dependencies
  source - Download source archives
  download - Download the binary package into the current directory
  changelog - Download and display the changelog for the given package

See apt-get(8) for more information about the available commands.
Configuration options and syntax is detailed in apt.conf(5).
Information about how to configure sources can be found in sources.list(5).
Package and version choices can be expressed via apt_preferences(5).
Security details are available in apt-secure(8).
                            This APT has Super Cow Powers.
```

yum: Package management for Red Hat-based distributions

```
┌──(dharma㉿kali)-[~/Documents/Assignment1]
└─$ yum search firefox
Command 'yum' not found, did you mean:
  command 'sum' from deb coreutils
  command 'zum' from deb perforate
  command 'uum' from deb freewnn-jserver
  command 'num' from deb quickcal
Try: sudo apt install <deb name>
```

systemctl: Manage system services

```
File  Actions  Edit  View  Help
  UNIT                                                                         >
  proc-sys-fs-binfmt_misc.automount                                            >
  sys-devices-pci0000:00-0000:00:01.1-ata3-host2-target2:0:0-2:0:0:0-block->
  sys-devices-pci0000:00-0000:00:03.0-net-eth0.device                          >
  sys-devices-pci0000:00-0000:00:05.0-sound-card0-controlC0.device           >
  sys-devices-pci0000:00-0000:00:0d.0-ata1-host0-target0:0:0-0:0:0:0-block->
  sys-devices-pci0000:00-0000:00:0d.0-ata1-host0-target0:0:0-0:0:0:0-block->
  sys-devices-pci0000:00-0000:00:0d.0-ata1-host0-target0:0:0-0:0:0:0-block->
  sys-devices-pci0000:00-0000:00:0d.0-ata1-host0-target0:0:0-0:0:0:0-block->
  sys-devices-platform-serial8250-tty-ttyS0.device                            >
  sys-devices-platform-serial8250-tty-ttyS1.device                            >
  sys-devices-platform-serial8250-tty-ttyS2.device                            >
  sys-devices-platform-serial8250-tty-ttyS3.device                            >
  sys-devices-virtual-misc-rfkill.device                                      >
  sys-module-configfs.device                                                  >
  sys-module-fuse.device                                                      >
  sys-subsystem-net-devices-eth0.device                                       >
  -.mount                                                                      >
  dev-hugepages.mount                                                          >
  dev-mqueue.mount                                                             >
  proc-sys-fs-binfmt_misc.mount                                               >
  run-credentials-systemd\x2dsysctl.service.mount                             >
log file: █
```

crontab: Schedule recurring tasks

```
┌──(dharma㉿kali)-[~/Documents/Assignment1]
└─$ crontab -l
no crontab for dharma
```

useradd: Add a new user

```
┌──(dharma㉿kali)-[~/Documents/Assignment1]
└─$ sudo useradd dharma1
[sudo] password for dharma:
```
```
nm-openconnect:x:131:138:NetworkManager OpenConnect plugin,,,:/var/lib/Netw
orkManager:/usr/sbin/nologin
dharma:x:1000:1000:Dharma Teja,,,:/home/dharma:/usr/bin/zsh
dharma1:x:1001:1001::/home/dharma1:/bin/sh
```

passwd: Change user password

```
┌──(dharma㉿kali)-[~/Documents/Assignment1]
└─$ passwd
Changing password for dharma.
Current password:
New password:
Retype new password:
passwd: password updated successfully
```