

Cyber Security and Ethical Hacking

ASSESSMENT – 1 (20,21 MAY 2023)

ANNGELA ROY - 20MIS0186

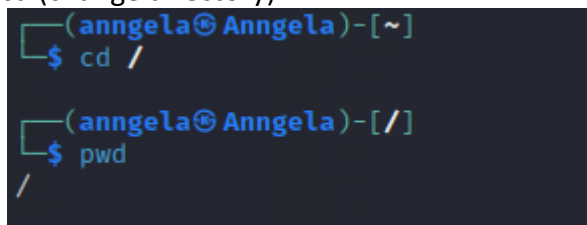
FILE AND DIRECTORY OPERATIONS

1. ls (list files and directories)



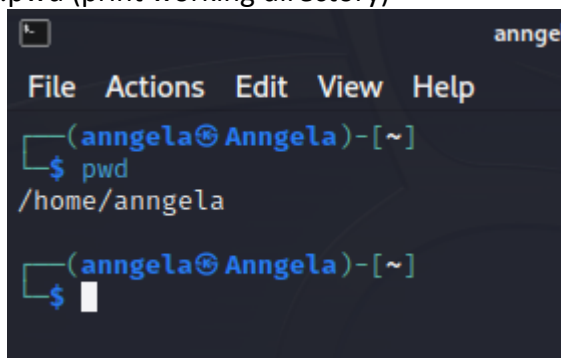
A terminal window titled 'anngela@Anngela: ~' with a menu bar (File, Actions, Edit, View, Help). The prompt is '(anngela@Anngela)-[~]'. The command '\$ ls' has been entered, and the output is displayed in two rows: Desktop, Downloads, Music, passwords.txt, Public, user.txt in the first row, and Documents, hydra.restore, passwords, Pictures, Templates, Videos in the second row. The prompt is now '\$ '.

2.cd (change directory)



A terminal window titled 'anngela@Anngela: ~'. The prompt is '(anngela@Anngela)-[~]'. The command '\$ cd /' is entered. The prompt changes to '(anngela@Anngela)-[/]'. The command '\$ pwd' is entered, and the output is '/'.

3.pwd (print working directory)



A terminal window titled 'anngela@Anngela: ~' with a menu bar (File, Actions, Edit, View, Help). The prompt is '(anngela@Anngela)-[~]'. The command '\$ pwd' is entered, and the output is '/home/anngela'. The prompt is now '\$ '.

4.mkdir(make directory)

```
(anngela@Anngela)-[~]  
$ mkdir csec  
  
(anngela@Anngela)-[~]  
$ ls  
anngel  Documents  Music      Pictures  user.txt  
csec    Downloads  passwords  Public    Videos  
Desktop hydra.restore passwords.txt Templates
```

5.touch (create an empty file)

```
(anngela@Anngela)-[~]  
$ touch eth.txt  
  
(anngela@Anngela)-[~]  
$ ls  
anngel  Desktop  Downloads  hydra.restore  passwords  Pictures  Templates  Videos  
csec    Documents eth.txt     Music          passwords.txt Public      user.txt
```

6.cp (copy files and directories)

```
(anngela@Anngela)-[~]  
$ cp /etc/passwd .  
  
(anngela@Anngela)-[~]  
$ ls  
anngel  Desktop  Downloads  Music  passwords  Pictures  Templates  Videos  
csec    Documents eth.txt   passwd  passwords.txt Public      user.txt
```

7.mv (move or rename files and directories)

```
(anngela@Anngela)-[~]  
$ ls  
anngel  Desktop  Downloads  hydra.restore  passwords  Pictures  Templates  Videos  
csec    Documents eth.txt     Music          passwords.txt Public      user.txt  
  
(anngela@Anngela)-[~]  
$ mv eth.txt hack.txt  
  
(anngela@Anngela)-[~]  
$ ls  
anngel  Desktop  Downloads  hydra.restore  passwords  Pictures  Templates  Videos  
csec    Documents hack.txt     Music          passwords.txt Public      user.txt
```

8.rm (remove files and directories)

```
(anngela@Anngela)-[~]  
$ ls  
anngel Desktop Downloads hydra.restore passwords Pictures Templates Videos  
csec Documents hack.txt Music passwords.txt Public user.txt  
  
(anngela@Anngela)-[~]  
$ rm hack.txt  
  
(anngela@Anngela)-[~]  
$ ls  
anngel Desktop Downloads Music passwords.txt Public user.txt  
csec Documents hydra.restore passwords Pictures Templates Videos
```

9.find (find for files and directories)

```
(anngela@Anngela)-[~]  
$ find passwords.txt  
passwords.txt  
  
(anngela@Anngela)-[~]  
$ find csec  
csec  
  
(anngela@Anngela)-[~]  
$ find hack.txt  
find: 'hack.txt': No such file or directory
```

FILE VIEWING AND EDITING

1. cat (concatenate and display content)

```
(annela@Annela)~  
$ cat /etc/passwd  
root:x:0:0:root:/root:/usr/bin/zsh  
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin  
bin:x:2:2:bin:/bin:/usr/sbin/nologin  
sys:x:3:3:sys:/dev:/usr/sbin/nologin  
sync:x:4:65534:sync:/bin:/bin/sync  
games:x:5:60:games:/usr/games:/usr/sbin/nologin  
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin  
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin  
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin  
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin  
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin  
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin  
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin  
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin  
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin  
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin  
_apt:x:42:65534::/nonexistent:/usr/sbin/nologin  
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin  
systemd-network:x:998:998:systemd Network Management:/:/usr/sbin/nologin  
mysql:x:100:107:MySQL Server,,,:/nonexistent:/bin/false
```

2. less (view file content with pagination) less /etc/passwd

```
File  Actions  Edit  View  Help  
root:x:0:0:root:/root:/usr/bin/zsh  
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin  
bin:x:2:2:bin:/bin:/usr/sbin/nologin  
sys:x:3:3:sys:/dev:/usr/sbin/nologin  
sync:x:4:65534:sync:/bin:/bin/sync  
games:x:5:60:games:/usr/games:/usr/sbin/nologin  
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin  
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin  
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin  
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin  
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin  
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin  
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin  
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin  
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin  
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin  
_apt:x:42:65534::/nonexistent:/usr/sbin/nologin  
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin  
systemd-network:x:998:998:systemd Network Management:/:/usr/sbin/nologin  
mysql:x:100:107:MySQL Server,,,:/nonexistent:/bin/false  
tss:x:101:108:TPM software stack,,,:/var/lib/tpm:/bin/false  
strongswan:x:102:65534::/var/lib/strongswan:/usr/sbin/nologin  
systemd-timesync:x:997:997:systemd Time Synchronization:/:/usr/sbin/nologin  
redsocks:x:103:109::/var/run/redsocks:/usr/sbin/nologin  
/etc/passwd
```


3. head (display the beginning of a file)

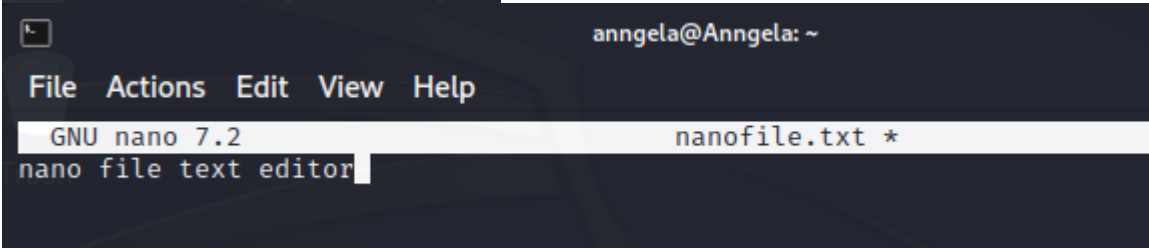
```
(annabela@Anngela)-[~]  
$ head /etc/passwd  
root:x:0:0:root:/root:/usr/bin/zsh  
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin  
bin:x:2:2:bin:/bin:/usr/sbin/nologin  
sys:x:3:3:sys:/dev:/usr/sbin/nologin  
sync:x:4:65534:sync:/bin:/bin/sync  
games:x:5:60:games:/usr/games:/usr/sbin/nologin  
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin  
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin  
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin  
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
```

4. tail (display the end of a file)

```
(annabela@Anngela)-[~]  
$ tail /etc/passwd  
inetsim:x:124:132::/var/lib/inetsim:/usr/sbin/nologin  
lightdm:x:125:133:Light Display Manager:/var/lib/lightdm:/bin/false  
geoclue:x:126:134::/var/lib/geoclue:/usr/sbin/nologin  
king-phisher:x:127:135::/var/lib/king-phisher:/usr/sbin/nologin  
polkitd:x:994:994:polkit:/nonexistent:/usr/sbin/nologin  
rtkit:x:128:136:RealtimeKit,,,:/proc:/usr/sbin/nologin  
colord:x:129:137:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin  
nm-openvpn:x:130:138:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin  
nm-openconnect:x:131:139:NetworkManager OpenConnect plugin,,,:/var/lib/NetworkManager:/usr/sbin/nologin  
annabela:x:1000:1000:Annabela Roy,,,:/home/annabela:/usr/bin/zsh
```

5. nano (text editor for creating and editing files)

```
(annabela@Anngela)-[~]  
$ nano nanofile.txt
```



6. i/vim (powerful text editor for experienced users)

```
(annabela@Anngela)-[~]  
$ vi vifile.txt
```

```
anngela@Anngela: ~  
File Actions Edit View Help  
Vi file text editor  
-- INSERT --
```

FILE PERMISSIONS

1.chmod (change file permissions)

```
File  Actions  Edit  View  Help
-rw----- 1 annela annela  1544 Jun 28 20:21 .viminfo
-rw----- 1 annela annela    52 Jun 28 19:53 .Xauthority
-rw----- 1 annela annela  9979 Jun 28 20:21 .xsession-errors
-rw----- 1 annela annela 11351 Jun 26 01:51 .xsession-errors.old
-rw----- 1 annela annela   354 Jun 28 20:18 .zsh_history
-rw-r--r-- 1 annela annela 10868 Jun 25 22:51 .zshrc

(angela@Anngela)-[~]
$ chmod +x csec

(angela@Anngela)-[~]
$ ls -la
total 276
drwx----- 18 annela annela  4096 Jun 28 20:21 .
drwxr-xr-x  3 root  root    4096 Jun 25 22:51 ..
drwxr-xr-x  2 annela annela  4096 Jun 28 19:57 annel
-rw-r--r--  1 annela annela   220 Jun 25 22:51 .bash_logout
-rw-r--r--  1 annela annela  5551 Jun 25 22:51 .bashrc
-rw-r--r--  1 annela annela  3526 Jun 25 22:51 .bashrc.original
drwxr-xr-x  9 annela annela  4096 Jun 25 23:30 .cache
drwxr-xr-x 16 annela annela  4096 Jun 26 01:12 .config
drwxr-xr-x  2 annela annela  4096 Jun 28 19:57 csec
drwxr-xr-x  2 annela annela  4096 Jun 26 01:05 Desktop
-rw-r--r--  1 annela annela    35 Jun 26 01:50 .dmrc
drwxr-xr-x  2 annela annela  4096 Jun 26 01:06 Documents
```

2.chown(change file owner)

```
(angela@Anngela)-[~]
$ chown annela csec

(angela@Anngela)-[~]
$ ls -la
total 276
drwx----- 18 annela annela  4096 Jun 28 20:21 .
drwxr-xr-x  3 root  root    4096 Jun 25 22:51 ..
drwxr-xr-x  2 annela annela  4096 Jun 28 19:57 annel
-rw-r--r--  1 annela annela   220 Jun 25 22:51 .bash_logout
-rw-r--r--  1 annela annela  5551 Jun 25 22:51 .bashrc
-rw-r--r--  1 annela annela  3526 Jun 25 22:51 .bashrc.original
drwxr-xr-x  9 annela annela  4096 Jun 25 23:30 .cache
drwxr-xr-x 16 annela annela  4096 Jun 26 01:12 .config
drwxr-xr-x  2 annela annela  4096 Jun 28 19:57 csec
drwxr-xr-x  2 annela annela  4096 Jun 26 01:05 Desktop
-rw-r--r--  1 annela annela    35 Jun 26 01:50 .dmrc
drwxr-xr-x  2 annela annela  4096 Jun 26 01:06 Documents
drwxr-xr-x  2 annela annela  4096 Jun 25 23:14 Downloads
-rw-r--r--  1 annela annela 11759 Jun 25 22:51 .face
lrwxrwxrwx  1 annela annela    5 Jun 25 22:51 .face.icon -> .face
drwx-----  3 annela annela  4096 Jun 25 23:10 .gnupg
-rw-r--r--  1 annela annela 26843 Jun 26 01:29 hydra.restore
-rw-----  1 annela annela    0 Jun 25 23:10 .ICEauthority
```

3.chgrp (change file group)

```
(annabela@Anngela)-[~]  
$ chgrp annabela csec  
  
(annabela@Anngela)-[~]  
$ ls -la  
total 276  
drwx----- 18 annabela annabela 4096 Jun 28 20:21 .  
drwxr-xr-x 3 root root 4096 Jun 25 22:51 ..  
drwxr-xr-x 2 annabela annabela 4096 Jun 28 19:57 annel  
-rw-r--r-- 1 annabela annabela 220 Jun 25 22:51 .bash_logout  
-rw-r--r-- 1 annabela annabela 5551 Jun 25 22:51 .bashrc  
-rw-r--r-- 1 annabela annabela 3526 Jun 25 22:51 .bashrc.original  
drwxr-xr-x 9 annabela annabela 4096 Jun 25 23:30 .cache  
drwxr-xr-x 16 annabela annabela 4096 Jun 26 01:12 .config  
drwxr-xr-x 2 annabela annabela 4096 Jun 28 19:57 csec  
drwxr-xr-x 2 annabela annabela 4096 Jun 26 01:05 Desktop  
-rw-r--r-- 1 annabela annabela 35 Jun 26 01:50 .dmrc  
drwxr-xr-x 2 annabela annabela 4096 Jun 26 01:06 Documents  
drwxr-xr-x 2 annabela annabela 4096 Jun 25 23:14 Downloads  
-rw-r--r-- 1 annabela annabela 11759 Jun 25 22:51 .face  
lrwxrwxrwx 1 annabela annabela 5 Jun 25 22:51 .face.icon → .face  
drwx----- 3 annabela annabela 4096 Jun 25 23:10 .gnupg  
-rw-r--r-- 1 annabela annabela 26843 Jun 26 01:29 hydra.restore  
-rw----- 1 annabela annabela 0 Jun 25 23:10 .ICEauthority
```


FILE COMPRESSION AND ARCHIVING

1. tar (archive files)

```
(anngela@Anngela)-[~]  
$ tar -cvf archive1.tar passwords.txt  
passwords.txt
```

2.gzip (compress files)

```
(anngela@Anngela)-[~]  
$ gzip passwords.txt  
  
(anngela@Anngela)-[~]  
$ ls -la  
total 24224  
drwx----- 18 anngela anngela 4096 Jun 28 21:05 .  
drwxr-xr-x 3 root root 4096 Jun 25 22:51 ..  
drwxr-xr-x 2 anngela anngela 4096 Jun 28 19:57 anngela  
-rw-r--r-- 1 anngela anngela 20480 Jun 28 21:04 archive1.tar  
-rw-r--r-- 1 anngela anngela 220 Jun 25 22:51 .bash_logout  
-rw-r--r-- 1 anngela anngela 5551 Jun 25 22:51 .bashrc  
-rw-r--r-- 1 anngela anngela 3526 Jun 25 22:51 .bashrc.original  
drwxr-xr-x 9 anngela anngela 4096 Jun 25 23:30 .cache  
drwxr-xr-x 17 anngela anngela 4096 Jun 28 20:32 .config  
drwxr-xr-x 2 anngela anngela 4096 Jun 28 19:57 csec  
drwxr-xr-x 2 anngela anngela 4096 Jun 26 01:05 Desktop  
-rw-r--r-- 1 anngela anngela 35 Jun 26 01:50 .dmrc  
drwxr-xr-x 2 anngela anngela 4096 Jun 26 01:06 Documents  
drwxr-xr-x 2 anngela anngela 4096 Jun 25 23:14 Downloads  
-rw-r--r-- 1 anngela anngela 11759 Jun 25 22:51 .face  
lrwxrwxrwx 1 anngela anngela 5 Jun 25 22:51 .face.icon → .face  
drwx----- 3 anngela anngela 4096 Jun 25 23:10 .gnupg  
-rw-r--r-- 1 anngela anngela 26843 Jun 26 01:29 hydra.restore  
-rw----- 1 anngela anngela 0 Jun 25 23:10 .ICEauthority  
drwxr-xr-x 3 anngela anngela 4096 Jun 25 22:51 .java  
-rw-r--r-- 1 anngela anngela 24498824 May 20 10:01 latest.zip  
-rw----- 1 anngela anngela 20 Jun 28 20:55 .lessht  
drwxr-xr-x 4 anngela anngela 4096 Jun 25 23:10 .local  
drwx----- 4 anngela anngela 4096 Jun 25 23:13 .mozilla  
drwxr-xr-x 2 anngela anngela 4096 Jun 25 23:10 Music  
-rw-r--r-- 1 anngela anngela 3140 Jun 28 20:28 passwd  
-rw-r--r-- 1 anngela anngela 14519 Jun 26 01:04 passwords  
-rw-r--r-- 1 anngela anngela 5446 Jun 26 01:12 passwords.txt.gz
```

3.unzip (extract files from zip archive)

```
(annela@Annela)~$ unzip latest.zip
Archive:  latest.zip
  creating: wordpress/
  inflating: wordpress/xmlrpc.php
  inflating: wordpress/wp-blog-header.php
  inflating: wordpress/readme.html
  inflating: wordpress/wp-signup.php
  inflating: wordpress/index.php
  inflating: wordpress/wp-cron.php
  inflating: wordpress/wp-config-sample.php
  inflating: wordpress/wp-login.php
  inflating: wordpress/wp-settings.php
  inflating: wordpress/license.txt
  creating: wordpress/wp-content/
  creating: wordpress/wp-content/themes/
  inflating: wordpress/wp-content/themes/twentytwentythree/
  creating: wordpress/wp-content/themes/twentytwentythree/theme.json
  creating: wordpress/wp-content/themes/twentytwentythree/parts/
  inflating: wordpress/wp-content/themes/twentytwentythree/parts/footer.html
  inflating: wordpress/wp-content/themes/twentytwentythree/parts/comments.html
  inflating: wordpress/wp-content/themes/twentytwentythree/parts/header.html
  inflating: wordpress/wp-content/themes/twentytwentythree/parts/post-meta.html
  creating: wordpress/wp-content/themes/twentytwentythree/patterns/
  inflating: wordpress/wp-content/themes/twentytwentythree/patterns/hidden-404.php
  inflating: wordpress/wp-content/themes/twentytwentythree/patterns/post-meta.php
  inflating: wordpress/wp-content/themes/twentytwentythree/patterns/hidden-no-results.p
hp
  inflating: wordpress/wp-content/themes/twentytwentythree/patterns/call-to-action.php
  inflating: wordpress/wp-content/themes/twentytwentythree/patterns/footer-default.php
  inflating: wordpress/wp-content/themes/twentytwentythree/patterns/hidden-comments.php
```

PROCESS MANAGEMENT

1. ps (list running processes)

```
(annabela@Anngela)-[~]  
$ ps  
  PID TTY          TIME CMD  
 15877 pts/0    00:00:04 zsh  
 21014 pts/0    00:00:00 ps
```

2. top: Display real-time system information and processes

```
(annabela@Anngela)-[~]  
$ top  
top - 20:33:15 up 40 min,  1 user,  load average: 0.02, 0.15, 0.17  
Tasks: 149 total,  1 running, 148 sleeping,  0 stopped,  0 zombie  
%Cpu(s):  1.2 us,  2.8 sy,  0.0 ni, 95.7 id,  0.0 wa,  0.0 hi,  0.3 si,  0.0 st  
MiB Mem :  7437.6 total,  6428.1 free,   810.2 used,   430.7 buff/cache  
MiB Swap:  975.0 total,  975.0 free,    0.0 used.  6627.4 avail Mem
```

USER	PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
	632	root	20	0	346248	93284	54868	S	2.0	1.2	1:01.22	Xorg
	1101	annabela	20	0	360244	37936	22280	S	1.0	0.5	0:18.18	panel-13-cpug+
	1035	annabela	20	0	947568	108616	77772	S	0.7	1.4	0:22.44	xfwm4
	974	annabela	20	0	217440	2472	2120	S	0.3	0.0	0:03.38	VBoxClient
	982	annabela	20	0	217956	2448	2096	S	0.3	0.0	0:11.17	VBoxClient
	1103	annabela	20	0	423588	30104	20848	S	0.3	0.4	0:14.27	panel-15-genm+
	1106	annabela	20	0	477468	44944	34480	S	0.3	0.6	0:04.08	panel-16-puls+
	15866	annabela	20	0	439976	103420	84500	S	0.3	1.4	0:04.74	qterminal
	21414	annabela	20	0	11596	4980	3088	R	0.3	0.1	0:00.14	top
	1	root	20	0	102256	12340	9188	S	0.0	0.2	0:01.33	systemd
	2	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kthreadd
	3	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	rcu_gp
	4	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	rcu_par_gp
	5	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	slub_flushwq
	6	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	netns

3. kill (terminate processes)

```
File  Actions  Edit  View  Help  
(annabela@Anngela)-[~]  
$ ps  
  PID TTY          TIME CMD  
 21860 pts/0    00:00:00 zsh  
 21884 pts/0    00:00:00 ps  
  
(annabela@Anngela)-[~]  
$ kill 21860
```

4. bg (run processes in background)

```
(anngela@Anngela)-[~]  
$ sleep 12  
^Z  
zsh: suspended sleep 12  
  
(anngela@Anngela)-[~]  
$ bg  
[1] + continued sleep 12  
  
(anngela@Anngela)-[~]  
$  
[1] + done sleep 12
```

5. fg: Bring background processes to the foreground

```
(anngela@Anngela)-[~]  
$ sleep 23 &  
[1] 24470  
  
(anngela@Anngela)-[~]  
$ fg  
[1] + running sleep 23
```

SYSTEM INFORMATION

1. uname: Print system information

```
(anngela@Anngela)-[~]  
$ uname  
Linux
```

2. df: Display disk space usage

```
(anngela@Anngela)-[~]  
$ df  
Filesystem      1K-blocks    Used Available Use% Mounted on  
udev            3768524         0   3768524   0% /dev  
tmpfs           761612         984    760628   1% /run  
/dev/sda1      101639152 13296680  83133284  14% /  
tmpfs          3808044         0   3808044   0% /dev/shm  
tmpfs           5120          0     5120    0% /run/lock  
tmpfs          761608         76    761532   1% /run/user/1000
```

3. free: Display memory usage

```
(anngela@Anngela)-[~]  
$ free  
              total        used        free      shared  buff/cache   available  
Mem:        7616092      831632      6580104        3736     441296     6784460  
Swap:        998396           0        998396
```

4. uptime: Show system uptime

```
(anngela@Anngela)-[~]  
$ uptime  
20:41:20 up 48 min,  1 user,  load average: 0.06, 0.12, 0.14  
  
(anngela@Anngela)-[~]  
$
```

5. who: Display logged-in users

```
(anngela@Anngela)-[~]  
$ who  
anngela    tty7                2023-06-28 19:53 (:0)  
  
(anngela@Anngela)-[~]  
$
```


6. w: Display logged-in users and their activities

```
(anngela@Annabela)-[~]  
$ w  
20:43:03 up 50 min, 1 user, load average: 0.01, 0.08, 0.12  
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU WHAT  
anngela    tty7     :0            19:53    50:15  1:10   0.42s xfce4-session
```

NETWORKING

1. ifconfig: Configure network interfaces

```
(anngela@Anngela)-[~]  
$ 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:fe81:d24c prefixlen 64 scopeid 0x20<link>  
    ether 08:00:27:81:d2:4c txqueuelen 1000 (Ethernet)  
    RX packets 1 bytes 590 (590.0 B)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 27 bytes 3347 (3.2 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 0x10<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
```

2. ping: Send ICMP echo requests to a network host

```
(anngela@Anngela)-[~]  
$ ping google.com  
PING google.com (142.250.64.78) 56(84) bytes of data.  
64 bytes from lga34s30-in-f14.1e100.net (142.250.64.78): icmp_seq=1 ttl=116 time=2053  
ms  
64 bytes from lga34s30-in-f14.1e100.net (142.250.64.78): icmp_seq=3 ttl=116 time=282 m  
s  
64 bytes from lga34s30-in-f14.1e100.net (142.250.64.78): icmp_seq=4 ttl=116 time=414 m  
s  
64 bytes from lga34s30-in-f14.1e100.net (142.250.64.78): icmp_seq=5 ttl=116 time=388 m  
s  
64 bytes from lga34s30-in-f14.1e100.net (142.250.64.78): icmp_seq=6 ttl=116 time=294 m  
s  
64 bytes from lga34s30-in-f14.1e100.net (142.250.64.78): icmp_seq=7 ttl=116 time=310 m  
s  
64 bytes from lga34s30-in-f14.1e100.net (142.250.64.78): icmp_seq=8 ttl=116 time=447 m  
s  
64 bytes from lga34s30-in-f14.1e100.net (142.250.64.78): icmp_seq=9 ttl=116 time=866 m  
s  
64 bytes from lga34s30-in-f14.1e100.net (142.250.64.78): icmp_seq=10 ttl=116 time=316  
ms  
64 bytes from lga34s30-in-f14.1e100.net (142.250.64.78): icmp_seq=11 ttl=116 time=330
```

3. ssh: Securely connect to a remote system

```
(anngela@Annabela)~$ ssh
usage: ssh [-46AaCfGgKkMnQsTtVvXxYy] [-B bind_interface]
          [-b bind_address] [-c cipher_spec] [-D [bind_address:]port]
          [-E log_file] [-e escape_char] [-F configfile] [-I pkcs11]
          [-i identity_file] [-J [user@]host[:port]] [-L address]
          [-l login_name] [-m mac_spec] [-O ctl_cmd] [-o option] [-p port]
          [-Q query_option] [-R address] [-S ctl_path] [-W host:port]
          [-w local_tun[:remote_tun]] destination [command [argument ... ]]
```

```
(anngela@Annabela)~$
```

4. scp: Securely copy files between systems

```
(anngela@Annabela)~$ scp
```

```
usage: scp [-346ABCOpqRrsTv] [-c cipher] [-D sftp_server_path] [-F ssh_config]
          [-i identity_file] [-J destination] [-l limit] [-o ssh_option]
          [-P port] [-S program] [-X sftp_option] source ... target
```

```
(anngela@Annabela)~$
```

5. wget: Download files from the web

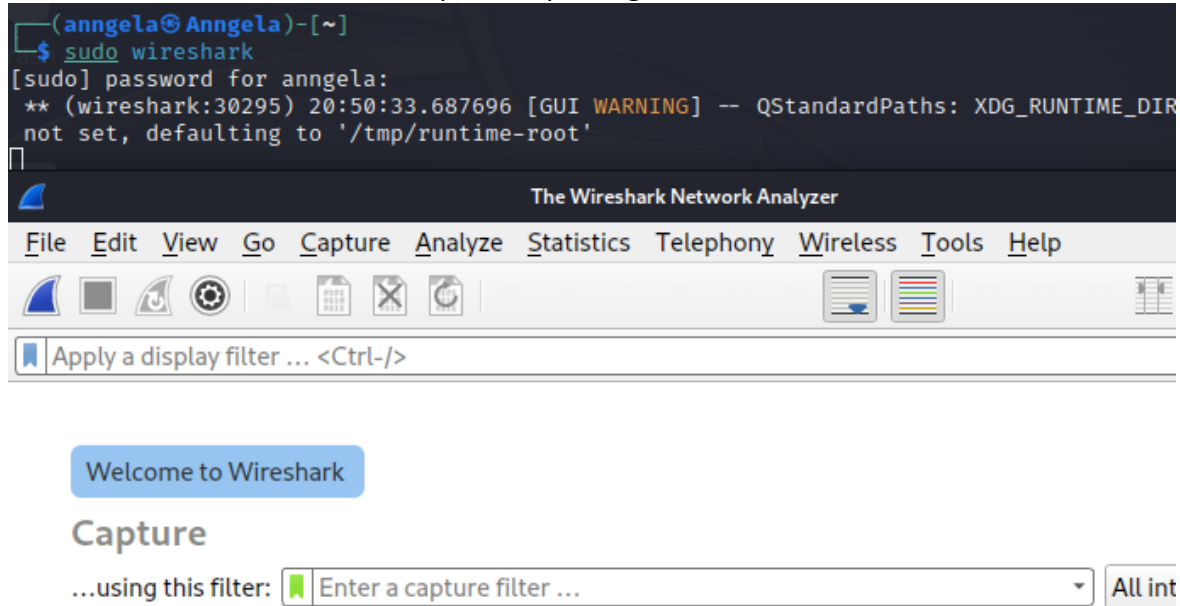
```
(anngela@Annabela)~$ wget https://wordpress.org/latest.zip
--2023-06-28 20:48:05-- https://wordpress.org/latest.zip
Resolving wordpress.org (wordpress.org) ... 198.143.164.252
Connecting to wordpress.org (wordpress.org)|198.143.164.252|:443 ... connected.
HTTP request sent, awaiting response ... 200 OK
Length: 24498824 (23M) [application/zip]
Saving to: 'latest.zip'

latest.zip          100%[=====>] 23.36M  829KB/s   in 58s
2023-06-28 20:49:05 (416 KB/s) - 'latest.zip' saved [24498824/24498824]

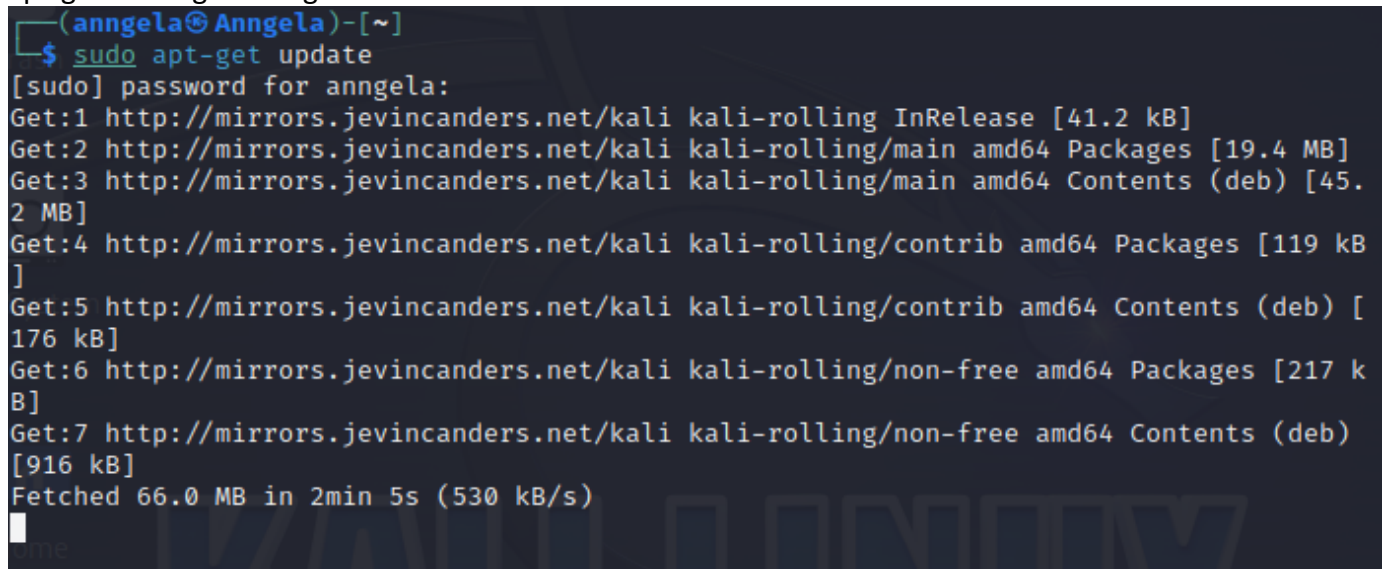
(anngela@Annabela)~$ ls
anngel  Documents  latest.zip  passwords  Public  Videos
csec    Downloads  Music       passwords.txt  Templates
Desktop hydra.restore  passwd     Pictures    user.txt
```

SYSTEM ADMINISTRATION

1. sudo: Execute commands with superuser privileges



2. apt-get: Package management for Debian-based distributions



3. yum: Package management for Red Hat-based distributions(in kali yum not used, so this is skipped)

4. systemctl: Manage system services

```
(anngela@Anngela)-[~]
$ systemctl
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-s
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-s
sys-devices-pci0000:00-0000:00:0d.0-ata1-host0-target0:0:0-0:0:0:0-block-s
sys-devices-pci0000:00-0000:00:0d.0-ata1-host0-target0:0:0-0:0:0:0-block-s
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
```

5. crontab: Schedule recurring tasks

cronjob to ping localhost everyday with 1 packet

```
GNU nano 7.2 /tmp/crontab.upvEW5/crontab
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will be run
# and what command to run for the task
#
# To define the time you can provide concrete values for
# minute (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').
#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezones.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
[ Read 23 lines ]
^G Help      ^O Write Out ^W Where Is  ^K Cut       ^T Execute
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify
```


6. useradd: Add a new user

```
(anngela@Anngela)~$ sudo useradd hack1
[sudo] password for anngela:
(anngela@Anngela)~$
```

7. passwd: Change user password

```
(anngela@Anngela)~$ sudo passwd hack1
New password:
Retype new password:
passwd: password updated successfully
```