

# Assignment 2

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Assignment2

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## Q1. Investigating compromised system (/bin, /etc, /var, /usr, /tmp, /opt, /boot, /home)

/etc → Contains system configuration files like passwd, shadow, sshd\_config. Attackers may alter these for access.

```
azeni@DESKTOP-94B1QD0:/$ ls -l /etc | head
total 796
drwxr-xr-x 2 root root      4096 Aug  5 09:57 PackageKit
drwxr-xr-x 7 root root      4096 Aug  5 09:57 X11
-rw-r--r-- 1 root root     3444 Jul  5 2023 adduser.conf
drwxr-xr-x 2 root root      4096 Aug  5 09:57 alternatives
drwxr-xr-x 2 root root      4096 Aug  5 09:57 apparmor
drwxr-xr-x 9 root root      4096 Aug  5 09:57 apparmor.d
drwxr-xr-x 3 root root      4096 Aug  5 09:57 appport
drwxr-xr-x 8 root root      4096 Aug  5 09:57 apt
-rw-r--r-- 1 root root     2319 Mar 31 2024 bash.bashrc
azeni@DESKTOP-94B1QD0:/$
```

/bin → Holds essential system binaries (ls, cp, mv). Attackers may replace them with malicious versions.

```
azeni@DESKTOP-94B1QD0:/$ ls -l /bin | head
lrwxrwxrwx 1 root root 7 Apr 22 2024 /bin -> usr/bin
```

/var → Stores logs, mail, spools. Logs may show intrusion evidence but could also be tampered with.

```

azeni@DESKTOP-94B1QD0:/$ ls -l /var/log | head
total 916
lrwxrwxrwx 1 root root 39 Aug 5 09:55
README -> ../../usr/share/doc/systemd/README.logs
-rw-r--r-- 1 root root 20092 Aug 5 09:57
alternatives.log
drwxr-xr-x 2 root root 4096 Aug 5 09:57
apt
-rw-r----- 1 syslog adm 4814 Sep 30 10:44
auth.log
-rw-r--r-- 1 root root 118497 Aug 5 09:55
bootstrap.log
-rw-rw---- 1 root utmp 0 Aug 5 09:55
btmp
drwxr-xr-x 2 root root 4096 Jul 25 09:08
dist-upgrade
-rw-r----- 1 root adm 77372 Sep 30 09:57
dmesg
-rw-r----- 1 root adm 35284 Sep 30 09:45
dmesg.0
azeni@DESKTOP-94B1QD0:/$ █

```

/usr → Contains user-level applications and binaries. Attackers may plant malicious apps here.

/tmp → Temporary, world-writable directory. Often abused for scripts and malware.

```

azeni@DESKTOP-94B1QD0:/$ ls -l /tmp
total 20
drwx----- 2 root root 4096 Sep 30 09:57 snap-private-tmp
drwx----- 3 root root 4096 Sep 30 09:57 systemd-private-605
defe46d9846d189fc5872476f1abb-systemd-logind.service-GRpqGe
drwx----- 3 root root 4096 Sep 30 09:57 systemd-private-605
defe46d9846d189fc5872476f1abb-systemd-resolved.service-Zzzf6
x
drwx----- 3 root root 4096 Sep 30 09:57 systemd-private-605
defe46d9846d189fc5872476f1abb-systemd-timesyncd.service-5WNI
xZ
drwx----- 3 root root 4096 Sep 30 09:57 systemd-private-605
defe46d9846d189fc5872476f1abb-wsl-pro.service-12HBvI
azeni@DESKTOP-94B1QD0:/$ █

```

/opt → Used for optional software. Attackers may install hidden apps here.

/boot → Holds kernel and bootloader files. Modifying these can give persistent root access.

```
azeni@DESKTOP-94B1QD0:/$ ls -l /boot
total 0
azeni@DESKTOP-94B1QD0:/$
```

/home → Stores user files, which may include malware, stolen data, or attacker accounts.

```
azeni@DESKTOP-94B1QD0:/$ ls -l /home
total 4
drwxr-x--- 4 azeni azeni 4096 Sep 30 10:43 azeni
azeni@DESKTOP-94B1QD0:/$
```

## Q2. Create project structure with specific access patterns

**Commands:** mkdir

-p

~/projects/{client\_work/{web/{frontend,backend},mobile},personal/{experiments,notes},shared/{templates,docs}}

→ Creates a nested folder structure for client work, personal, and shared projects.

```
azeni@DESKTOP-94B1QD0:/$ mkdir -p ~/projects/client_work/{web/{frontend,backend},mobile} ~/projects/personal/{experiments,notes,
research} ~/projects/shared/{templates,scripts}
azeni@DESKTOP-94B1QD0:/$ # Check structure
tree ~/projects
/home/azeni/projects
├── client_work
│   ├── mobile
│   └── web
│       ├── backend
│       └── frontend
├── personal
│   ├── experiments
│   └── research
└── shared
    ├── scripts
    └── templates
```

## Q3. Navigation with ≤3 cd

**Commands:**

`cd ../../personal/experiments && pwd` → Navigates to personal/experiments and shows path. `cd ../../shared/templates && pwd` → Moves to shared/templates and displays current path.

`cd ../../client_work/web/frontend && pwd` → Navigates to client web frontend folder and prints location.

```
azeni@DESKTOP-94B1QD0:/$ pwd
```

## Q4. Web project structure

### Commands:

`touch index.html about.html contact.html page_{001..012}.html` → Creates 15 HTML files, including numbered pages.

`touch {main,reset,theme_{light,dark},mobile,tablet,desktop,print}.css` → Creates multiple CSS files for layout and devices.

`touch {script1,script2,util1,util2,config1,config2}.js` → Creates JavaScript scripts, utilities, and configs. `touch {a,b,c,d}{1..5}.bak` → Generates 20 backup files with .bak extension.

## Q5. Wildcards for file organization

**Commands:** `mv [0-9]. archive/` → Moves files named with single digits into archive folder.

`cp !(mobile|tablet).css desktop/` → Copies all CSS except mobile.css and tablet.css to desktop folder. `ls ???.*` → Lists files with exactly three characters before the extension.

`ls [b-df-hj-np-tv-z]*` → Lists files starting with consonants. `ls *[a-zA-`

`Z][a-zA-Z]` → Shows files with exactly two-letter extensions.

```
ls ~/projects/web_project/backup/*.* | grep -E '\.[a-zA-Z0-9]{2}$'
/home/azeni/projects/web_project/html/about.html
/home/azeni/projects/web_project/html/contact.html
/home/azeni/projects/web_project/html/index.html
/home/azeni/projects/web_project/html/contact.html
azeni@DESKTOP-94B1QD0:~$ ls
```

## Q6. Brace expansion patterns

**Commands:** `touch log_2024-{01..03}-{01..31}.txt` → Creates log files for Jan-Mar 2024.



touch {web,api,db}\_{dev,staging,prod}.conf → Creates config files for 3 services across 3 environments.

```
azeni@DESKTOP-94B1QD0: ~$ ls logs
log_2024-01-01.txt  log_2024-02-01.txt  log_2024-03-01.txt
log_2024-01-02.txt  log_2024-02-02.txt  log_2024-03-02.txt
log_2024-01-03.txt  log_2024-02-03.txt  log_2024-03-03.txt
log_2024-01-04.txt  log_2024-02-04.txt  log_2024-03-04.txt
log_2024-01-05.txt  log_2024-02-05.txt  log_2024-03-05.txt
log_2024-01-06.txt  log_2024-02-06.txt  log_2024-03-06.txt
log_2024-01-07.txt  log_2024-02-07.txt  log_2024-03-07.txt
log_2024-01-08.txt  log_2024-02-08.txt  log_2024-03-08.txt
log_2024-01-09.txt  log_2024-02-09.txt  log_2024-03-09.txt
log_2024-01-10.txt  log_2024-02-10.txt  log_2024-03-10.txt
log_2024-01-11.txt  log_2024-02-11.txt  log_2024-03-11.txt
log_2024-01-12.txt  log_2024-02-12.txt  log_2024-03-12.txt
log_2024-01-13.txt  log_2024-02-13.txt  log_2024-03-13.txt
log_2024-01-14.txt  log_2024-02-14.txt  log_2024-03-14.txt
log_2024-01-15.txt  log_2024-02-15.txt  log_2024-03-15.txt
log_2024-01-16.txt  log_2024-02-16.txt  log_2024-03-16.txt
log_2024-01-17.txt  log_2024-02-17.txt  log_2024-03-17.txt
log_2024-01-18.txt  log_2024-02-18.txt  log_2024-03-18.txt
log_2024-01-19.txt  log_2024-02-19.txt  log_2024-03-19.txt
log_2024-01-20.txt  log_2024-02-20.txt  log_2024-03-20.txt
log_2024-01-21.txt  log_2024-02-21.txt  log_2024-03-21.txt
log_2024-01-22.txt  log_2024-02-22.txt  log_2024-03-22.txt
log_2024-01-23.txt  log_2024-02-23.txt  log_2024-03-23.txt
log_2024-01-24.txt  log_2024-02-24.txt  log_2024-03-24.txt
log_2024-01-25.txt  log_2024-02-25.txt  log_2024-03-25.txt
log_2024-01-26.txt  log_2024-02-26.txt  log_2024-03-26.txt
log_2024-01-27.txt  log_2024-02-27.txt  log_2024-03-27.txt
log_2024-01-28.txt  log_2024-02-28.txt  log_2024-03-28.txt
log_2024-01-29.txt  log_2024-02-29.txt  log_2024-03-29.txt
log_2024-01-30.txt  log_2024-02-30.txt  log_2024-03-30.txt
log_2024-01-31.txt  log_2024-02-31.txt  log_2024-03-31.txt
azeni@DESKTOP-94B1QD0: ~$
```

touch {A..C}{10..12}\_{input,output}.txt → Creates test input/output files for A-C with numbers 10-12.

## Q7. Line endings comparison

**Commands:** echo "Test file" > linux.txt → Creates a file with Linux line endings.

unix2dos linux.txt win.txt → Converts Linux file to Windows format. diff

linux.txt win.txt → Shows differences between Linux and Windows versions.

cmp linux.txt win.txt → Compares files byte by byte. comm

linux.txt win.txt → Compares two files line by line.

```
azeni@DESKTOP-94B1QD0:~$ echo -e "Hello World\nThis is Linux" > linux_file.txt
echo -e "Hello World\r\nThis is Windows" > windows_file.txt
diff linux_file.txt windows_file.txt
cmp linux_file.txt windows_file.txt
comm <(sort linux_file.txt) <(sort windows_file.txt)
1,2c1,2
< Hello World
< This is Linux
---
> Hello World
> This is Windows
linux_file.txt windows_file.txt differ: byte 12, line 1
Hello World
      Hello World
This is Linux
      This is Windows
azeni@DESKTOP-94B1QD0:~$
```

## Q8. Find commands

**Commands:** find . -type f -size +\$(...)c → Finds files larger than average size.

find . -type f -mtime -3 ! -mtime -1 → Finds files modified in last 72 hours but not 24 hours.

find . -type d -empty -o -exec ... → Finds empty directories or those with only hidden files.

find . -type f -perm -002 → Finds world-writable files. find . ! -user \$(whoami) ! -user root  
→ Finds files owned by others.

find . -type f ( -name '~' -o -name '.bak' -o -name '\*.tmp' ) → Finds temp and backup files.

```

azeni@DESKTOP-94B1QD0:~$ mkdir -p test_env/{logs,docs,temp,config}
touch test_env/file{1..5}.txt
touch test_env/logs/{log1,log2}.txt
chmod 777 test_env/temp/tempfile
find test_env -type f -size +50c
find test_env -type f -mtime -3 ! -mtime -1
find test_env -type d -empty
find test_env -type d -exec sh -c 'ls -A "{}" | grep -q "^." || echo
 "{}" ' \;
find test_env -type f -perm -o+w
find test_env -type f ! -user $USER ! -user root
find test_env -name "*~" -o -name "*.bak"
chmod: cannot access 'test_env/temp/tempfile': No such file or direct
ory
test_env/docs
test_env/temp
test_env/config
test_env/docs
test_env/temp
test_env/config
azeni@DESKTOP-94B1QD0:~$

```

## Q9. Log file analysis

**Commands:** `sed -n '76,125p' logfile.txt` → Displays lines 76–125 from logfile. `grep -`

`n 'ERROR' logfile.txt | tail -1 ...` → Shows last ERROR occurrence with context. `time`

`cat logfile.txt > /dev/null` → Measures time to read file with `cat`.

`time less logfile.txt > /dev/null` → Measures time to open file with `less` (more efficient). `grep`

`-n 'ERROR' logfile.txt` → Shows ERROR lines with line numbers.

```
zeni@DESKTOP-94B1QD0:~$ time cat logfile.txt > /dev/null time less l
logfile.txt > /dev/null
cat: time: No such file or directory
cat: less: No such file or directory

real    0m0.010s
user    0m0.001s
sys     0m0.006s
zeni@DESKTOP-94B1QD0:~$
```

```
93
94
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122
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124
125
```

```
zeni@DESKTOP-94B1QD0:~$
```

## Q10. Automating maintenance

**Commands:** `find . -type f ! -perm -755 -exec chmod 644 {} ;` → Fixes permissions.

`find . -type f -mtime +30 -exec du -ch {} + | tail -1` → Checks disk space used by files older than 30 days. `find . -name '*.conf' -exec cp {} {}.backup ;` → Creates backups of .conf files.

`find . -name '.tmp' -atime +7 -print` → Lists temp files older than 7 days. `find . -name '.tmp' -atime +7 -delete` → Deletes old temp files.





Lists contents of zip file. `tar -xf archive.tar`  
'\*.conf' → Extracts only .conf files. `tar -rf`  
`archive.tar newfile.txt` → Adds a file to  
archive. `zip -FF bad.zip --out fixed.zip` →  
Attempts to repair corrupted zip. `tar -Af`  
`combined.tar part1.tar` → Merges multiple  
tar archives.

### Q13. Backup rotation strategy'

Daily incremental using rsync, weekly full backups, monthly archives stored offsite, auto cleanup after 90 days, and integrity checks using md5sum or tar verification.

```
azeni@DESKTOP-94B1QD0:~$ tar -tf  
tar: option requires an argument -- 'f'  
Try 'tar --help' or 'tar --usage' for more information.
```

### Q14. User access troubleshooting

**Commands:** `id` → Shows current user ID and  
groups. `groups user1` → Lists groups for  
user1. `groups user2` → Lists groups for user2.  
`cat /etc/passwd` → Displays all user accounts.

```
zeni@DESKTOP-94B1QD0:~$ cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
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
systemd-timesync:x:996:996:systemd Time Synchronization:/:/usr/sbin/nologin
dhcpcd:x:100:65534:DHCP Client Daemon,,,:/usr/lib/dhcpcd:/bin/false
messagebus:x:101:101::/nonexistent:/usr/sbin/nologin
syslog:x:102:102::/nonexistent:/usr/sbin/nologin
```

```
zeni@DESKTOP-94B1QD0:~$ sudo adduser user1
[sudo] password for azeni:
Info: Adding user `user1' ...
Info: Selecting UID/GID from range 1000 to 59999 ...
Info: Adding new group `user1' (1001) ...
Info: Adding new user `user1' (1001) with group `user1 (1001)' ...
Info: Creating home directory `/home/user1' ...
Info: Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for user1
Enter the new value, or press ENTER for the default
    Full Name []: AGAPE
    Room Number []: 12
    Work Phone []: 082516452
    Home Phone []: 000000000
    Other []:
Is the information correct? [Y/n] Y
Info: Adding new user `user1' to supplemental / extra groups `users'
...
Info: Adding user `user1' to group `users' ...
zeni@DESKTOP-94B1QD0:~$
```

```
zeni@DESKTOP-94B1QD0:~$ id
uid=1000(azeni) gid=1000(azeni) groups=1000(azeni),4(adm),24(cdrom),27(sudo),30(dip),46(plugdev),100(users)
zeni@DESKTOP-94B1QD0:~$
```



## Q15. Group membership propagation

**Commands:** id → Shows current user info. groups → Lists

groups for current user. su - user → Re-logins to update new

group membership. ls -l /var/log | grep group → Checks

group access to logs. ls -ld /var/www → Checks group

permissions for web folder. cat /etc/sudoers → Checks

admin privileges.

```
azeni@DESKTOP-94B1QD0:~$ id
uid=1000(azeni) gid=1000(azeni) groups=1000(azeni),4(adm),24(cdrom),27(sudo),30(dip),46(plugdev),100(users)
azeni@DESKTOP-94B1QD0:~$ groups
azeni adm cdrom sudo dip plugdev users
azeni@DESKTOP-94B1QD0:~$ ls -l /var/log | grep group
ls -ld /var/www
cat /etc/sudoers
grep: invalid argument '/var/www' for '--directories'
Valid arguments are:
- 'read'
- 'recurse'
- 'skip'
Usage: grep [OPTION]... PATTERNS [FILE]...
Try 'grep --help' for more information.
azeni@DESKTOP-94B1QD0:~$ id
uid=1000(azeni) gid=1000(azeni) groups=1000(azeni),4(adm),24(cdrom),27(sudo),30(dip),46(plugdev),100(users)
azeni@DESKTOP-94B1QD0:~$
```

## Q16. Privilege escalation audit

**Commands:** sudo -l → Lists allowed sudo commands.

sudo -i → Opens root shell. sudo su → Switches to root user. su - →

Switches user (requires password). sudo -u www-data ls /var/www

→ Runs command as www-data user. grep 'sudo' /var/log/auth.log



```

2025-09-30T13:09:19.802509-07:00 DESKTOP-94B1QD0 sudo: azeni : TTY
=pts/0 ; PWD=/ ; USER=root ; COMMAND=/usr/bin/apt update
2025-09-30T13:09:19.828694-07:00 DESKTOP-94B1QD0 sudo: pam_unix(sudo:
session): session opened for user root(uid=0) by (uid=1000)
2025-09-30T13:41:42.135994-07:00 DESKTOP-94B1QD0 sudo: pam_unix(sudo:
session): session closed for user root
2025-09-30T13:42:27.597605-07:00 DESKTOP-94B1QD0 sudo: azeni : TTY
=pts/0 ; PWD=/ ; USER=root ; COMMAND=/usr/bin/apt install tree -y
2025-09-30T13:42:27.608014-07:00 DESKTOP-94B1QD0 sudo: pam_unix(sudo:
session): session opened for user root(uid=0) by (uid=1000)
2025-09-30T13:42:42.049191-07:00 DESKTOP-94B1QD0 sudo: pam_unix(sudo:
session): session closed for user root
2025-09-30T14:52:32.219772-07:00 DESKTOP-94B1QD0 sudo: azeni : TTY
=pts/0 ; PWD=/home/azeni ; USER=root ; COMMAND=/usr/sbin/adduser user
1
2025-09-30T14:52:32.229810-07:00 DESKTOP-94B1QD0 sudo: pam_unix(sudo:
session): session opened for user root(uid=0) by (uid=1000)
2025-09-30T14:53:50.362887-07:00 DESKTOP-94B1QD0 sudo: pam_unix(sudo:
session): session closed for user root
2025-09-30T14:58:42.171147-07:00 DESKTOP-94B1QD0 sudo: azeni : TTY
=pts/0 ; PWD=/root ; USER=root ; COMMAND=/bin/bash
2025-09-30T14:58:42.177719-07:00 DESKTOP-94B1QD0 sudo: pam_unix(sudo-
i:session): session opened for user root(uid=0) by (uid=1000)
2025-09-30T14:58:57.835550-07:00 DESKTOP-94B1QD0 sudo: root : TTY
=pts/2 ; PWD=/root ; USER=root ; COMMAND=/bin/bash
2025-09-30T14:58:57.838218-07:00 DESKTOP-94B1QD0 sudo: pam_unix(sudo-
i:session): session opened for user root(uid=0) by azeni(uid=0)
2025-09-30T15:02:08.271227-07:00 DESKTOP-94B1QD0 sudo: root : TTY
=pts/3 ; PWD=/root ; USER=www-data ; COMMAND=/usr/bin/ls /var/www
2025-09-30T15:02:08.272541-07:00 DESKTOP-94B1QD0 sudo: pam_unix(sudo:
session): session opened for user www-data(uid=33) by root(uid=0)
2025-09-30T15:02:08.280457-07:00 DESKTOP-94B1QD0 sudo: pam_unix(sudo:
session): session closed for user www-data
root@DESKTOP-94B1QD0:~#

root@DESKTOP-94B1QD0:~# sudo -i
root@DESKTOP-94B1QD0:~# sudo -u
sudo: option requires an argument -- 'u'
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 timeo
ut]
[-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 timeo
ut]
[-u user] file ...
root@DESKTOP-94B1QD0:~#

```

h.log →

Checks sudo usage in logs.

## Q17. Forensic setup

**Commands:** mkdir forensic && cd forensic → Creates forensic folder and enters it. touch regular.txt → Creates a normal file. mkdir dir → Creates a directory. ln -s regular.txt symlink → Creates symbolic link. ln regular.txt hardlink → Creates hard link.

mknod devicefile c 1 7 → Creates special device file. touch sticky; chmod +t sticky → Creates sticky-bit file. touch suid; chmod u+s suid → Creates file with SUID permission. touch sgid; chmod g+s sgid → Creates file with SGID permission. chown root:root regular.txt → Changes ownership to root. chown user1:user1 other.txt → Changes ownership to user1. tar -czf test.tar.gz \* → Creates compressed archive. zip test.zip \* → Creates zip archive.

ls -l, stat, file, tar -tvf, unzip -l → Tools for checking file properties.

```

0 2025-09-30 09:59 Introduction_to_linux/
0 2025-09-30 14:12 archive/
0 2025-09-30 14:39 archive_test/
0 2025-09-30 14:45 archives_test/
0 2025-09-30 14:50 backups/
27 2025-09-30 14:27 cat^[OB^[OB^[OB^[OB^[OB^[OB^[OB^[OB
[OB^[OB^[OBkkk^[OB^[OB^[OBlogfile.txtExtract
10240 2025-09-30 14:49 combined.tar
0 2025-09-30 14:16 config/
0 2025-09-30 14:12 desktop/
0 2025-09-30 15:16 dir/
0 2025-09-30 15:21 forensic/
26 2025-09-30 14:22 linux_file.txt
1408 2025-09-30 14:25 logfile.txt
0 2025-09-30 14:16 logs/
20480 2025-09-30 14:47 merged.tar
0 2025-09-30 14:07 projects/
13067 2025-09-30 14:28 s > cat^[OB^[OB^[OB^[OB^[OB^[OB^[OB
[OB^[OB^[OB^[OBkkk^[OB^[OB^[OBlogfile.txtExtract errors with line nu
bers
0 2025-09-30 15:16 sgid
0 2025-09-30 15:16 sticky
0 2025-09-30 15:16 suid
10240 2025-09-30 14:47 test.tar
87688386 2025-09-30 15:24 test.tar.gz
0 2025-09-30 14:23 test_env/
0 2025-09-30 14:16 tests/
0 2025-09-30 14:39 text.tar.bz2
45 2025-09-30 14:40 text.tar.gz
252 2025-09-30 14:39 text.tar.xz
29 2025-09-30 14:22 windows_file.txt
-----
87744200 28 files
zeni@DESKTOP-94B1QD0: $ █

```



```
zeni@DESKTOP-94B1QD0:~$ zip test.zip *
  zip warning: name not matched: symlink
adding: Introduction_to_linux/ (stored 0%)
adding: archive/ (stored 0%)
adding: archive_test/ (stored 0%)
adding: archives_test/ (stored 0%)
adding: backups/ (stored 0%)
adding: cat^[OB^[OB^[OB^[OB^[OB^[OB^[OB^[OB^[OB^[OB^[OBkkk^[OB^
OB^[OBlogfile.txtExtract (stored 0%)
adding: combined.tar (deflated 100%)
adding: config/ (stored 0%)
adding: desktop/ (stored 0%)
adding: dir/ (stored 0%)
adding: forensic/ (stored 0%)
adding: linux_file.txt (stored 0%)
adding: logfile.txt (deflated 73%)
adding: logs/ (stored 0%)
adding: merged.tar (deflated 99%)
adding: projects/ (stored 0%)
adding: s > cat^[OB^[OB^[OB^[OB^[OB^[OB^[OB^[OB^[OB^[OB^[OBkkk^[
OB^[OB^[OBlogfile.txtExtract errors with line numbers (deflated 70%)
adding: sgid (stored 0%)
adding: sticky (stored 0%)
adding: suid (stored 0%)
adding: test.tar (deflated 99%)
adding: test.tar.gz (deflated 0%)
adding: test_env/ (stored 0%)
adding: tests/ (stored 0%)
adding: text.tar.bz2 (stored 0%)
adding: text.tar.gz (deflated 20%)
adding: text.tar.xz (stored 0%)
adding: windows_file.txt (stored 0%)
zeni@DESKTOP-94B1QD0:~$
```



```
mkdir: cannot create directory 'forensic/devices': File exists
mkdir: cannot create directory 'forensic/archives': File exists
forensic:
total 24
drwxr-xr-x 2 azeni azeni 4096 Sep 30 15:22 archives
drwxr-xr-x 2 azeni azeni 4096 Sep 30 15:21 devices
drwxr-xr-x 2 azeni azeni 4096 Sep 30 15:21 dirs
drwxr-xr-x 2 azeni azeni 4096 Sep 30 15:22 hardlinks
drwxr-xr-x 2 azeni azeni 4096 Sep 30 15:22 regular
drwxr-xr-x 2 azeni azeni 4096 Sep 30 15:22 symlinks

forensic/archives:
total 4
-rw-r--r-- 1 azeni azeni 158 Sep 30 15:22 test.tar.gz

forensic/devices:
total 0

forensic/dirs:
total 0

forensic/hardlinks:
total 0
-rwsr-xr-x 2 azeni azeni 0 Sep 30 15:22 file_hard.txt

forensic/regular:
total 0
-rwsr-xr-x 2 azeni azeni 0 Sep 30 15:22 file.txt

forensic/symlinks:
total 0
lrwxrwxrwx 1 azeni azeni 25 Sep 30 15:22 file_symlink.txt -> forensic
/regular/file.txt
azeni@DESKTOP-94B1QD0: ~$
```