

Linux Assignment - 1

1. Creating and Renaming Files/Directories

Create a directory named `test_dir` using `mkdir`.

Inside `test_dir`, create an empty file called `example.txt`.

Rename `example.txt` to `renamed_example.txt` using `mv`

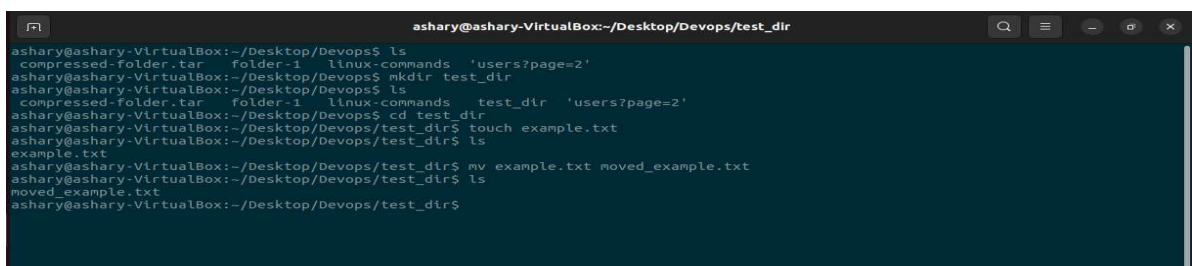
Commands:

```
mkdir test_dir  
  
cd test_dir  
  
touch example.txt  
  
mv example.txt renamed_example.txt
```

Explanation:

- `mkdir test_dir`: Makes a new folder called `test_dir`.
- `cd test_dir`: Goes into that folder.
- `touch example.txt`: Creates an empty file called `example.txt`.
- `mv example.txt renamed_example.txt`: Renames the file to `renamed_example.txt`.

Screenshots:



```
ashary@ashary-VirtualBox:~/Desktop/Devops/test_dir$ ls  
compressed-folder.tar  folder-1  linux-commands  'users?page=2'  
ashary@ashary-VirtualBox:~/Desktop/Devops$ mkdir test_dir  
ashary@ashary-VirtualBox:~/Desktop/Devops$ ls  
compressed-folder.tar  folder-1  linux-commands  test_dir  'users?page=2'  
ashary@ashary-VirtualBox:~/Desktop/Devops$ cd test_dir  
ashary@ashary-VirtualBox:~/Desktop/Devops/test_dir$ touch example.txt  
ashary@ashary-VirtualBox:~/Desktop/Devops/test_dir$ ls  
example.txt  
ashary@ashary-VirtualBox:~/Desktop/Devops/test_dir$ mv example.txt moved_example.txt  
ashary@ashary-VirtualBox:~/Desktop/Devops/test_dir$ ls  
moved_example.txt  
ashary@ashary-VirtualBox:~/Desktop/Devops/test_dir$
```

2. Viewing File Contents

Use `cat` to display the contents of `/etc/passwd`.

Display only the first 5 lines of `/etc/passwd` using `head`.

Display only the last 5 lines of `/etc/passwd` using `tail`.

Commands:

```
cat /etc/passwd  
head -n 5 /etc/passwd  
tail -n 5 /etc/passwd
```

Explanation:

- `cat`: Displays the whole file.
- `head -n 5`: Shows just the first 5 lines.
- `tail -n 5`: Shows just the last 5 lines.
This is helpful when files are big and we only want to check the beginning or end.

Screenshots:

```
ashary@ashary-VirtualBox:~/Desktop/Devops$ 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:Mail List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
Messagebus:x:102:105::/nonexistent:/usr/sbin/nologin
systemd-timesync:x:103:106:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
syslog:x:104:111::/home/syslog:/usr/sbin/nologin
_apt:x:105:65534::/nonexistent:/usr/sbin/nologin
tss:x:106:113:TPM software stack,,,:/var/lib/tpm:/bin/false
uidd:x:107:116:/run/uidd:/usr/sbin/nologin
systemd-oom:x:108:117:systemd Userspace OOM Killer,,,:/run/systemd:/usr/sbin/nologin
tcpdump:x:109:118::/nonexistent:/usr/sbin/nologin
avahi-autoipd:x:110:119:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:111:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
kernoops:x:113:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
avahi:x:114:121:Avahi mDNS daemon,,,:/run/avahi-daemon:/usr/sbin/nologin
cups-pk-helper:x:115:122:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
rtkit:x:116:123:RealtimeKit,,,:/proc:/usr/sbin/nologin
whoopsie:x:117:124::/nonexistent:/bin/false
sssd:x:118:125:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
speech-dispatcher:x:119:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
fwupd-refresh:x:120:126:fwupd-refresh user,,,:/run/systemd:/usr/sbin/nologin
nm-openvpn:x:121:127:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
saned:x:122:129:/var/lib/saned:/usr/sbin/nologin
colord:x:123:130:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:124:131:/var/lib/geoclue:/usr/sbin/nologin
pulse:x:125:132:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:126:65534:/run/gnome-initial-setup:/bin/false
hplip:x:127:7:HPLIP system user,,,:/run/hplip:/bin/false
gdm:x:128:134:Gnome Display Manager:/var/lib/gdm3:/bin/false
ashary:x:1000:1000:ASHARY,,,:/home/ashary:/bin/bash
swtpm:x:129:139:virtual TPM software stack,,,:/var/lib/swtpm:/bin/false
libvirt-qemu:x:64055:109:Libvirt Qemu,,,:/var/lib/libvirt:/usr/sbin/nologin
libvirt-dnsmasq:x:130:141:Libvirt Dnsmasq,,,:/var/lib/libvirt/dnsmasq:/usr/sbin/nologin
ashary@ashary-VirtualBox:~/Desktop/Devops$
```

```
ashary@ashary-VirtualBox:~/Desktop/Devops$ head -n 5 /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
ashary@ashary-VirtualBox:~/Desktop/Devops$ tail -n 5 /etc/passwd
gdm:x:128:134:Gnome Display Manager:/var/lib/gdm3:/bin/false
ashary:x:1000:1000:ASHARY,,,:/home/ashary:/bin/bash
swtpm:x:129:139:virtual TPM software stack,,,:/var/lib/swtpm:/bin/false
libvirt-qemu:x:64055:109:Libvirt Qemu,,,:/var/lib/libvirt:/usr/sbin/nologin
libvirt-dnsmasq:x:130:141:Libvirt Dnsmasq,,,:/var/lib/libvirt/dnsmasq:/usr/sbin/nologin
ashary@ashary-VirtualBox:~/Desktop/Devops$
```

3. Searching for Patterns

Use `grep` to find all lines containing the word "root" in `/etc/passwd`.

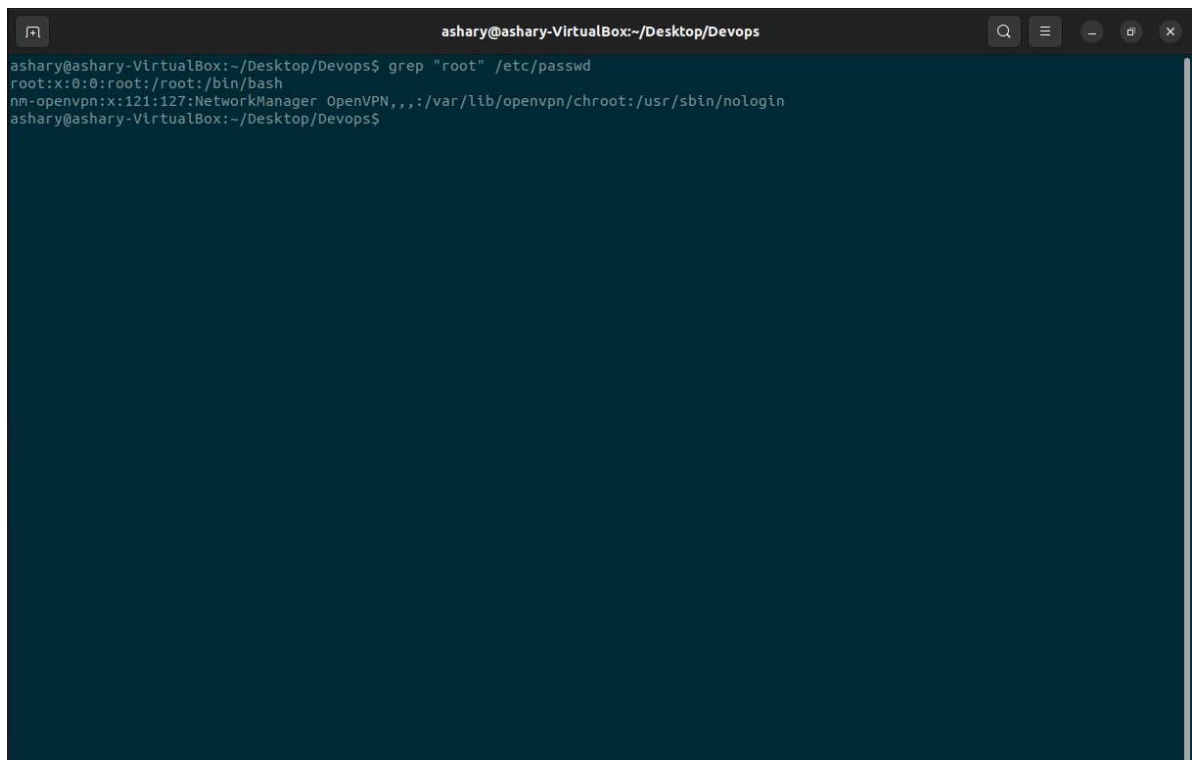
Command:

```
grep "root" /etc/passwd
```

Explanation:

- `grep`: Searches for a word or phrase in a file.
- Here, it finds lines that include the word "root" in `/etc/passwd`.

Screenshot:

A screenshot of a terminal window titled "ashary@ashary-VirtualBox:~/Desktop/Devops". The terminal shows the command `grep "root" /etc/passwd` being executed. The output displays three lines from the `/etc/passwd` file: `root:x:0:0:root:/root:/bin/bash`, `nm-openvpn:x:121:127:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin`, and the prompt `ashary@ashary-VirtualBox:~/Desktop/Devops$`. The terminal has a dark background with light-colored text.

4. Zipping and Unzipping

Compress the `test_dir` directory into a file named `test_dir.zip` using `zip`.

Unzip `test_dir.zip` into a new directory named `unzipped_dir`.

Command:

```
cd ..
```

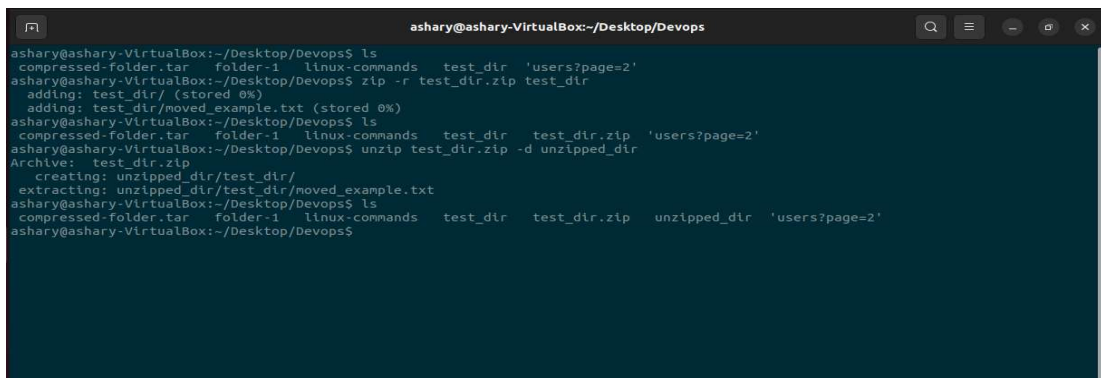
```
zip -r test_dir.zip test_dir
```

```
unzip test_dir.zip -d unzipped_dir
```

Explanation:

- `zip -r`: Compresses folders/files recursively (including subfolders).
- `unzip`: Extracts the `.zip` file into the `unzipped_dir` folder.

Screenshot:



```
ashary@ashary-VirtualBox:~/Desktop/Devops$ ls
compressed-folder.tar  folder-1  linux-commands  test_dir  'users?page=2'
ashary@ashary-VirtualBox:~/Desktop/Devops$ zip -r test_dir.zip test_dir
adding: test_dir/ (stored 0%)
adding: test_dir/moved_example.txt (stored 0%)
ashary@ashary-VirtualBox:~/Desktop/Devops$ ls
compressed-folder.tar  folder-1  linux-commands  test_dir  test_dir.zip  'users?page=2'
ashary@ashary-VirtualBox:~/Desktop/Devops$ unzip test_dir.zip -d unzipped_dir
Archive:  test_dir.zip
  creating: unzipped_dir/test_dir/
  extracting: unzipped_dir/test_dir/moved_example.txt
ashary@ashary-VirtualBox:~/Desktop/Devops$ ls
compressed-folder.tar  folder-1  linux-commands  test_dir  test_dir.zip  unzipped_dir  'users?page=2'
ashary@ashary-VirtualBox:~/Desktop/Devops$
```

5. Downloading Files

Use **wget** to download a file from a URL (e.g., <https://example.com/sample.txt>).

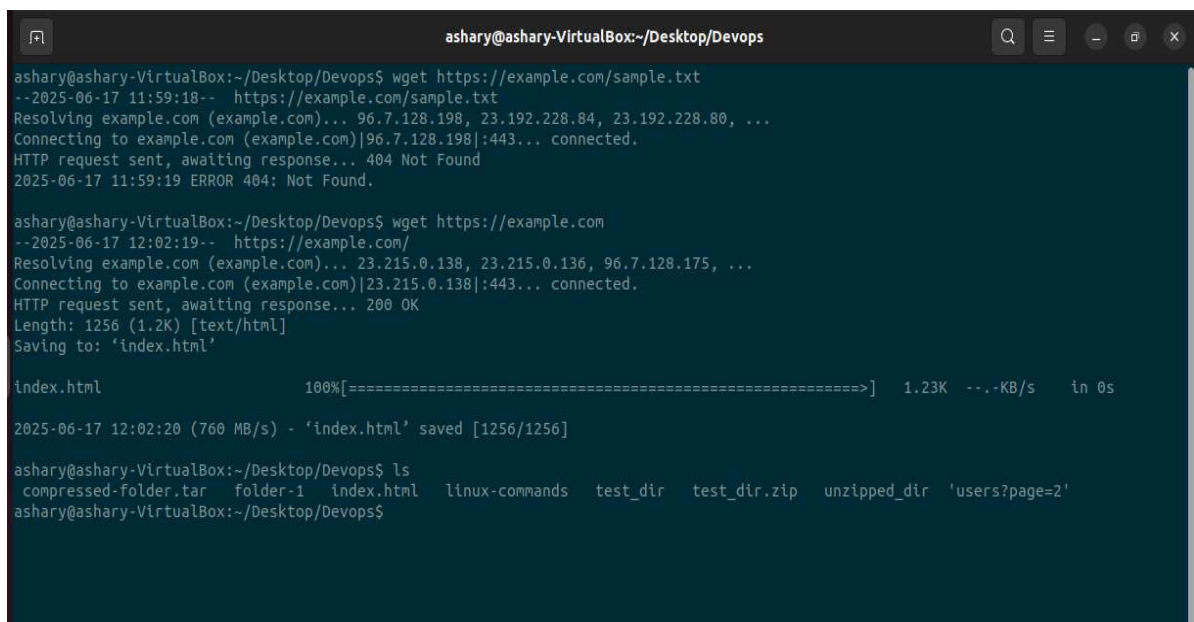
Command:

```
wget https://example.com
```

Explanation:

- **wget**: Downloads files from a link.
- You can use it to get files directly into your terminal.
- You may need to install it first: `sudo apt install wget`

Screenshots:



```
ashary@ashary-VirtualBox:~/Desktop/Devops
ashary@ashary-VirtualBox:~/Desktop/Devops$ wget https://example.com/sample.txt
--2025-06-17 11:59:18-- https://example.com/sample.txt
Resolving example.com (example.com)... 96.7.128.198, 23.192.228.84, 23.192.228.80, ...
Connecting to example.com (example.com)|96.7.128.198|:443... connected.
HTTP request sent, awaiting response... 404 Not Found
2025-06-17 11:59:19 ERROR 404: Not Found.

ashary@ashary-VirtualBox:~/Desktop/Devops$ wget https://example.com
--2025-06-17 12:02:19-- https://example.com/
Resolving example.com (example.com)... 23.215.0.138, 23.215.0.136, 96.7.128.175, ...
Connecting to example.com (example.com)|23.215.0.138|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 1256 (1.2K) [text/html]
Saving to: 'index.html'

index.html          100%[=====] 1.23K  --.-KB/s  in 0s

2025-06-17 12:02:20 (760 MB/s) - 'index.html' saved [1256/1256]

ashary@ashary-VirtualBox:~/Desktop/Devops$ ls
compressed-folder.tar  folder-1  index.html  linux-commands  test_dir  test_dir.zip  unzipped_dir  'users?page=2'
ashary@ashary-VirtualBox:~/Desktop/Devops$
```

6. Changing Permissions

Create a file named `secure.txt` and change its permissions to read-only for everyone using `chmod`.

Commands:

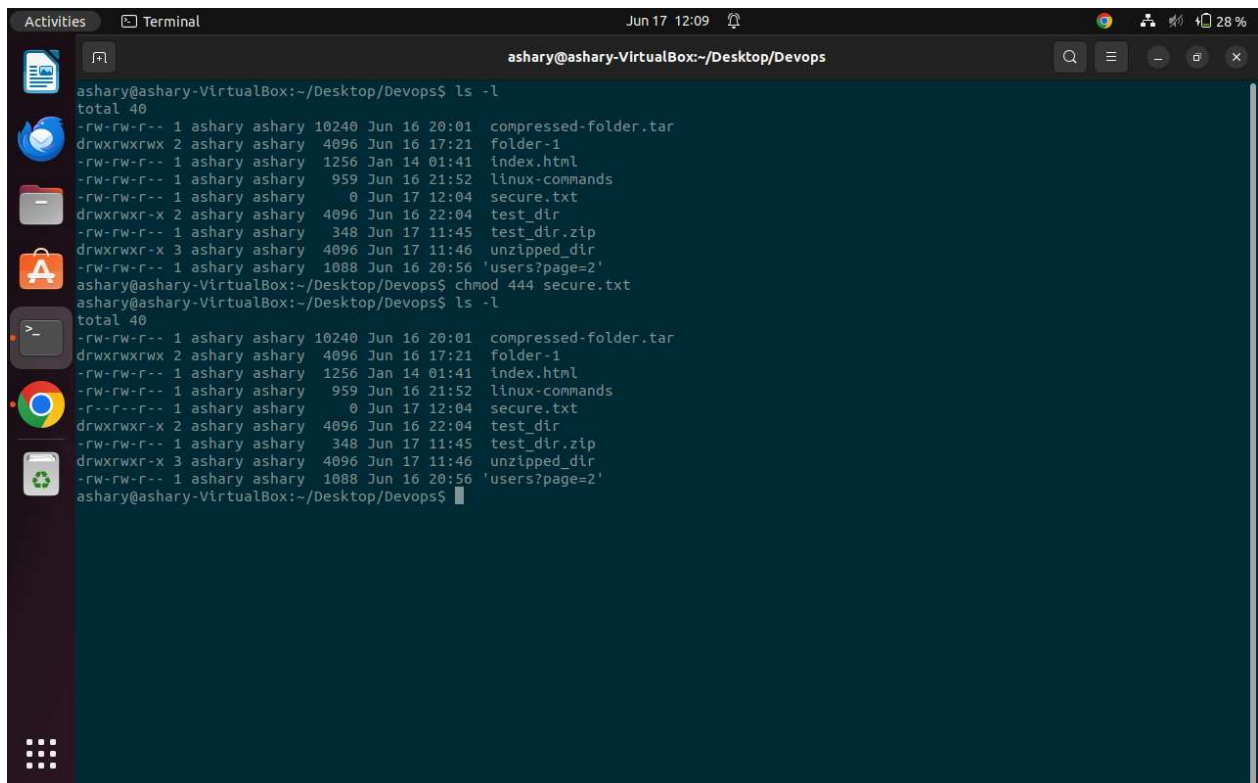
```
touch secure.txt
```

```
chmod 444 secure.txt
```

Explanation:

- `touch secure.txt`: Creates a new file named `secure.txt`.
- `chmod 444`: Makes the file **read-only** for everyone – you, your group, and others.

Screenshot:



The screenshot shows a terminal window titled "ashary@ashary-VirtualBox: ~/Desktop/Devops". The terminal displays the following commands and output:

```
ashary@ashary-VirtualBox:~/Desktop/Devops$ ls -l
total 40
-rw-rw-r-- 1 ashary ashary 10240 Jun 16 20:01 compressed-folder.tar
drwxrwxrwx 2 ashary ashary 4096 Jun 16 17:21 folder-1
-rw-rw-r-- 1 ashary ashary 1256 Jan 14 01:41 index.html
-rw-rw-r-- 1 ashary ashary 959 Jun 16 21:52 linux-commands
-rw-rw-r-- 1 ashary ashary 0 Jun 17 12:04 secure.txt
drwxrwxr-x 2 ashary ashary 4096 Jun 16 22:04 test_dir
-rw-rw-r-- 1 ashary ashary 348 Jun 17 11:45 test_dir.zip
drwxrwxr-x 3 ashary ashary 4096 Jun 17 11:46 unzipped_dir
-rw-rw-r-- 1 ashary ashary 1088 Jun 16 20:56 'users?page=2'
ashary@ashary-VirtualBox:~/Desktop/Devops$ chmod 444 secure.txt
ashary@ashary-VirtualBox:~/Desktop/Devops$ ls -l
total 40
-rw-rw-r-- 1 ashary ashary 10240 Jun 16 20:01 compressed-folder.tar
drwxrwxrwx 2 ashary ashary 4096 Jun 16 17:21 folder-1
-rw-rw-r-- 1 ashary ashary 1256 Jan 14 01:41 index.html
-rw-rw-r-- 1 ashary ashary 959 Jun 16 21:52 linux-commands
-r--r--r-- 1 ashary ashary 0 Jun 17 12:04 secure.txt
drwxrwxr-x 2 ashary ashary 4096 Jun 16 22:04 test_dir
-rw-rw-r-- 1 ashary ashary 348 Jun 17 11:45 test_dir.zip
drwxrwxr-x 3 ashary ashary 4096 Jun 17 11:46 unzipped_dir
-rw-rw-r-- 1 ashary ashary 1088 Jun 16 20:56 'users?page=2'
ashary@ashary-VirtualBox:~/Desktop/Devops$
```

7. Working with Environment Variables

Use `export` to set a new environment variable called `MY_VAR` with the value `"Hello, Linux!"`.

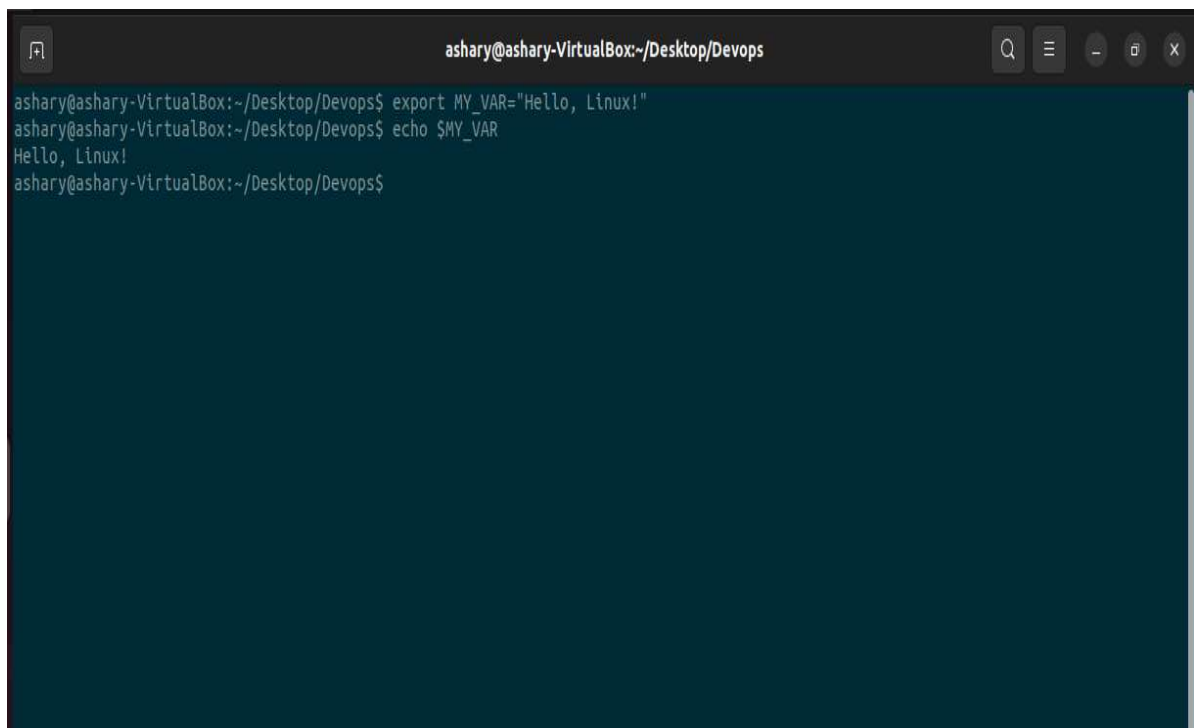
Commands:

```
export MY_VAR="Hello, Linux!"  
echo $MY_VAR
```

Explanation

- `export`: Creates a temporary variable in your current session.
- `echo $MY_VAR`: Displays the value stored in the variable.

Screenshot:

A screenshot of a terminal window titled "ashary@ashary-VirtualBox:~/Desktop/Devops". The terminal shows the following commands and output:

```
ashary@ashary-VirtualBox:~/Desktop/Devops$ export MY_VAR="Hello, Linux!"  
ashary@ashary-VirtualBox:~/Desktop/Devops$ echo $MY_VAR  
Hello, Linux!  
ashary@ashary-VirtualBox:~/Desktop/Devops$
```