

CYBERSECURITY & ETHICAL HACKING
BASH SHELL BASICS
ASSIGNMENT - II
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20BCE2664

I. FILE AND DIRECTORY MANIPULATION

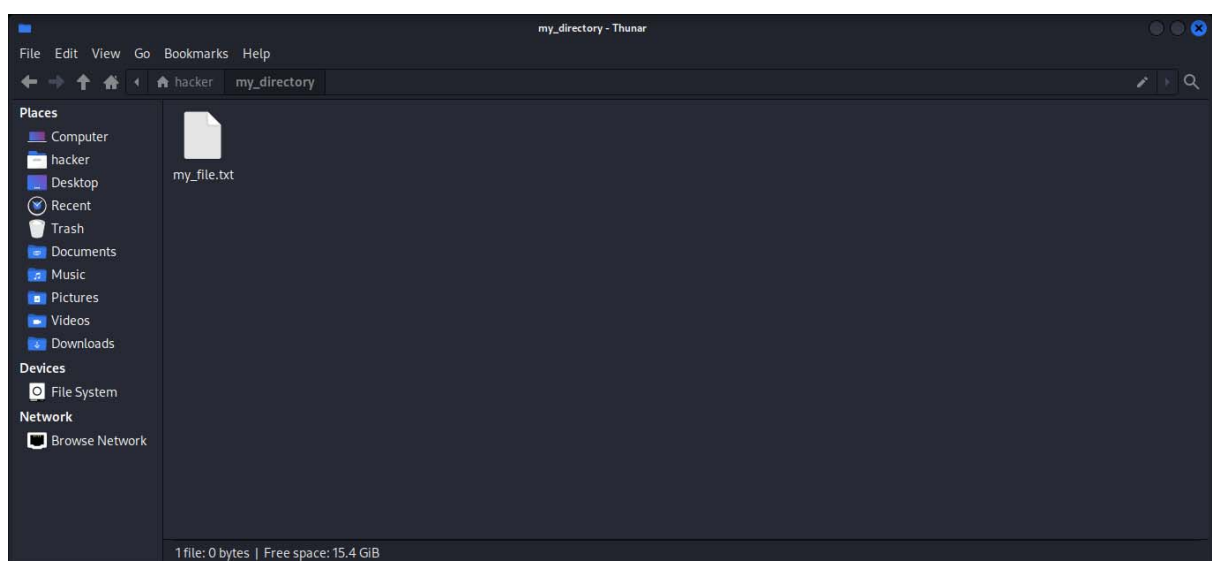
1. Create a directory called "my_directory".
→ `mkdir my_directory`
2. Navigate into the "my_directory".
→ `cd my_directory`
3. Create an empty file called "my_file.txt".
→ `touch my_file.txt`
4. List all the files and directories in the current directory.
→ `ls`
5. Rename "my_file.txt" to "new_file.txt".
→ `mv my_file.txt new_file.txt`
6. Display the content of "new_file.txt" using a pager tool of your choice.
→ `cat new_file.txt`
7. Append the text "Hello, World!" to "new_file.txt".
→ `echo "Hello, World!" >> new_file.txt`
8. Create a new directory called "backup" within "my_directory".
→ `mkdir backup`
9. Move "new_file.txt" to the "backup" directory.
→ `mv new_file.txt backup`
10. Verify that "new_file.txt" is now located in the "backup" directory.
→ `ls backup`
11. Delete the "backup" directory and all its contents.
→ `rm -rf backup`

Output of Commands 1 - 4

```
Shell No.1
File Actions Edit View Help
#//bin/bash
#1. Create a directory called "my_directory".
mkdir my_directory
#2. Navigate into the "my_directory".
cd my_directory
#3. Create an empty file called "my_file.txt".
touch my_file.txt
#4. List all the files and directories in the current directory.
ls
.
```



```
hacker@kali: ~
File Actions Edit View Help
(hacker@kali)-[~]
└─$ chmod +x Question1.sh
(hacker@kali)-[~]
└─$ ./Question1.sh
my_file.txt
(hacker@kali)-[~]
└─$
```



Output of Commands 1 - 6



The screenshot shows a Kali Linux terminal window with the title "Shell No.1". The terminal output displays a series of commands and their results, numbered 1 through 6. The background features a Kali Linux logo and the text "KALI LINUX" and "the quieter you become, the more you are able to hear".

```
File Actions Edit View Help
# /bin/bash

#1. Create a directory called "my_directory".
mkdir my_directory

#2. Navigate into the "my_directory".
cd my_directory

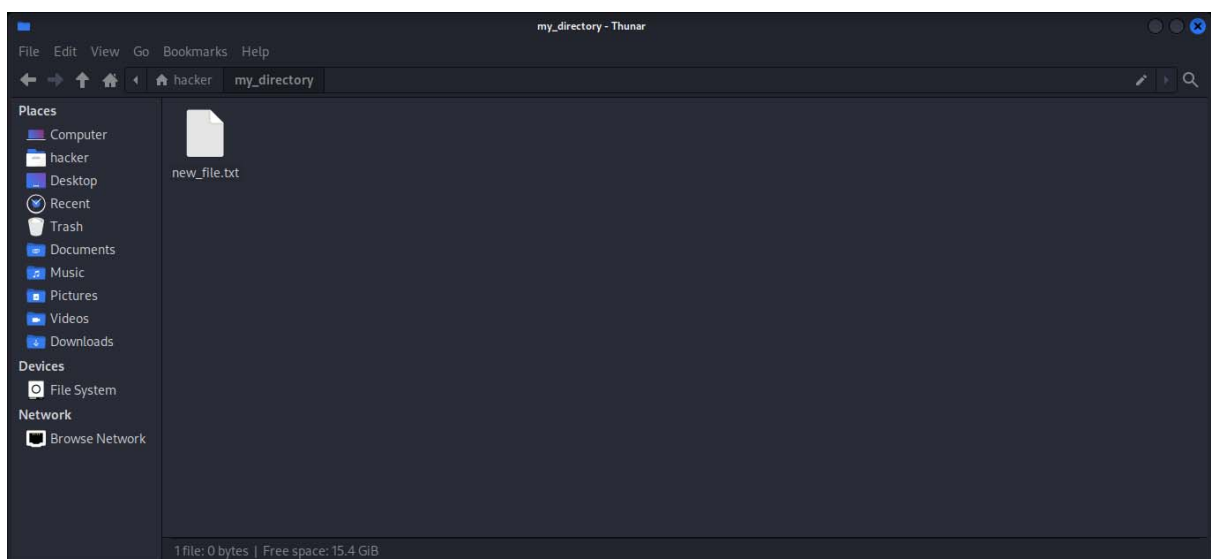
#3. Create an empty file called "my_file.txt".
touch my_file.txt

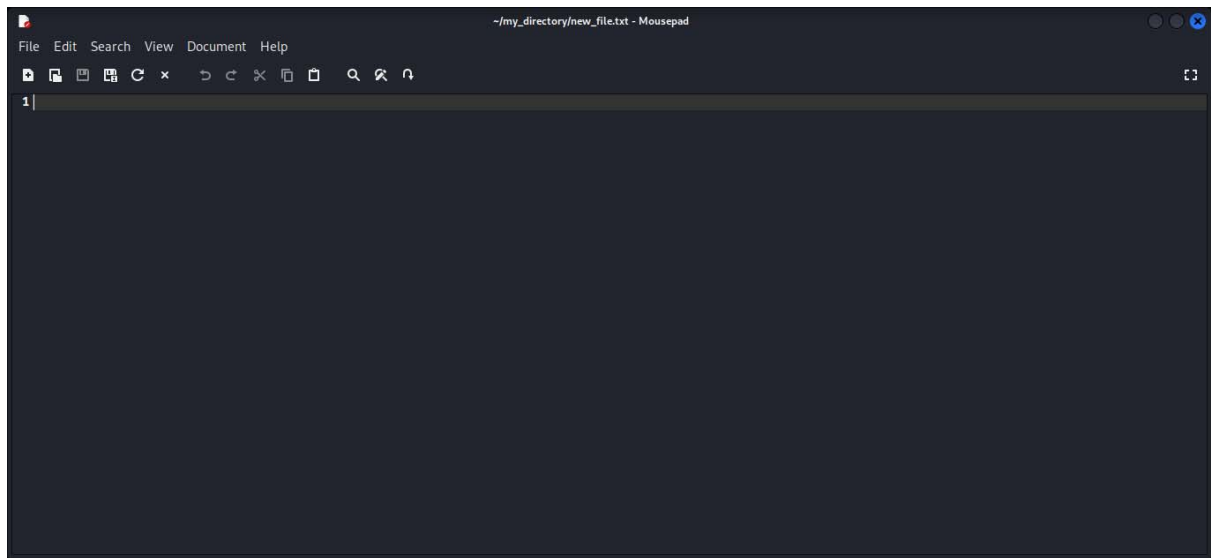
#4. List all the files and directories in the current directory.
ls

#5. Rename "my_file.txt" to "new_file.txt"
mv my_file.txt new_file.txt

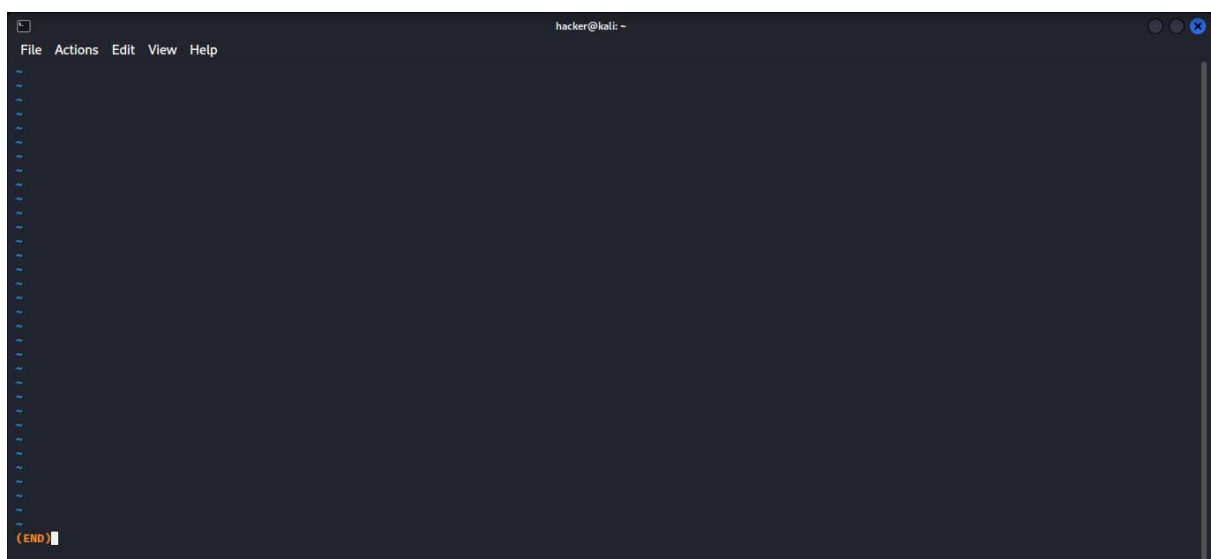
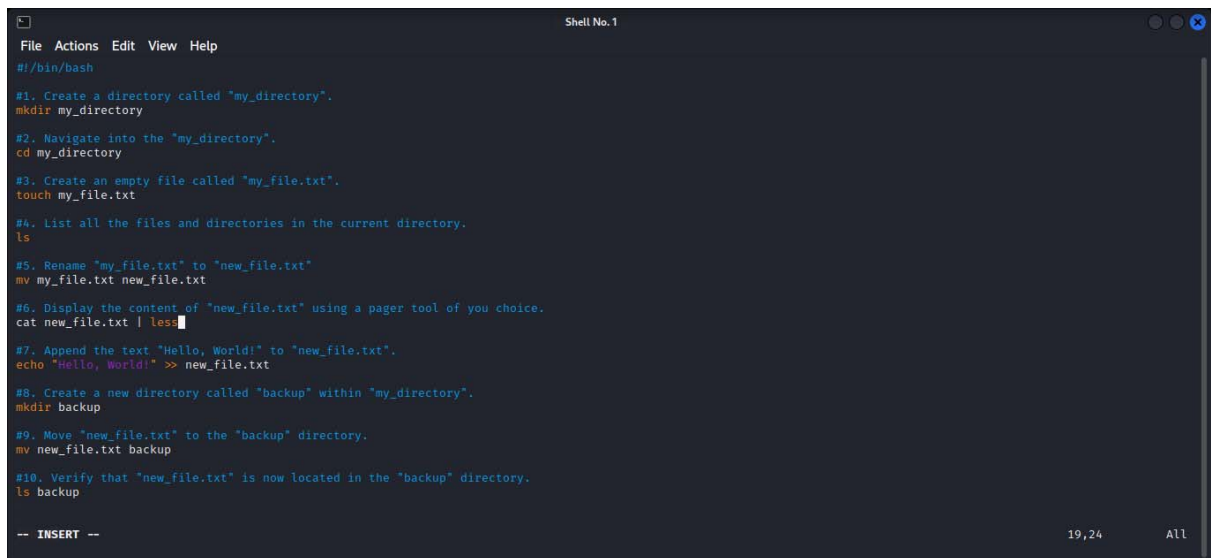
#6. Display the content of "new_file.txt" using a pager tool of your choice.
cat new_file.txt | less
```

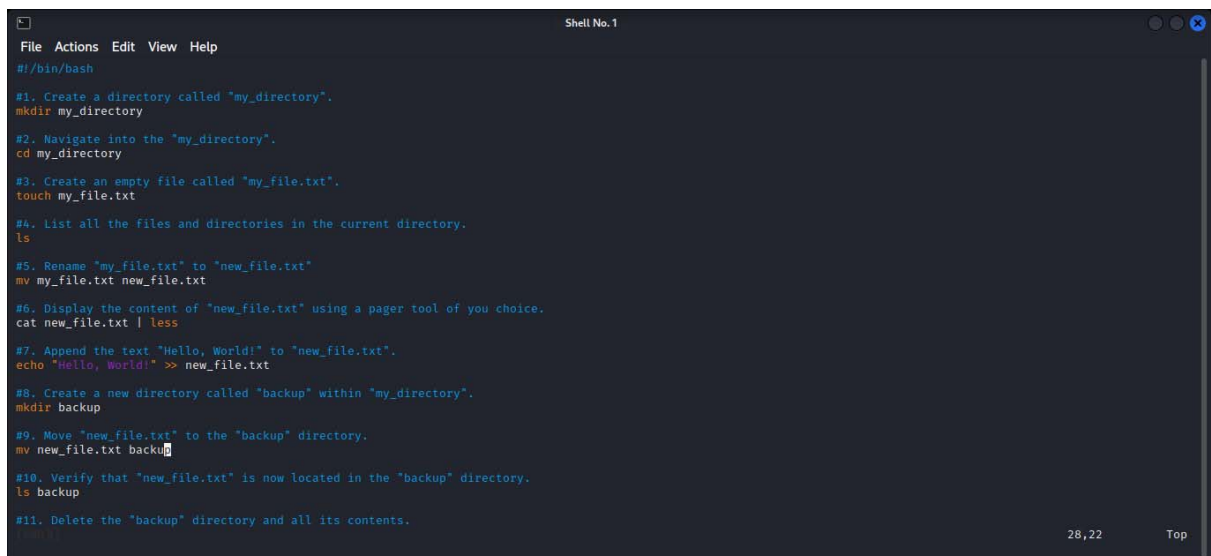
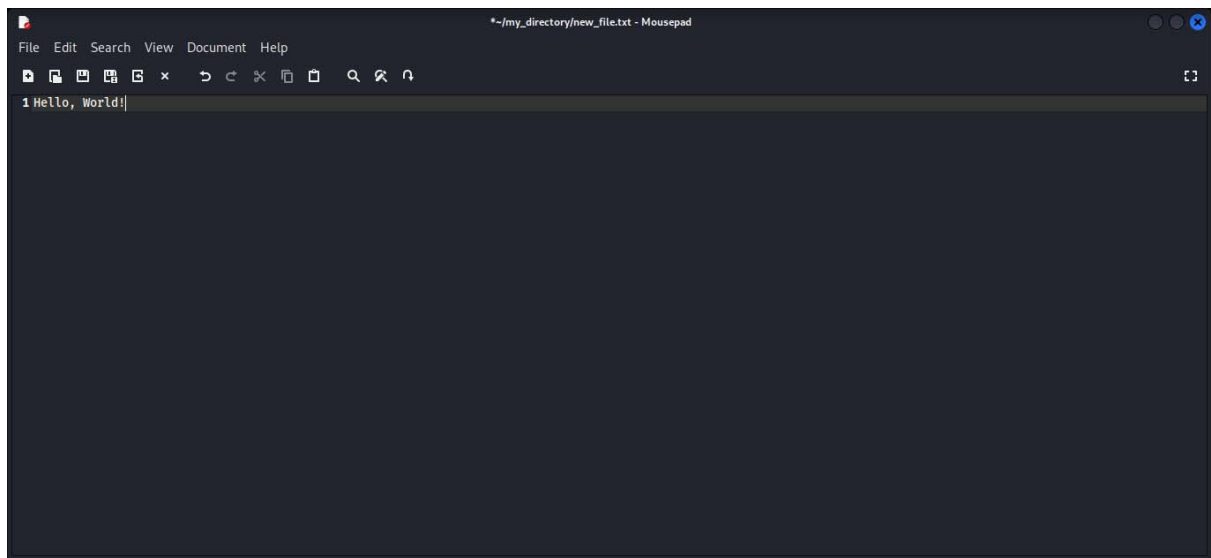
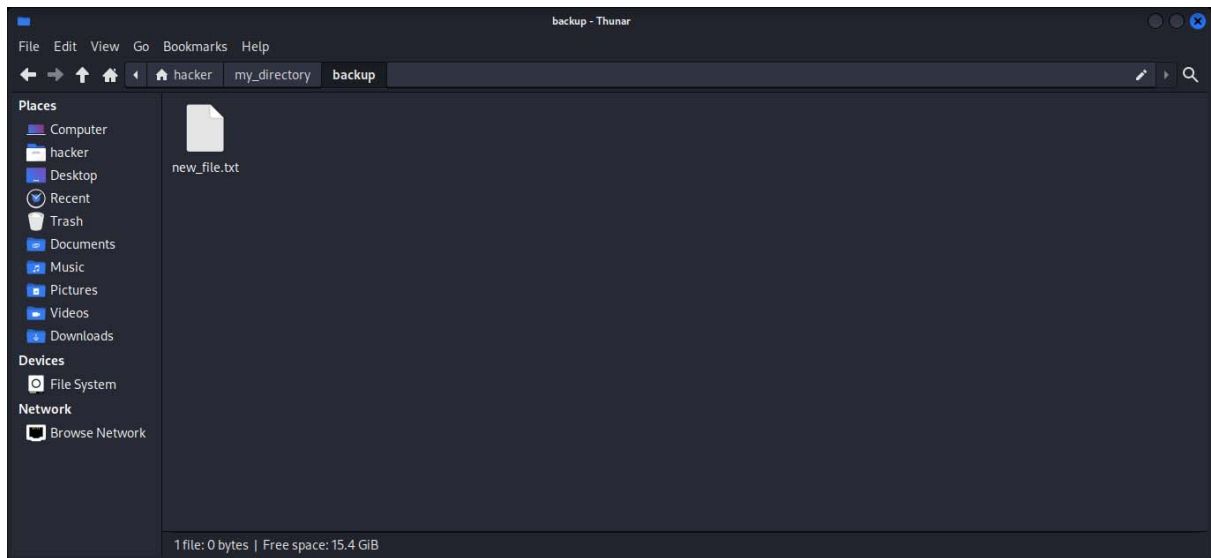
20,0-1 All





Output of Commands 1 - 10





Output of Commands 1 - 11

```
Shell No.1
File Actions Edit View Help
mkdir my_directory

#2. Navigate into the "my_directory".
cd my_directory

#3. Create an empty file called "my_file.txt".
touch my_file.txt

#4. List all the files and directories in the current directory.
ls

#5. Rename "my_file.txt" to "new_file.txt"
mv my_file.txt new_file.txt

#6. Display the content of "new_file.txt" using a pager tool of your choice.
cat new_file.txt | less

#7. Append the text "Hello, World!" to "new_file.txt".
echo "Hello, World!" >> new_file.txt

#8. Create a new directory called "backup" within "my_directory".
mkdir backup

#9. Move "new_file.txt" to the "backup" directory.
mv new_file.txt backup

#10. Verify that "new_file.txt" is now located in the "backup" directory.
ls backup

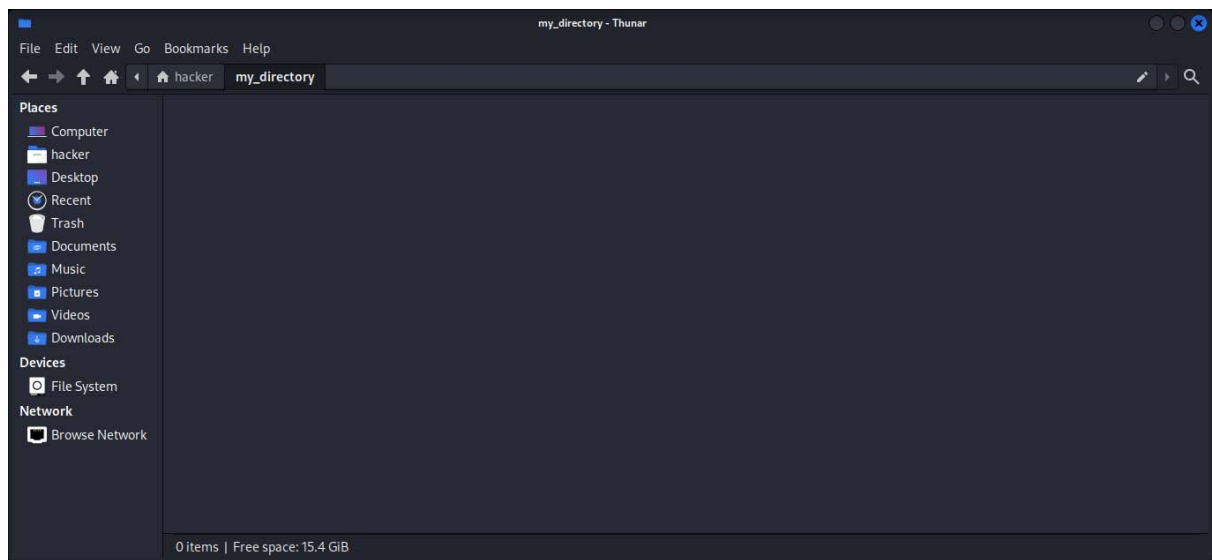
#11. Delete the "backup" directory and all its contents.
rm -rf backup

[quit]
```

```
hacker@kali: ~
File Actions Edit View Help
(hacker@kali)-[~]
$ chmod +x Question1.sh
(hacker@kali)-[~]
$ ./Question1.sh
```

```
hacker@kali: ~
File Actions Edit View Help
(END)

(hacker@kali)-[~]
$
```



Explanation

The code (1- 4) first creates a directory called "my_directory". Then, it navigates into the "my_directory" directory. Next, it creates an empty file called "my_file.txt". Then, it lists all the files and directories in the current directory.

The code (1- 6) then renames "my_file.txt" to "new_file.txt". It then displays the content of "new_file.txt" using a pager tool of your choice. Next, it appends the text "Hello, World!" to "new_file.txt".

The code (1- 10) then creates a new directory called "backup" within "my_directory". It then moves "new_file.txt" to the "backup" directory. Finally, it verifies that "new_file.txt" is now located in the "backup" directory.

The code (1- 11) then deletes the "backup" directory and all its contents.

II. PERMISSIONS AND SCRIPTING

- Create a new file called "my_script.sh".
- Edit "my_script.sh" using a text editor of your choice and add the following lines:
bash

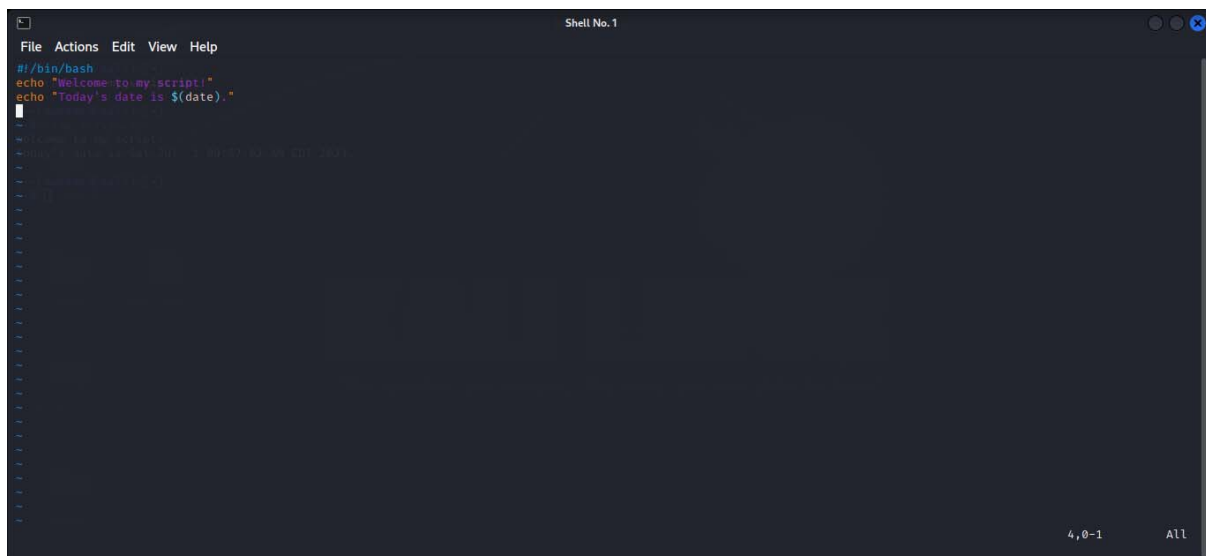
```
#!/bin/bash
```

```
echo "Welcome to my script!"
```

```
echo "Today's date is $(date)."
```

Save and exit the file.

- Make "my_script.sh" executable.
- Run "my_script.sh" and verify that the output matches the expected result.

A screenshot of a terminal window titled "Shell No. 1". The window shows the contents of a file named "my_script.sh". The first line is "#!/bin/bash". The second line is "echo "Welcome to my script!"". The third line is "echo "Today's date is \$(date)."". The terminal shows the file being edited in a text editor, with the cursor at the end of the third line. The terminal also shows the file being saved and the editor exiting.A screenshot of a terminal window titled "hacker@kali: ~". The window shows the execution of the script "my_script.sh". The first line is "chmod +x my_script.sh". The second line is "./my_script.sh". The output of the script is "Welcome to my script!" followed by "Today's date is Sat Jul 1 09:57:02 AM EDT 2023.". The terminal also shows the file being executed and the output being displayed. The background of the terminal window features a Kali Linux logo and the text "KALI LINUX" and "the quieter you become, the more you are able to hear".

Explanation

The first line, `#!/bin/bash`, tells the operating system that the file is a Bash script and that it should be executed using the Bash shell. The second line, `echo "Welcome to my script!"` will print the text "Welcome to my script!" to the console. The third line, `echo "Today's date is $(date)."` will print the current date to the console.

III. COMMAND EXECUTION AND PIPELINES

- List all the processes running on your system using the "ps" command.

→ ps -ef

```
hacker@kali: ~  
File Actions Edit View Help  
[hacker@kali]~  
$ chmod +x Question3a.sh  
[hacker@kali]~  
$ ./Question3a.sh  
UID      PID     PPID  C  STIME TTY          TIME CMD  
root      1      0  0  08:27 ?        00:00:04 /sbin/init splash  
root      2      0  0  08:27 ?        00:00:00 [kthreadd]  
root      3      2  0  08:27 ?        00:00:00 [rcu_gp]  
root      4      2  0  08:27 ?        00:00:00 [rcu_par_gp]  
root      5      2  0  08:27 ?        00:00:00 [slub_flushwq]  
root      6      2  0  08:27 ?        00:00:00 [netns]  
root     10      2  0  08:27 ?        00:00:00 [mm_percpu_wq]  
root     11      2  0  08:27 ?        00:00:00 [rcu_tasks_kthread]  
root     12      2  0  08:27 ?        00:00:00 [rcu_tasks_rude_kthread]  
root     13      2  0  08:27 ?        00:00:00 [rcu_tasks_trace_kthread]  
root     14      2  0  08:27 ?        00:00:11 [ksoftirqd/0]  
root     15      2  0  08:27 ?        00:00:24 [rcu_preempt]  
root     16      2  0  08:27 ?        00:00:00 [migration/0]  
root     18      2  0  08:27 ?        00:00:00 [cpuhp/0]  
root     20      2  0  08:27 ?        00:00:00 [kdevtmpfs]  
root     21      2  0  08:27 ?        00:00:00 [inet_frag_wq]  
root     22      2  0  08:27 ?        00:00:00 [kauditd]  
root     23      2  0  08:27 ?        00:00:00 [khungtaskd]  
root     24      2  0  08:27 ?        00:00:00 [oom_reaper]  
root     27      2  0  08:27 ?        00:00:00 [writeback]  
root     28      2  0  08:27 ?        00:00:05 [kcompactd0]  
root     29      2  0  08:27 ?        00:00:00 [ksmd]  
root     30      2  0  08:27 ?        00:00:01 [khugepaged]  
root     31      2  0  08:27 ?        00:00:00 [kintegrityd]  
root     32      2  0  08:27 ?        00:00:00 [kblockd]  
root     33      2  0  08:27 ?        00:00:00 [blkcg_nunt_bio]  
root     34      2  0  08:27 ?        00:00:00 [tpm_dev_wq]  
root     35      2  0  08:27 ?        00:00:00 [edac-poller]
```

```
hacker@kali: ~  
File Actions Edit View Help  
root     35      2  0  08:27 ?        00:00:00 [edac-poller]  
root     36      2  0  08:27 ?        00:00:00 [devfreq_wq]  
root     37      2  0  08:27 ?        00:00:02 [kworker/0:1H-kblockd]  
root     38      2  0  08:27 ?        00:00:00 [kswapd0]  
root     44      2  0  08:27 ?        00:00:00 [kthrotld]  
root     46      2  0  08:27 ?        00:00:00 [acpi_thermal_pm]  
root     47      2  0  08:27 ?        00:00:00 [xenbus_probe]  
root     48      2  0  08:27 ?        00:00:00 [mld]  
root     49      2  0  08:27 ?        00:00:00 [ipv6_addrconf]  
root     54      2  0  08:27 ?        00:00:00 [kstrp]  
root     59      2  0  08:27 ?        00:00:00 [zswap-shrink]  
root     60      2  0  08:27 ?        00:00:00 [kworker/u3:0]  
root    123      2  0  08:27 ?        00:00:00 [cryptd]  
root    138      2  0  08:27 ?        00:00:00 [ata_sff]  
root    142      2  0  08:27 ?        00:00:00 [scsi_eh_0]  
root    143      2  0  08:27 ?        00:00:00 [scsi_tmf_0]  
root    145      2  0  08:27 ?        00:00:00 [scsi_eh_1]  
root    146      2  0  08:27 ?        00:00:00 [scsi_tmf_1]  
root    253      2  0  08:27 ?        00:00:01 [jbd2/sda1-8]  
root    254      2  0  08:27 ?        00:00:00 [ext4-rsv-conver]  
root    306      1  0  08:27 ?        00:00:02 /lib/systemd/systemd-journald  
root    337      1  0  08:27 ?        00:00:04 /lib/systemd/systemd-udevd  
root    369      1  0  08:27 ?        00:00:03 /usr/sbin/haveged --Foreground --verbose=1  
root    376      2  0  08:27 ?        00:00:00 [rpciod]  
root    377      2  0  08:27 ?        00:00:00 [xprtiod]  
root    512      1  0  08:27 ?        00:00:00 /usr/sbin/cron -f  
message+ 513      1  0  08:27 ?        00:00:21 /usr/bin/dbus-daemon --system --address=systemd: --nofork --nopidfile --systemd-activation --syslog-only  
polkitd   515      0  0  08:27 ?        00:00:04 /usr/lib/polkit-1/polkitd --no-debug  
root    516      1  0  08:27 ?        00:00:00 /lib/systemd/systemd-logind  
root    568      1  0  08:27 ?        00:00:15 /usr/sbin/BoxService  
root    579      1  0  08:27 ?        00:00:08 /usr/sbin/NetworkManager --no-daemon  
root    592      1  0  08:27 ?        00:00:00 /usr/sbin/ModemManager  
root    602      1  0  08:27 ?        00:00:00 /usr/sbin/lightdm  
root    629      602  1  08:27 tty7    00:09:40 /usr/lib/xorg/Xorg :0 -seat seat0 -auth /var/run/lightdm/root/:0 -nolisten tcp vt7 -novtswitch
```

```
hacker@kali: ~  
File Actions Edit View Help  
root    629      602  1  08:27 tty7    00:09:40 /usr/lib/xorg/Xorg :0 -seat seat0 -auth /var/run/lightdm/root/:0 -nolisten tcp vt7 -novtswitch  
root    630      1  0  08:27 tty1    00:00:00 /sbin/agetty -o -p -- \u --nolinux - linux  
rtkit     766      1  0  08:28 ?        00:00:01 /usr/libexec/rtkit-daemon  
root    860      602  0  08:38 ?        00:00:00 lightdm --session-child 15 26  
hacker   867      1  0  08:38 ?        00:00:00 /lib/systemd/systemd --user  
hacker   870      867  0  08:38 ?        00:00:00 (sd-pam)  
hacker   885      867  0  08:38 ?        00:00:00 /usr/bin/pipewire  
hacker   886      867  0  08:38 ?        00:00:00 /usr/bin/pipewire -c filter-chain.conf  
hacker   888      867  0  08:38 ?        00:00:04 /usr/bin/wireplumber  
hacker   889      867  0  08:38 ?        00:00:00 /usr/bin/pipewire-pulse  
hacker   890      867  0  08:38 ?        00:00:00 /usr/bin/gnome-keyring-daemon --foreground --components=pkcs11,secrets --control-directory=/run/user/1000/keyring  
hacker   891      867  0  08:38 ?        00:00:03 /usr/bin/dbus-daemon --session --address=systemd: --nofork --nopidfile --systemd-activation --syslog-only  
hacker   903      860  0  08:38 ?        00:00:01 xfce4-session  
hacker   979      1  0  08:38 ?        00:00:00 /usr/bin/VBoxClient --clipboard  
hacker   981      970  0  08:38 ?        00:00:00 /usr/bin/VBoxClient --clipboard  
hacker   994      1  0  08:38 ?        00:00:00 /usr/bin/VBoxClient --seamless  
hacker   996      994  0  08:38 ?        00:00:50 /usr/bin/VBoxClient --seamless  
hacker  1002      1  0  08:38 ?        00:00:00 /usr/bin/VBoxClient --draganddrop  
hacker  1003      1002  0  08:38 ?        00:03:00 /usr/bin/VBoxClient --draganddrop  
hacker  1014      903  0  08:38 ?        00:00:00 /usr/bin/ssh-agent x-session-manager  
hacker  1024      867  0  08:38 ?        00:00:00 /usr/libexec/at-spi-bus-launcher  
hacker  1032      1  0  08:38 ?        00:00:00 /usr/bin/VBoxClient --vmsvga  
hacker  1033      1032  0  08:38 ?        00:00:15 /usr/bin/VBoxClient --vmsvga  
hacker  1040      1024  0  08:38 ?        00:00:01 /usr/bin/dbus-daemon --config-file=/usr/share/defaults/at-spi2/accessibility.conf --nofork --print-address 11 --ad  
hacker  1052      867  0  08:38 ?        00:00:07 /usr/libexec/at-spi2-registrard --use-gnome-session  
hacker  1064      903  0  08:38 ?        00:02:58 xfwm4  
hacker  1068      867  0  08:38 ?        00:00:00 /usr/libexec/gvfsd  
hacker  1074      867  0  08:38 ?        00:00:00 /usr/libexec/gvfsd-fuse /run/user/1000/gvfs -f  
hacker  1090      903  0  08:38 ?        00:00:09 xfsettingsd  
root  1094      1  0  08:38 ?        00:00:09 /usr/libexec/upowerd  
hacker  1100      903  0  08:38 ?        00:00:49 xfce4-panel  
hacker  1105      903  0  08:38 ?        00:00:20 Thunar --daemon  
hacker  1111      903  0  08:38 ?        00:00:37 xfdesktop  
hacker  1115      1100  0  08:38 ?        00:00:08 /usr/lib/x86_64-linux-gnu/xfce4/panel/wrapper-2.0 /usr/lib/x86_64-linux-gnu/xfce4/panel/plugins/libwhiskermenu.so
```

```

hacker@kali:~$ ps -ef | grep bash
hacker 1115 1100 0 08:38 ? 00:00:08 /usr/lib/x86_64-linux-gnu/xfce4/panel/wrapper-2.0 /usr/lib/x86_64-linux-gnu/xfce4/panel/plugins/libwhiskermenu.so
hacker 1119 1100 1 08:38 ? 00:07:58 /usr/lib/x86_64-linux-gnu/xfce4/panel/wrapper-2.0 /usr/lib/x86_64-linux-gnu/xfce4/panel/plugins/libcpugraph.so 13
hacker 1120 1100 0 08:38 ? 00:00:00 /usr/lib/x86_64-linux-gnu/xfce4/panel/wrapper-2.0 /usr/lib/x86_64-linux-gnu/xfce4/panel/plugins/libsysstray.so 14 2
hacker 1121 1100 0 08:38 ? 00:02:52 /usr/lib/x86_64-linux-gnu/xfce4/panel/wrapper-2.0 /usr/lib/x86_64-linux-gnu/xfce4/panel/plugins/libgenmon.so 15 27
hacker 1122 1100 0 08:38 ? 00:00:02 /usr/lib/x86_64-linux-gnu/xfce4/panel/wrapper-2.0 /usr/lib/x86_64-linux-gnu/xfce4/panel/plugins/libpulseaudio-plu
hacker 1123 1100 0 08:38 ? 00:00:01 /usr/lib/x86_64-linux-gnu/xfce4/panel/wrapper-2.0 /usr/lib/x86_64-linux-gnu/xfce4/panel/plugins/libnotification-pl
hacker 1124 1100 0 08:38 ? 00:00:15 /usr/lib/x86_64-linux-gnu/xfce4/panel/wrapper-2.0 /usr/lib/x86_64-linux-gnu/xfce4/panel/plugins/libxfce4powermanag
hacker 1125 1100 0 08:38 ? 00:00:04 /usr/lib/x86_64-linux-gnu/xfce4/panel/wrapper-2.0 /usr/lib/x86_64-linux-gnu/xfce4/panel/plugins/libactions.so 22 2
hacker 1162 867 0 08:38 ? 00:00:08 /usr/lib/x86_64-linux-gnu/xfce4/notifyd/xfce4-notifyd
hacker 1168 903 0 08:38 ? 00:00:00 nm-applet
hacker 1169 1 0 08:38 ? 00:00:00 xcapp -e Super_L Control_L Escape
hacker 1176 903 0 08:38 ? 00:00:02 light-locker
hacker 1180 903 0 08:38 ? 00:00:00 xiccd
hacker 1184 903 0 08:38 ? 00:00:02 xfce4-power-manager
hacker 1186 903 0 08:38 ? 00:00:00 /usr/libexec/gnome-2.0/demos/agent
colord 1208 1 0 08:38 ? 00:00:00 /usr/libexec/colord
hacker 1216 903 0 08:38 ? 00:00:00 /usr/lib/policykit-1-gnome/polkit-gnome-authentication-agent-1
hacker 1217 867 0 08:38 ? 00:00:00 /usr/libexec/dconf-service
hacker 1224 903 0 08:38 ? 00:00:02 /usr/bin/python3 /usr/bin/blueman-applet
hacker 1501 867 0 08:39 ? 00:00:00 /usr/libexec/bluetooth/obexd
hacker 1564 867 0 08:39 ? 00:00:00 /usr/libexec/gvfs-udisks2-volume-monitor
root 1588 1 0 08:39 ? 00:00:00 /usr/libexec/udisks2/udisksd
root 1589 2 0 08:39 ? 00:00:00 [kworker/0:0]
hacker 1600 867 0 08:39 ? 00:00:00 /usr/libexec/gvfs-goa-volume-monitor
hacker 1605 867 0 08:39 ? 00:00:00 /usr/libexec/gvfs-mtp-volume-monitor
hacker 1618 867 0 08:39 ? 00:00:04 /usr/libexec/gvfs-afc-volume-monitor
hacker 1624 867 0 08:39 ? 00:00:00 /usr/libexec/gvfs-gphoto2-volume-monitor
hacker 1632 1068 0 08:39 ? 00:00:00 /usr/libexec/gvfsd-trash --spawner :1.21 /org/gtk/gvfs/exec_spaw/0
hacker 1640 867 0 08:39 ? 00:00:00 /usr/libexec/gvfsd-metadata
hacker 4179 1 0 08:44 ? 00:00:19 /usr/bin/qterminal -e vim
hacker 4198 4179 0 08:44 pts/0 00:00:02 /usr/bin/vim
hacker 8230 1068 0 08:52 ? 00:00:00 /usr/libexec/gvfsd-network --spawner :1.21 /org/gtk/gvfs/exec_spaw/1
hacker 8266 1068 0 08:52 ? 00:00:00 /usr/libexec/gvfsd-dnssd --spawner :1.21 /org/gtk/gvfs/exec_spaw/3
hacker 24032 1 0 09:24 ? 00:00:02 /usr/bin/mousepad /home/hacker/Desktop/Bash Commands

```

```

hacker@kali:~$ ps -ef | grep bash
hacker 24032 1 0 09:24 ? 00:00:02 /usr/bin/mousepad /home/hacker/Desktop/Bash Commands
hacker 28462 1 0 09:33 ? 00:00:10 /usr/bin/qterminal
hacker 28465 28462 0 09:33 pts/1 00:00:01 /usr/bin/zsh
hacker 30837 1 0 09:38 ? 00:00:07 /usr/bin/qterminal
hacker 30848 30837 0 09:38 pts/2 00:00:00 /usr/bin/zsh
hacker 182594 1 0 14:51 ? 00:00:04 /usr/bin/qterminal -e vim
hacker 182597 182594 0 14:51 pts/3 00:00:00 /usr/bin/vim
hacker 221595 1 0 16:11 ? 00:00:04 /usr/bin/qterminal
hacker 221598 221595 0 16:11 pts/4 00:00:02 /usr/bin/zsh
hacker 223166 1 0 16:14 pts/5 00:00:00 /usr/bin/qterminal -e vim
hacker 223177 223166 0 16:14 pts/5 00:00:00 /usr/bin/vim
root 238323 2 0 16:45 ? 00:00:00 [kworker/u2:0-flush-8:0]
hacker 242702 867 0 16:54 ? 00:00:00 /usr/lib/x86_64-linux-gnu/xfce4/xfconf/xfconfd
root 242853 2 0 16:54 ? 00:00:00 [kworker/0:3-events]
hacker 244286 867 0 16:57 ? 00:00:00 /usr/lib/x86_64-linux-gnu/tumbler-1/tumblerd
hacker 244326 1 0 16:57 ? 00:00:01 /usr/bin/x-terminal-emulator -e vim /home/hacker/Question3b.sh
hacker 244330 244326 0 16:57 pts/6 00:00:00 /usr/bin/vim /home/hacker/Question3b.sh
root 245480 2 0 16:59 ? 00:00:00 [kworker/u2:1-events_unbound]
root 245481 2 0 16:59 ? 00:00:00 [kworker/u2:3-events_unbound]
root 245538 2 0 16:59 ? 00:00:00 [kworker/0:0-mm_percpu_wq]
hacker 246290 28465 0 17:01 pts/1 00:00:00 /bin/bash ./Test.sh
hacker 246292 246290 0 17:01 pts/1 00:00:00 grep bash
hacker 247304 1 0 17:03 ? 00:00:00 /usr/bin/qterminal
hacker 247307 247304 0 17:03 pts/7 00:00:00 /usr/bin/zsh
hacker 247846 1 0 17:04 ? 00:00:00 /usr/bin/qterminal
hacker 247849 247846 0 17:04 pts/8 00:00:00 /usr/bin/zsh
hacker 247866 1 0 17:04 ? 00:00:01 /usr/bin/qterminal -e vim
hacker 247869 247866 0 17:04 pts/9 00:00:00 /usr/bin/vim
root 248262 2 0 17:05 ? 00:00:00 [kworker/0:1-events]
root 248665 2 0 17:05 ? 00:00:00 [kworker/u2:2-events_unbound]
hacker 249283 1 5 17:07 ? 00:00:00 /usr/bin/qterminal
hacker 249294 249283 7 17:07 pts/10 00:00:00 /usr/bin/zsh
hacker 249380 249294 20 17:07 pts/10 00:00:00 /bin/bash ./Question3a.sh
hacker 249381 249380 99 17:07 pts/10 00:00:00 ps -ef

```

```

hacker@kali:~$ ps -ef | grep bash
hacker 30837 1 0 09:38 ? 00:00:07 /usr/bin/qterminal
hacker 30848 30837 0 09:38 pts/2 00:00:00 /usr/bin/zsh
hacker 182594 1 0 14:51 ? 00:00:04 /usr/bin/qterminal -e vim
hacker 182597 182594 0 14:51 pts/3 00:00:00 /usr/bin/vim
hacker 221595 1 0 16:11 ? 00:00:04 /usr/bin/qterminal
hacker 221598 221595 0 16:11 pts/4 00:00:02 /usr/bin/zsh
hacker 223166 1 0 16:14 pts/5 00:00:00 /usr/bin/qterminal -e vim
hacker 223177 223166 0 16:14 pts/5 00:00:00 /usr/bin/vim
root 238323 2 0 16:45 ? 00:00:00 [kworker/u2:0-flush-8:0]
hacker 242702 867 0 16:54 ? 00:00:00 /usr/lib/x86_64-linux-gnu/xfce4/xfconf/xfconfd
root 242853 2 0 16:54 ? 00:00:00 [kworker/0:3-events]
hacker 244286 867 0 16:57 ? 00:00:00 /usr/lib/x86_64-linux-gnu/tumbler-1/tumblerd
hacker 244326 1 0 16:57 ? 00:00:01 /usr/bin/x-terminal-emulator -e vim /home/hacker/Question3b.sh
hacker 244330 244326 0 16:57 pts/6 00:00:00 /usr/bin/vim /home/hacker/Question3b.sh
root 245480 2 0 16:59 ? 00:00:00 [kworker/u2:1-events_unbound]
root 245481 2 0 16:59 ? 00:00:00 [kworker/u2:3-events_unbound]
root 245538 2 0 16:59 ? 00:00:00 [kworker/0:0-mm_percpu_wq]
hacker 246290 28465 0 17:01 pts/1 00:00:00 /bin/bash ./Test.sh
hacker 246292 246290 0 17:01 pts/1 00:00:00 grep bash
hacker 247304 1 0 17:03 ? 00:00:00 /usr/bin/qterminal
hacker 247307 247304 0 17:03 pts/7 00:00:00 /usr/bin/zsh
hacker 247846 1 0 17:04 ? 00:00:00 /usr/bin/qterminal
hacker 247849 247846 0 17:04 pts/8 00:00:00 /usr/bin/zsh
hacker 247866 1 0 17:04 ? 00:00:01 /usr/bin/qterminal -e vim
hacker 247869 247866 0 17:04 pts/9 00:00:00 /usr/bin/vim
root 248262 2 0 17:05 ? 00:00:00 [kworker/0:1-events]
root 248665 2 0 17:05 ? 00:00:00 [kworker/u2:2-events_unbound]
hacker 249283 1 5 17:07 ? 00:00:00 /usr/bin/qterminal
hacker 249294 249283 7 17:07 pts/10 00:00:00 /usr/bin/zsh
hacker 249380 249294 20 17:07 pts/10 00:00:00 /bin/bash ./Question3a.sh
hacker 249381 249380 99 17:07 pts/10 00:00:00 ps -ef

(hacker@kali)~$

```

- Use the "grep" command to filter the processes list and display only the processes with "bash" in their name.

→ ps -ef | grep bash

```
File Actions Edit View Help
~/bin/bash
#Use the "grep" command to filter the processes list and display only the process with "bash" in their name
ps -ef | grep bash

```

USER	PID	PPID	C	ST	TIME	COMMAND
root	1	0	0	S	0:00	/bin/bash
root	2	0	0	S	0:00	/bin/bash
root	3	0	0	S	0:00	/bin/bash
root	4	0	0	S	0:00	/bin/bash
root	5	0	0	S	0:00	/bin/bash
root	6	0	0	S	0:00	/bin/bash
root	7	0	0	S	0:00	/bin/bash
root	8	0	0	S	0:00	/bin/bash
root	9	0	0	S	0:00	/bin/bash
root	10	0	0	S	0:00	/bin/bash
root	11	0	0	S	0:00	/bin/bash
root	12	0	0	S	0:00	/bin/bash
root	13	0	0	S	0:00	/bin/bash
root	14	0	0	S	0:00	/bin/bash
root	15	0	0	S	0:00	/bin/bash
root	16	0	0	S	0:00	/bin/bash
root	17	0	0	S	0:00	/bin/bash
root	18	0	0	S	0:00	/bin/bash
root	19	0	0	S	0:00	/bin/bash
root	20	0	0	S	0:00	/bin/bash
root	21	0	0	S	0:00	/bin/bash
root	22	0	0	S	0:00	/bin/bash
root	23	0	0	S	0:00	/bin/bash
root	24	0	0	S	0:00	/bin/bash
root	25	0	0	S	0:00	/bin/bash
root	26	0	0	S	0:00	/bin/bash
root	27	0	0	S	0:00	/bin/bash
root	28	0	0	S	0:00	/bin/bash
root	29	0	0	S	0:00	/bin/bash
root	30	0	0	S	0:00	/bin/bash
root	31	0	0	S	0:00	/bin/bash
root	32	0	0	S	0:00	/bin/bash
root	33	0	0	S	0:00	/bin/bash
root	34	0	0	S	0:00	/bin/bash
root	35	0	0	S	0:00	/bin/bash
root	36	0	0	S	0:00	/bin/bash
root	37	0	0	S	0:00	/bin/bash
root	38	0	0	S	0:00	/bin/bash
root	39	0	0	S	0:00	/bin/bash
root	40	0	0	S	0:00	/bin/bash
root	41	0	0	S	0:00	/bin/bash
root	42	0	0	S	0:00	/bin/bash
root	43	0	0	S	0:00	/bin/bash
root	44	0	0	S	0:00	/bin/bash
root	45	0	0	S	0:00	/bin/bash
root	46	0	0	S	0:00	/bin/bash
root	47	0	0	S	0:00	/bin/bash
root	48	0	0	S	0:00	/bin/bash
root	49	0	0	S	0:00	/bin/bash
root	50	0	0	S	0:00	/bin/bash
root	51	0	0	S	0:00	/bin/bash
root	52	0	0	S	0:00	/bin/bash
root	53	0	0	S	0:00	/bin/bash
root	54	0	0	S	0:00	/bin/bash
root	55	0	0	S	0:00	/bin/bash
root	56	0	0	S	0:00	/bin/bash
root	57	0	0	S	0:00	/bin/bash
root	58	0	0	S	0:00	/bin/bash
root	59	0	0	S	0:00	/bin/bash
root	60	0	0	S	0:00	/bin/bash
root	61	0	0	S	0:00	/bin/bash
root	62	0	0	S	0:00	/bin/bash
root	63	0	0	S	0:00	/bin/bash
root	64	0	0	S	0:00	/bin/bash
root	65	0	0	S	0:00	/bin/bash
root	66	0	0	S	0:00	/bin/bash
root	67	0	0	S	0:00	/bin/bash
root	68	0	0	S	0:00	/bin/bash
root	69	0	0	S	0:00	/bin/bash
root	70	0	0	S	0:00	/bin/bash
root	71	0	0	S	0:00	/bin/bash
root	72	0	0	S	0:00	/bin/bash
root	73	0	0	S	0:00	/bin/bash
root	74	0	0	S	0:00	/bin/bash
root	75	0	0	S	0:00	/bin/bash
root	76	0	0	S	0:00	/bin/bash
root	77	0	0	S	0:00	/bin/bash
root	78	0	0	S	0:00	/bin/bash
root	79	0	0	S	0:00	/bin/bash
root	80	0	0	S	0:00	/bin/bash
root	81	0	0	S	0:00	/bin/bash
root	82	0	0	S	0:00	/bin/bash
root	83	0	0	S	0:00	/bin/bash
root	84	0	0	S	0:00	/bin/bash
root	85	0	0	S	0:00	/bin/bash
root	86	0	0	S	0:00	/bin/bash
root	87	0	0	S	0:00	/bin/bash
root	88	0	0	S	0:00	/bin/bash
root	89	0	0	S	0:00	/bin/bash
root	90	0	0	S	0:00	/bin/bash
root	91	0	0	S	0:00	/bin/bash
root	92	0	0	S	0:00	/bin/bash
root	93	0	0	S	0:00	/bin/bash
root	94	0	0	S	0:00	/bin/bash
root	95	0	0	S	0:00	/bin/bash
root	96	0	0	S	0:00	/bin/bash
root	97	0	0	S	0:00	/bin/bash
root	98	0	0	S	0:00	/bin/bash
root	99	0	0	S	0:00	/bin/bash
root	100	0	0	S	0:00	/bin/bash

```
1,1 All
```

```
File Actions Edit View Help
hacker@kali: ~
(hacker@kali)~$ chmod +x Question3b.sh
(hacker@kali)~$ ./Question3b.sh
hacker 246290 28465 0 17:01 pts/1 00:00:00 /bin/bash ./Test.sh
hacker 246292 246290 0 17:01 pts/1 00:00:00 grep bash
hacker 247359 247307 25 17:03 pts/7 00:00:00 /bin/bash ./Question3b.sh
hacker 247361 247359 0 17:03 pts/7 00:00:00 grep bash
(hacker@kali)~$
```

KALI LINUX
"the quieter you become, the more you are able to hear"

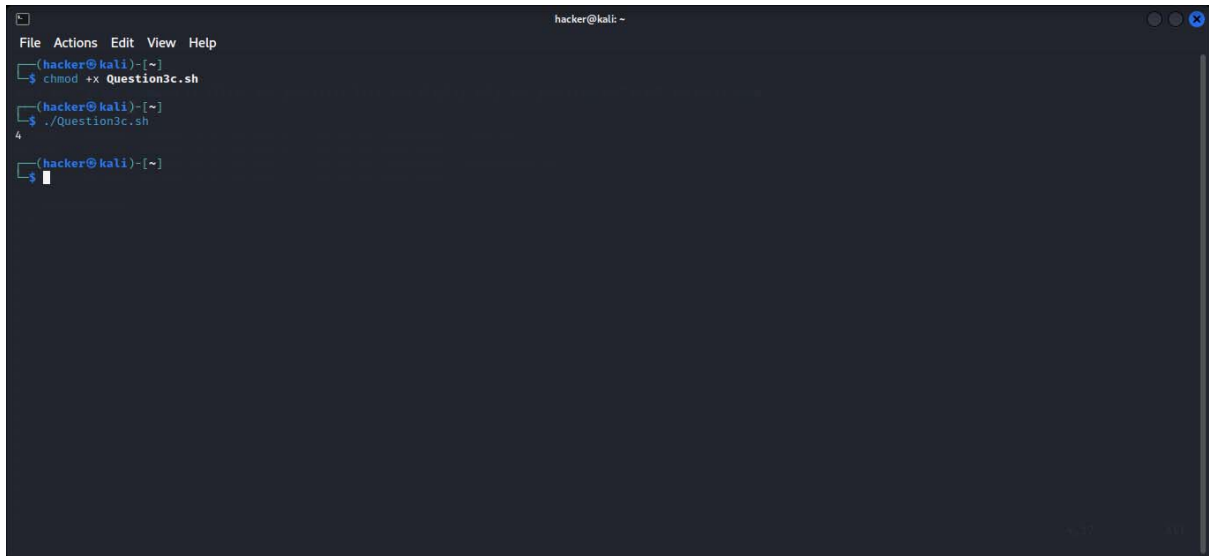
- Use the "wc" command to count the number of lines in the filtered output.
→ `ps -ef | grep bash | wc -l`

```
File Actions Edit View Help
~/bin/bash
#Use the "wc" command to count the number of lines in the filtered output.
ps -ef | grep bash | wc -l

```

```
-- INSERT --
```

```
6,1 All
```

A terminal window titled 'hacker@kali: ~' with a menu bar (File, Actions, Edit, View, Help). The terminal shows the following commands and output:

```
(hacker@kali)-[~]  
$ chmod +x Question3c.sh  
(hacker@kali)-[~]  
$ ./Question3c.sh  
4  
(hacker@kali)-[~]  
$
```

Explanation

The first line, `#!/bin/bash`, tells the operating system that the file is a Bash script and that it should be executed using the Bash shell.

The second line, `ps -ef`, lists all the processes running on the system. This command will output a list of all the processes, including their name, PID, user, and command line.

The third line, `ps -ef | grep bash`, filters the processes list and displays only the processes with "bash" in their name. The `grep` command is a text search utility that can be used to search for a specific pattern in a file or stream of data. In this case, the `grep` command is searching for the string "bash" in the output of the `ps -ef` command.

The fourth line, `ps -ef | grep bash | wc -l`, counts the number of lines in the filtered output. The `wc` command is a word count utility that can be used to count the number of lines, words, or characters in a file or stream of data. In this case, the `wc` command is counting the number of lines in the output of the `grep` command.