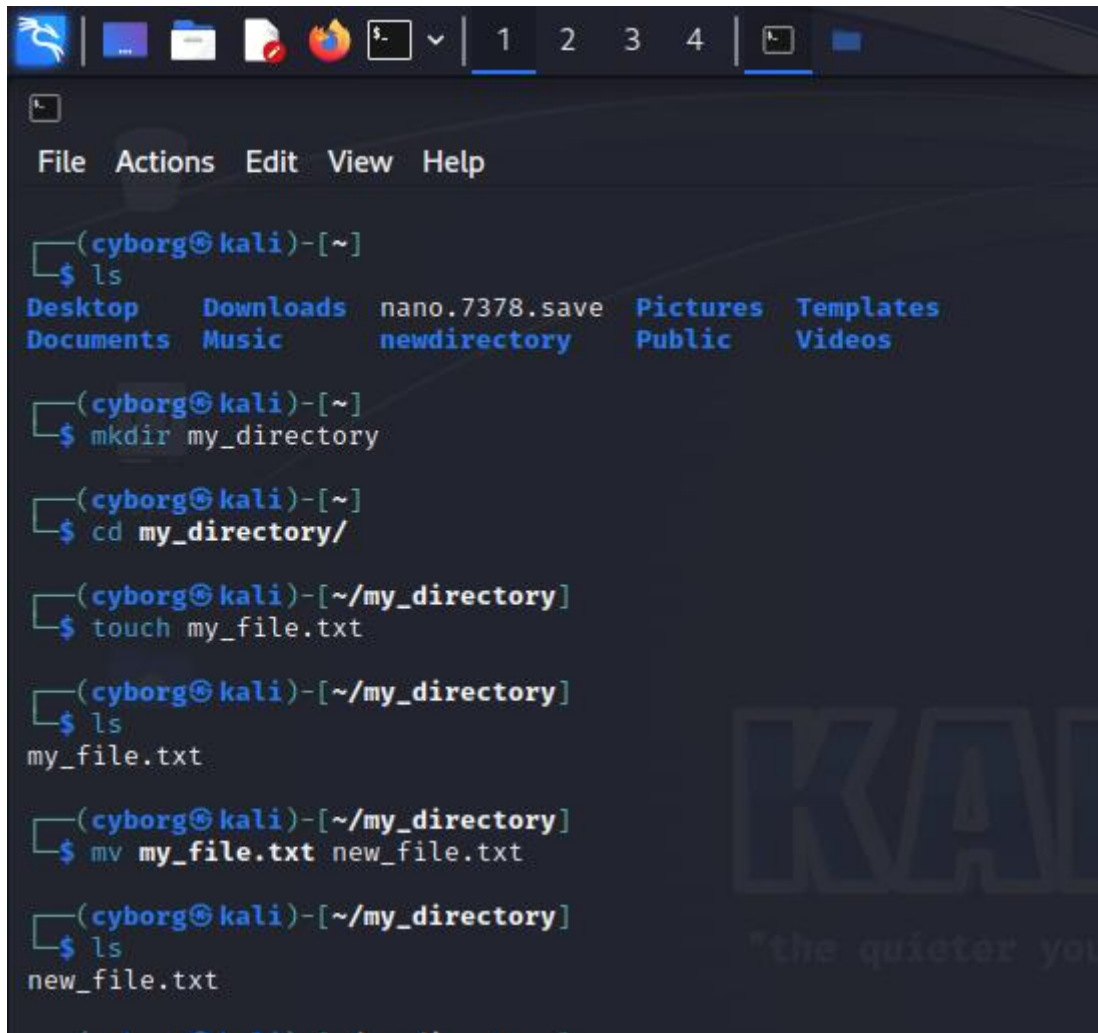


Archisman Das  
20BCE2229

## Assignment: Bash Shell Basics

### Task 1: File and Directory Manipulation



```
(cyborg@kali)-[~]  
$ ls  
Desktop      Downloads  nano.7378.save  Pictures  Templates  
Documents    Music      newdirectory    Public    Videos  
  
(cyborg@kali)-[~]  
$ mkdir my_directory  
  
(cyborg@kali)-[~]  
$ cd my_directory/  
  
(cyborg@kali)-[~/my_directory]  
$ touch my_file.txt  
  
(cyborg@kali)-[~/my_directory]  
$ ls  
my_file.txt  
  
(cyborg@kali)-[~/my_directory]  
$ mv my_file.txt new_file.txt  
  
(cyborg@kali)-[~/my_directory]  
$ ls  
new_file.txt
```

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.

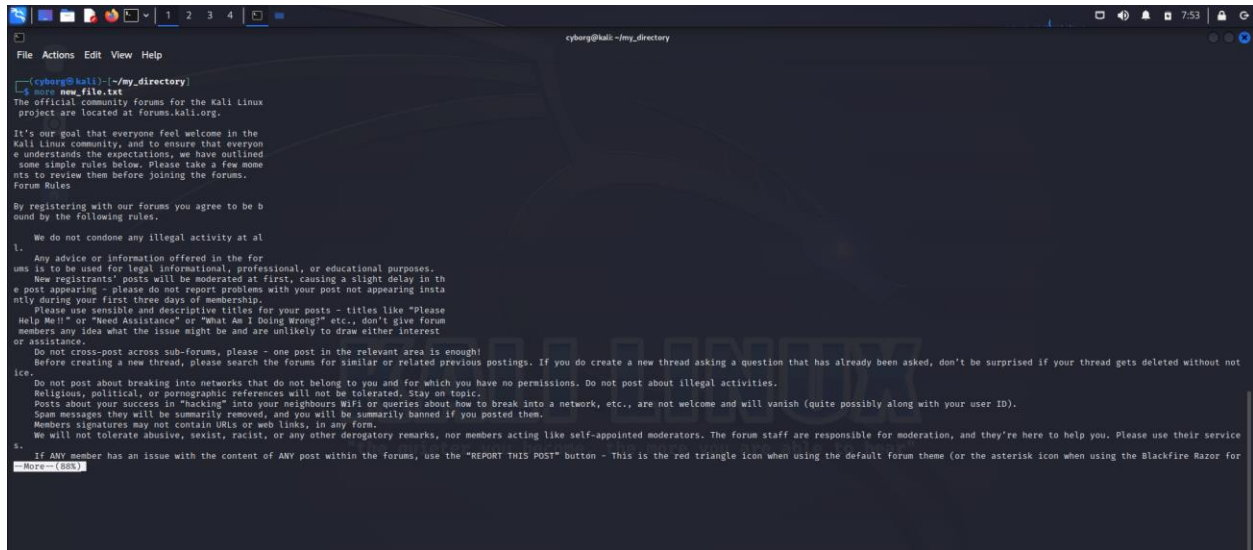
ls

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.

more new\_file.txt



```
cyborg@kali: ~/my_directory
$ more new_file.txt
The official community forums for the Kali Linux project are located at forums.kali.org.

It's our goal that everyone feel welcome in the Kali Linux community, and to ensure that everyone understands the expectations, we have outlined some simple rules below. Please take a few moments to review them before joining the forums.
Forum Rules

By registering with our forums you agree to be bound by the following rules.

1. We do not condone any illegal activity at all.

1. Any advice or information offered in the forums is to be used for legal, informational, professional, or educational purposes. New registrants' posts will be moderated at first, causing a slight delay in the post appearing - please do not report problems with your post not appearing instantly during your first three days of membership.

Please use sensible and descriptive titles for your posts - titles like "Please Help Me!!" or "Need Assistance" or "What Am I Doing Wrong?" etc., don't give forum members any idea what the issue might be and are unlikely to draw either interest or assistance.

Do not cross-post across sub-forums, please - one post in the relevant area is enough! Before creating a new thread, please search the forums for similar or related previous postings. If you do create a new thread asking a question that has already been asked, don't be surprised if your thread gets deleted without notice.

Do not post about breaking into networks that do not belong to you and for which you have no permissions. Do not post about illegal activities. Religious, political, or pornographic references will not be tolerated. Stay on topic. Posts about your success in "hacking" into your neighbours WiFi or queries about how to break into a network, etc., are not welcome and will vanish (quite possibly along with your user ID). Spam messages they will be summarily removed, and you will be summarily banned if you posted them. Members signatures may not contain URLs or web links, in any form. We will not tolerate abusive, sexist, racist, or any other derogatory remarks, nor members acting like self-appointed moderators. The forum staff are responsible for moderation, and they're here to help you. Please use their service.

5. If ANY member has an issue with the content of ANY post within the forums, use the "REPORT THIS POST" button - This is the red triangle icon when using the default forum theme (or the asterisk icon when using the Blackfire Razor for
More--(BBB)
```

7. Append the text "Hello, World!" to "new\_file.txt".

Echo "Hello, World!" >> new\_file.txt

This append the result of echo into the file new\_file.txt



```
(cyborg@kali)-[~/my_directory]
$ echo "Hello, World!" >> new_file.txt

(cyborg@kali)-[~/my_directory]
$ cat
new_file.txt
new_file.txt
^C

(cyborg@kali)-[~/my_directory]
$ cat new_file.txt
The official community forums for the Kali Linux project are located at forums.kali.org.

It's our goal that everyone feel welcome in the Kali Linux community, and to ensure that everyone understands the expectations, we have outlined some simple rules below. Please take a few moments to review them before joining the forums.
Forum Rules

By registering with our forums you agree to be bound by the following rules.
```

If ANY member has an issue with the content of ANY post within the forums, use the "REPORT THIS POST" button - This is the red triangle icon when using the default forum theme (or the asterisk icon when using the Blackfire Razor forum theme) found in the top right corner of each post.

Breaking the forum rules may incur infractions ranging from loss of posting privileges to a temporary or permanent ban, at the sole discretion of the forum staff.

These rules are subject to alteration and/or addition. You are responsible for staying aware of any changes.

Hello, World

```
(cyborg@kali)-[~/my_directory]
$
```

**8. Create a new directory called "backup" within "my\_directory".**

mkdir backup

```
(cyborg@kali)-[~/my_directory]
$ mkdir backup

(cyborg@kali)-[~/my_directory]
$ ls
backup  new_file.txt

(cyborg@kali)-[~/my_directory]
$
```

**9. Move "new\_file.txt" to the "backup" directory.**

mv new\_file.txt backup

```
(cyborg@kali)-[~/my_directory]
$ mv new_file.txt backup

(cyborg@kali)-[~/my_directory]
$ ls
backup

(cyborg@kali)-[~/my_directory]
$ cd backup/

(cyborg@kali)-[~/my_directory/backup]
$ ls
new_file.txt

(cyborg@kali)-[~/my_directory/backup]
$
```

**10. Verify that "new\_file.txt" is now located in the "backup" directory.**

It is verified from the above picture through "ls" command.

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

`rm -rf backup`

```
(cyborg@kali)-[~/my_directory]
$ ls
backup

(cyborg@kali)-[~/my_directory]
$ rm -rf backup

(cyborg@kali)-[~/my_directory]
$ ls

(cyborg@kali)-[~/my_directory]
$
```

This removes all the contents and subdirectories and files of backup.

## Task 2: Permissions and Scripting

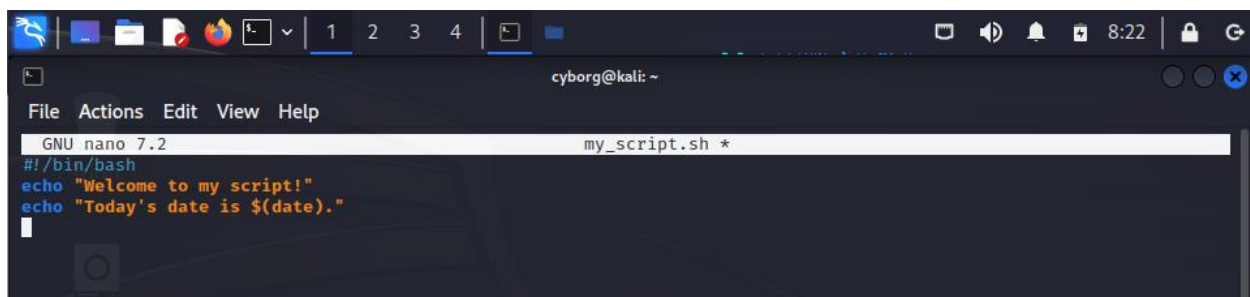
- Create a new file called "my\_script.sh".

`touch my_script.sh`

- Edit "my\_script.sh" using a text editor of your choice and add the following lines:

```
#!/bin/bash
echo "Welcome to my script!"
echo "Today's date is $(date)."
```

Save and exit the file.



```
cyborg@kali: ~
File Actions Edit View Help
GNU nano 7.2 my_script.sh *
#!/bin/bash
echo "Welcome to my script!"
echo "Today's date is $(date)."
```

- **Make "my\_script.sh" executable.**

`chmod +x my_script.sh`

This command changes the permission of the file my\_script.sh to executable.

```
(cyborg@kali)-[~]
$ chmod +x my_script.sh

(cyborg@kali)-[~]
$ ls
Desktop  Downloads  my_directory  nano.7378.save  Pictures  Templates
Documents  Music      my_script.sh  newdirectory    Public    Videos
```

- **Run "my\_script.sh" and verify that the output matches the expected result.**

"bash" or "sh" is used to run the file my\_script.sh

The output matches with the expected result.

```
(cyborg@kali)-[~]
$ bash my_script.sh
Welcome to my script!
Today's date is Sun May 28 08:26:10 AM EDT 2023.

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

### Task 3: Command Execution and Pipelines

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

\$ ps -ef

```
(cyborg@kali)-[~]
$ ps -ef
UID          PID    PPID  C   STIME TTY          TIME CMD
root           1      0  0  06:14 ?        00:00:01 /sbin/init splash
root           2      0  0  06:14 ?        00:00:00 [kthreadd]
root           3      2  0  06:14 ?        00:00:00 [rcu_gp]
root           4      2  0  06:14 ?        00:00:00 [rcu_par_gp]
root           5      2  0  06:14 ?        00:00:00 [slub_flushwq]
root           6      2  0  06:14 ?        00:00:00 [netns]
root          10      2  0  06:14 ?        00:00:00 [mm_percpu_wq]
root          11      2  0  06:14 ?        00:00:00 [rcu_tasks_kthread]
root          12      2  0  06:14 ?        00:00:00 [rcu_tasks_rude_kthread]
root          13      2  0  06:14 ?        00:00:00 [rcu_tasks_trace_kthread]
root          14      2  0  06:14 ?        00:00:00 [ksoftirqd/0]
root          15      2  0  06:14 ?        00:00:03 [rcu_preempt]
root          16      2  0  06:14 ?        00:00:00 [migration/0]
root          18      2  0  06:14 ?        00:00:00 [cpuhp/0]
root          19      2  0  06:14 ?        00:00:00 [cpuhp/1]
root          20      2  0  06:14 ?        00:00:00 [migration/1]
root          21      2  0  06:14 ?        00:00:00 [ksoftirqd/1]
root          23      2  0  06:14 ?        00:00:00 [kworker/1:0H-events_highpri]
root          24      2  0  06:14 ?        00:00:00 [cpuhp/2]
root          25      2  0  06:14 ?        00:00:00 [migration/2]
root          26      2  0  06:14 ?        00:00:00 [ksoftirqd/2]
root          28      2  0  06:14 ?        00:00:00 [kworker/2:0H-events_highpri]
root          29      2  0  06:14 ?        00:00:00 [cpuhp/3]
root          30      2  0  06:14 ?        00:00:00 [migration/3]
root          31      2  0  06:14 ?        00:00:00 [ksoftirqd/3]
root          33      2  0  06:14 ?        00:00:00 [kworker/3:0H-events_highpri]
root          37      2  0  06:14 ?        00:00:00 [kdevtmpfs]
root          38      2  0  06:14 ?        00:00:00 [inet_frag_wq]
root          39      2  0  06:14 ?        00:00:00 [kauditd]
root          40      2  0  06:14 ?        00:00:00 [khungtaskd]
root          41      2  0  06:14 ?        00:00:00 [oom_reaper]
root          42      2  0  06:14 ?        00:00:00 [writeback]
root          43      2  0  06:14 ?        00:00:00 [kcompactd0]
root          44      2  0  06:14 ?        00:00:00 [ksmd]
root          45      2  0  06:14 ?        00:00:00 [khugepaged]
root          46      2  0  06:14 ?        00:00:00 [kintegrityd]
root          47      2  0  06:14 ?        00:00:00 [kblockd]
root          48      2  0  06:14 ?        00:00:00 [blkcg_punt_bio]
```

This shows all the running processes in the system.

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

\$ ps -ef | grep "bash" // The output of the command ps -ef is the input for grep

```
(cyborg@kali)-[~]
$ ps -ef | grep "bash"
cyborg      68988   61797  0  08:31 pts/0    00:00:00 grep --color=auto bash

(cyborg@kali)-[~]
$ ps -ef | grep "bash" -n
167:cyborg   69338   61797  0  08:32 pts/0    00:00:00 grep --color=auto bash

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

- Use the "wc" command to count the number of lines in the filtered output.

wc represents the number of lines, number of words and the number of characters/bytes.

```
(cyborg@kali)-[~]
$ ps -ef | grep "bash" | wc
1      10      75

(cyborg@kali)-[~]
$ ps -ef | grep "bash" | wc -l
1

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

### Submission:

Provide a document or text file containing the commands used to complete the tasks above, along with any relevant output or screenshots. Include your explanations or observations where necessary.

### Submitted By,

Archisman Das,

20BCE2229,

Email: [archisman.das2020@vitstudent.ac.in](mailto:archisman.das2020@vitstudent.ac.in)

VIT Vellore.