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Assessment - 2: Bash Shell Basics

Task 1: File and Directory Manipulation

1. Create a directory called "my_directory".

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

2. Navigate into the "my_directory".

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

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

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

```
(kali@kali)-[~/Desktop/my_directory]
$ touch my_file.txt
```

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

```
(kali@kali)-[~/Desktop/my_directory]
$ ls
my_file.txt
```

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

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

6. Display the content of "new_file.txt" using a pager tool of your choice.

```
(kali@kali)-[~/Desktop/my_directory]
$ cat new_file.txt | less
```

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

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

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

```
(kali㉿kali)-[~/Desktop/my_directory]
$ mkdir backup
```

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

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

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

```
(kali㉿kali)-[~/Desktop/my_directory]
$ ls backup/
new_file.txt
```

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

```
(kali㉿kali)-[~/Desktop/my_directory]
$ rm -r backup/
```

Task 2: Permissions and Scripting

- Create a new file called "my_script.sh".

```
(kali㉿kali)-[~/Desktop]
$ touch 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.

```
(kali㉿kali)-[~/Desktop]
$ nano my_script.sh
```

```
kali@kali: ~/Desktop
File Actions Edit View Help
GNU nano 6.4 my_script.sh
#!/bin/bash
echo "Welcome to my script!"
echo "Today's date is $(date)"
```

- Make "my_script.sh" executable.

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

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

```
(kali@kali)-[~/Desktop]
$ ./my_script.sh
Welcome to my script!
Today's date is Sunday 28 May 2023 05:20:40 PM IST
```

Task 3: Command Execution and Pipelines

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

```
(kali㉿kali)-[~/Desktop]
$ ps aux
USER          PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root            1  0.0  0.2 167916 11344 ?        Ss   16:51   0:00 /sbin/init splash
root           2  0.0  0.0      0     0 ?        S    16:51   0:00 [kthreadd]
root           3  0.0  0.0      0     0 ?        I<   16:51   0:00 [rcu_gp]
root           4  0.0  0.0      0     0 ?        I<   16:51   0:00 [rcu_par_gp]
root           5  0.0  0.0      0     0 ?        I<   16:51   0:00 [netns]
root           7  0.0  0.0      0     0 ?        I<   16:51   0:00 [kworker/0:0H-events_highp]
root           8  0.0  0.0      0     0 ?        R    16:51   0:00 [kworker/u8:0-events_unbou]
root           9  0.0  0.0      0     0 ?        I<   16:51   0:00 [mm_percpu_wq]
root          10  0.0  0.0      0     0 ?        I    16:51   0:00 [rcu_tasks_rude_kthread]
root          11  0.0  0.0      0     0 ?        I    16:51   0:00 [rcu_tasks_trace_kthread]
root          12  0.0  0.0      0     0 ?        S    16:51   0:00 [ksoftirqd/0]
root          13  0.0  0.0      0     0 ?        I    16:51   0:01 [rcu_sched]
root          14  0.0  0.0      0     0 ?        S    16:51   0:00 [migration/0]
root          16  0.0  0.0      0     0 ?        S    16:51   0:00 [cpuhp/0]
root          17  0.0  0.0      0     0 ?        S    16:51   0:00 [cpuhp/1]
root          18  0.0  0.0      0     0 ?        S    16:51   0:00 [migration/1]
root          19  0.0  0.0      0     0 ?        S    16:51   0:00 [ksoftirqd/1]
root          21  0.0  0.0      0     0 ?        I<   16:51   0:00 [kworker/1:0H-events_highp]
root          22  0.0  0.0      0     0 ?        S    16:51   0:00 [cpuhp/2]
root          23  0.0  0.0      0     0 ?        S    16:51   0:00 [migration/2]
root          24  0.0  0.0      0     0 ?        S    16:51   0:00 [ksoftirqd/2]
root          26  0.0  0.0      0     0 ?        I<   16:51   0:00 [kworker/2:0H-events_highp]
root          27  0.0  0.0      0     0 ?        S    16:51   0:00 [cpuhp/3]
root          28  0.0  0.0      0     0 ?        S    16:51   0:00 [migration/3]
root          29  0.0  0.0      0     0 ?        S    16:51   0:00 [ksoftirqd/3]
root          31  0.0  0.0      0     0 ?        I<   16:51   0:00 [kworker/3:0H-events_highp]
root          33  0.0  0.0      0     0 ?        S    16:51   0:00 [kdevtmpfs]
root          34  0.0  0.0      0     0 ?        I<   16:51   0:00 [inet_frag_wq]
root          35  0.0  0.0      0     0 ?        S    16:51   0:00 [kauditd]
root          36  0.0  0.0      0     0 ?        S    16:51   0:00 [khungtaskd]
root          37  0.0  0.0      0     0 ?        S    16:51   0:00 [oom_reaper]
root          38  0.0  0.0      0     0 ?        I<   16:51   0:00 [writeback]
root          39  0.0  0.0      0     0 ?        S    16:51   0:00 [kcompactd0]
root          40  0.0  0.0      0     0 ?        SN   16:51   0:00 [ksmd]
root          41  0.0  0.0      0     0 ?        SN   16:51   0:00 [khugepaged]
root          42  0.0  0.0      0     0 ?        I<   16:51   0:00 [kintegrityd]
```

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

```
(kali㉿kali)-[~/Desktop]
$ ps aux | grep bash
kali          9181  0.0  0.0   6156  1996 pts/0    S+   17:22   0:00 grep --color=auto bash
```

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

```
(kali㉿kali)-[~/Desktop]
$ ps aux | grep bash | wc -l
1
```

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.