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I confirm that I understand my coursework needs to be submitted online via Google Classroom under the relevant module page before the deadline for my assignment to be accepted and marked. I am fully aware that late submissions will be treated as non-submission and a mark of zero will be awarded.

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INTTODUCTION

This log focuses on fundamental Linux commands and scripting techniques to manage files, directories, and system information. Additionally, it covers creating and executing a script file to document and test commands, enhancing familiarity with the Linux command line. These tasks were completed in a virtualized environment using Ubuntu (or Kali Linux, depending on the system setup).

Ubuntu, a popular Linux distribution, is known for its ease of use and versatility in general-purpose computing (Cononical, 2024). It provided a user-friendly interface for practicing essential Linux commands, directory management, and scripting techniques. **Kali Linux**, a specialized Linux distribution for penetration testing and security tasks, was used to demonstrate proficiency in managing diverse Linux systems (Offensive Security, n.d.)

The primary focus was on understanding file systems, user management, and automation through scripting. Tools like the **script** command were employed to record sessions for analysis and review. By leveraging VirtualBox and these operating systems, the log explores practical applications of Linux commands and showcases their utility in real-world scenarios.

OBJECTIVES

a. Practice essential Linux commands for managing files, directories, and system configurations.
b. Create, execute, and test a script file to automate a series of Linux commands.
c. Observe and analyse outputs for understanding command behaviour.

STEPS

Part 1:

1. Creating a New Directory

- Use the mkdir command to create directories and subdirectories.

```
mkdir myfolder

mkdir -p myfolder/smallfolder
```

- **Observation:** The *-p* option allows nested directories to be created in one step.

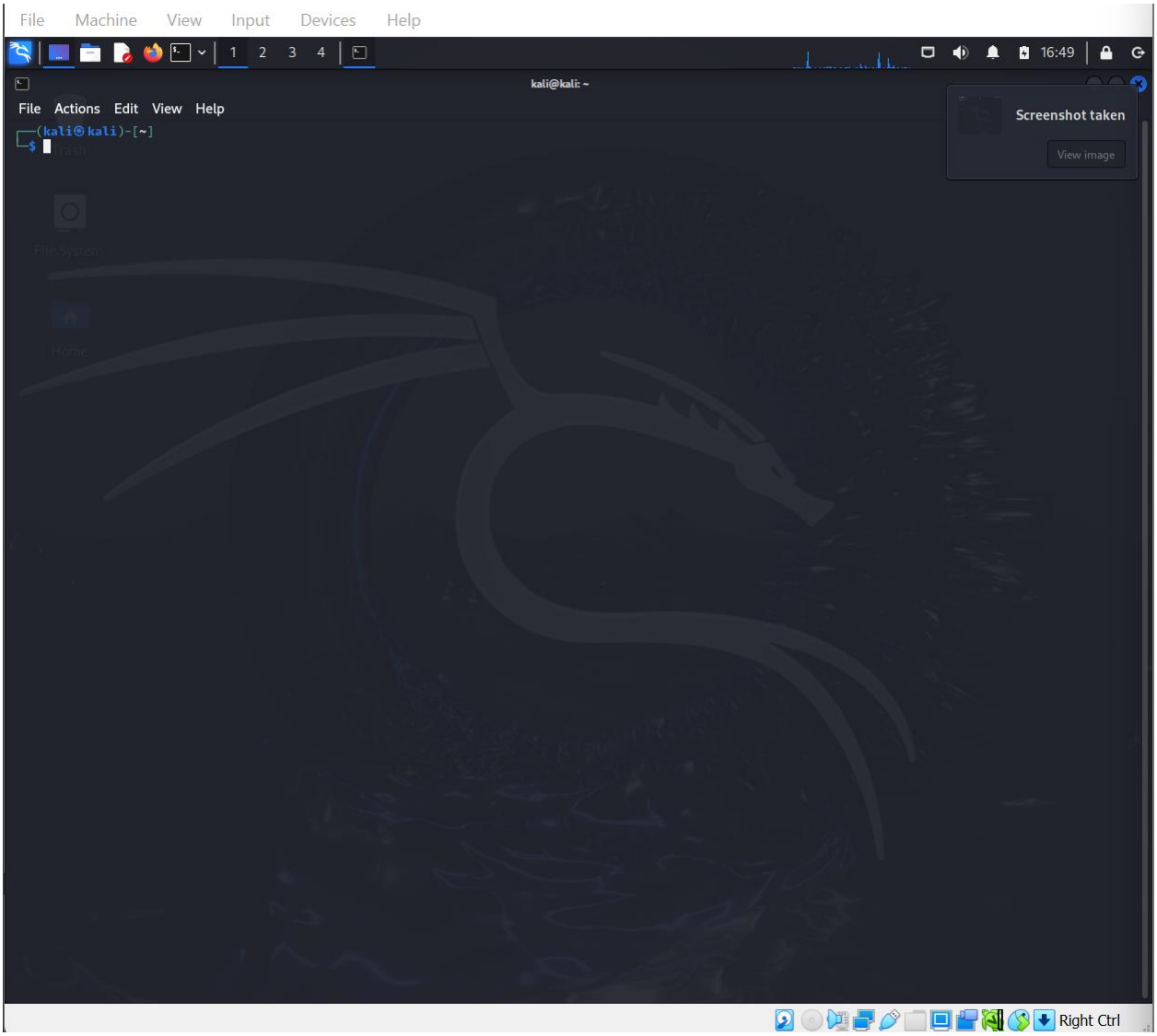

Figure 1: Opening Linux Terminal in kali

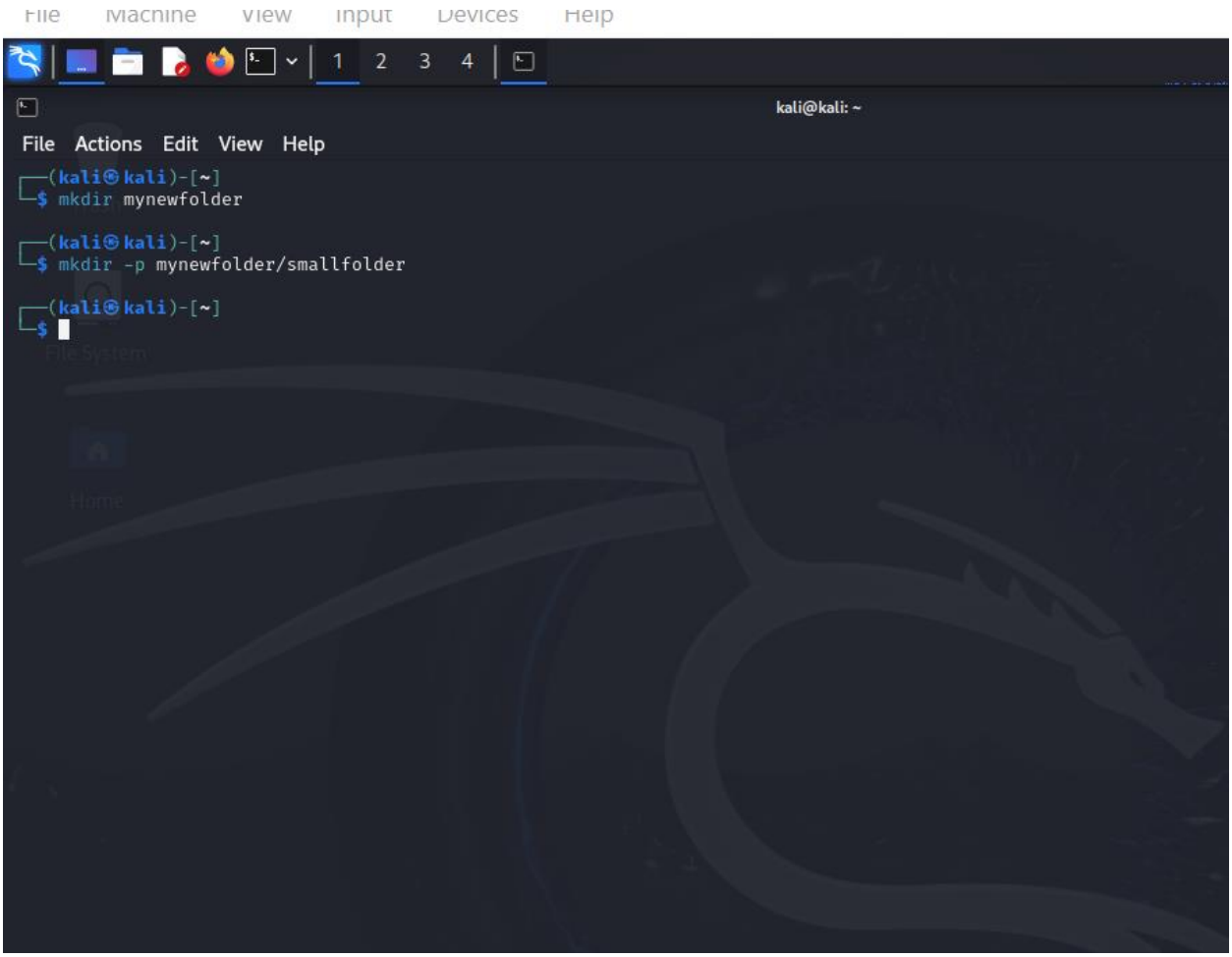

Figure 2 : Creating new folder with directory

2. Navigating Directories with cd

- Used cd to switch between directories:

```
cd myfolder
cd ..
```

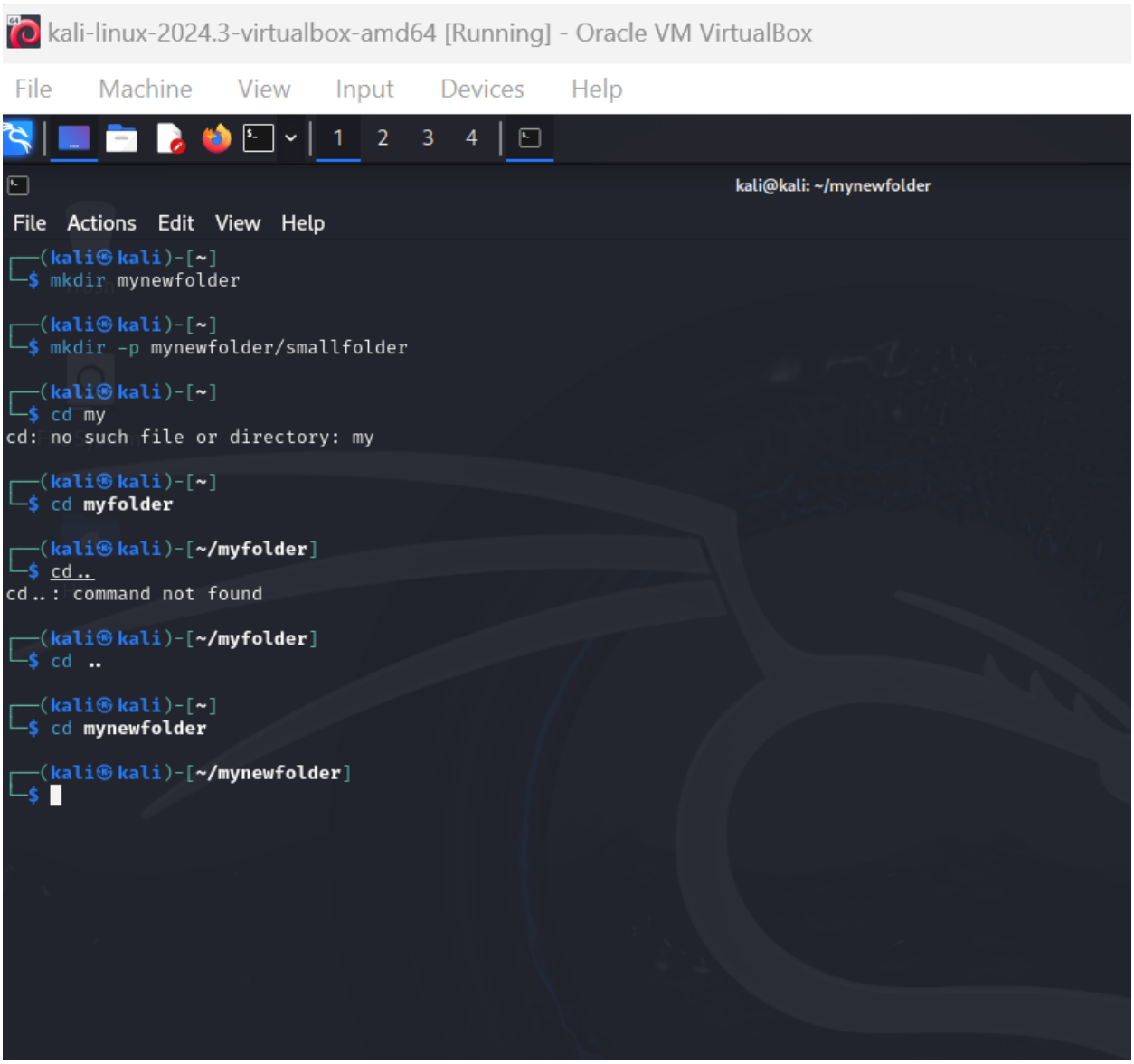

Figure 3: Using cd function to switch between directories

3. Removing Files and Directories

- Remove a file and an empty directory using rm and *rmdir*:

  rm file.txt
  rmdir emptyfolder

- Remove directories with contents using:

  rm -r smallfolder

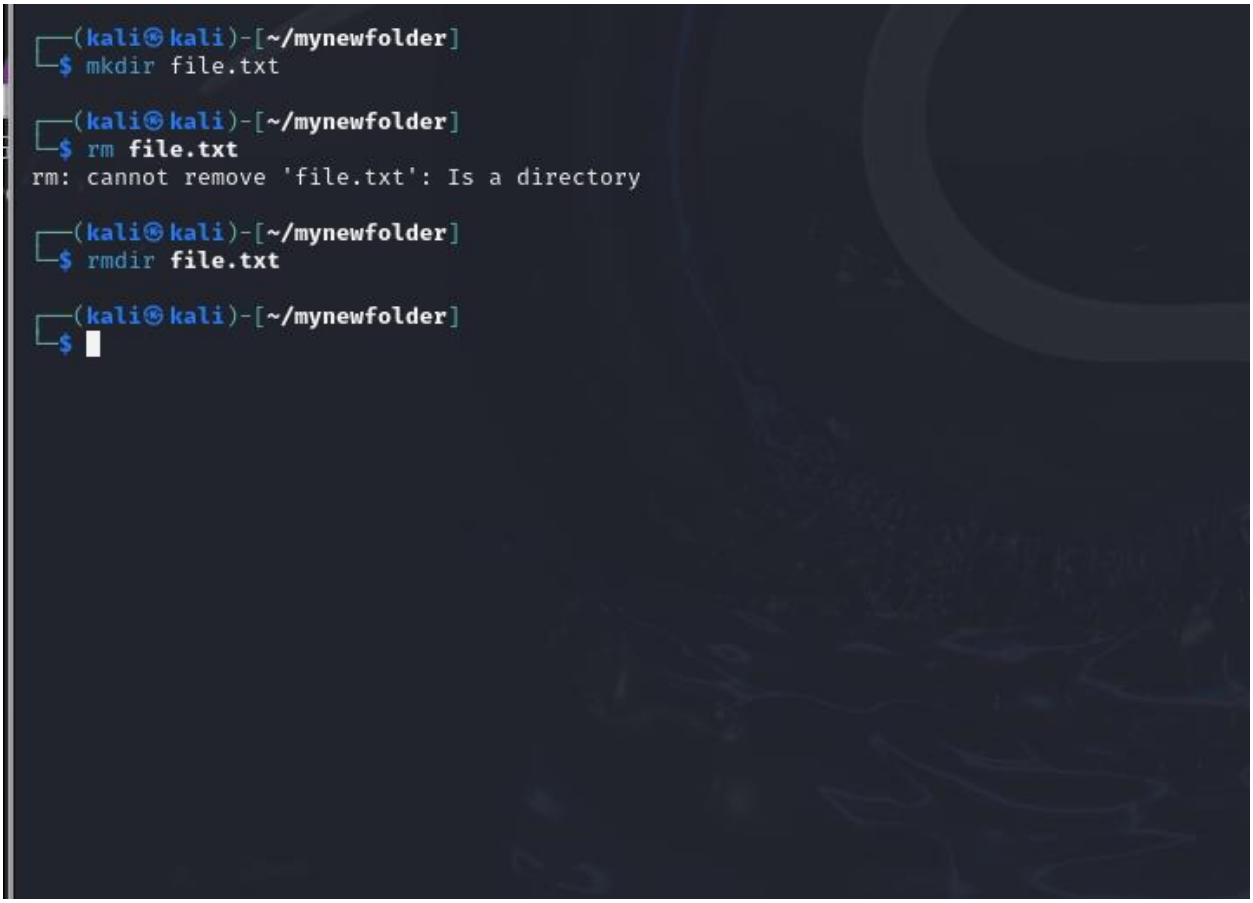

Figure 4: Creating and removing file

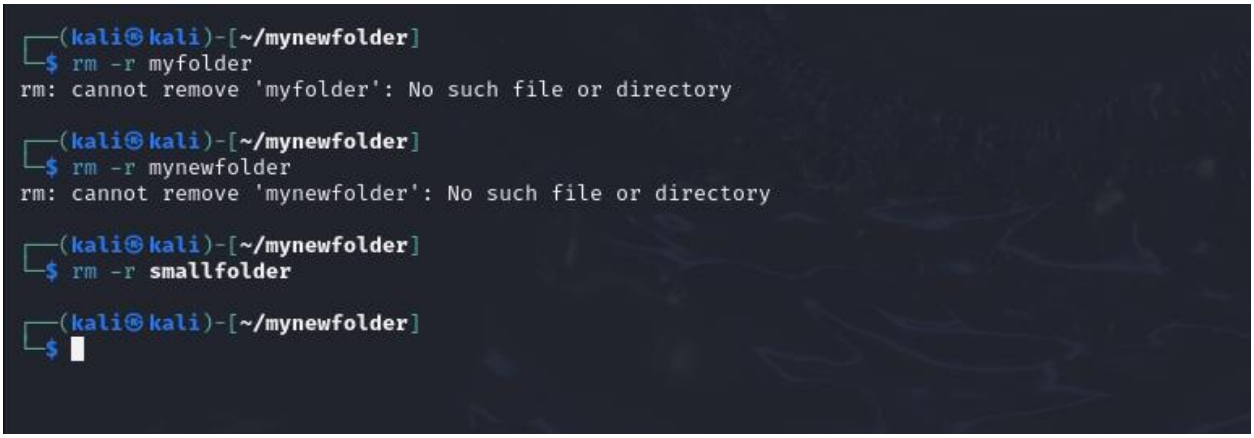

Figure 5: Removing directories with content

4. Printing Text with ***printf***

- Printed text to the terminal:

```
printf "Hello, Linux\!\nWelcome to scripting.\n"
```

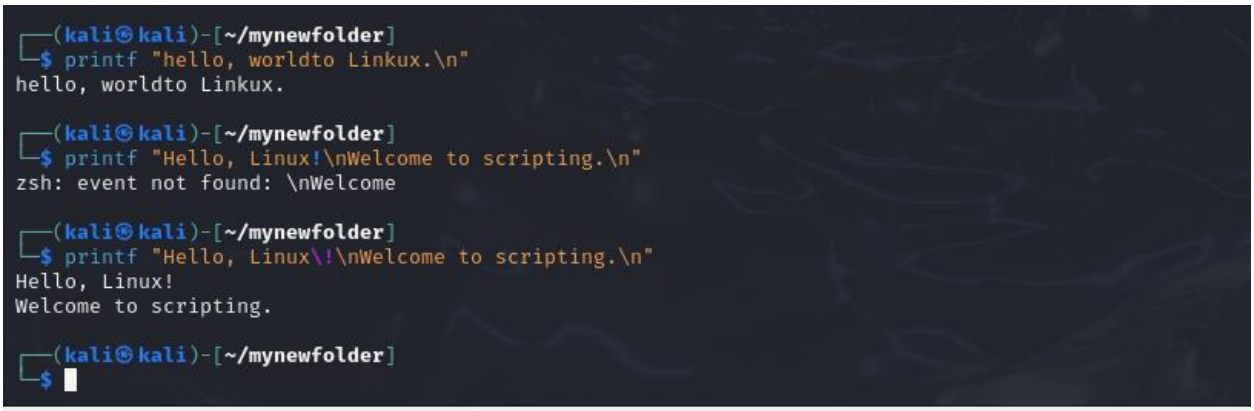

Figure 6: Printing Hello, Linux and Welcome to scripting in different lines

5. Displaying the Current Directory

- Used *pwd* to show the current working directory and chained commands:

  pwd; cd mynewfolder; pwd

Figure 7: Using pwd to show directories

6. Listing Directory Contents with ls

- Compared outputs of ls, ls -a, and ls -al:

  ls

  ls -a

  ls -al

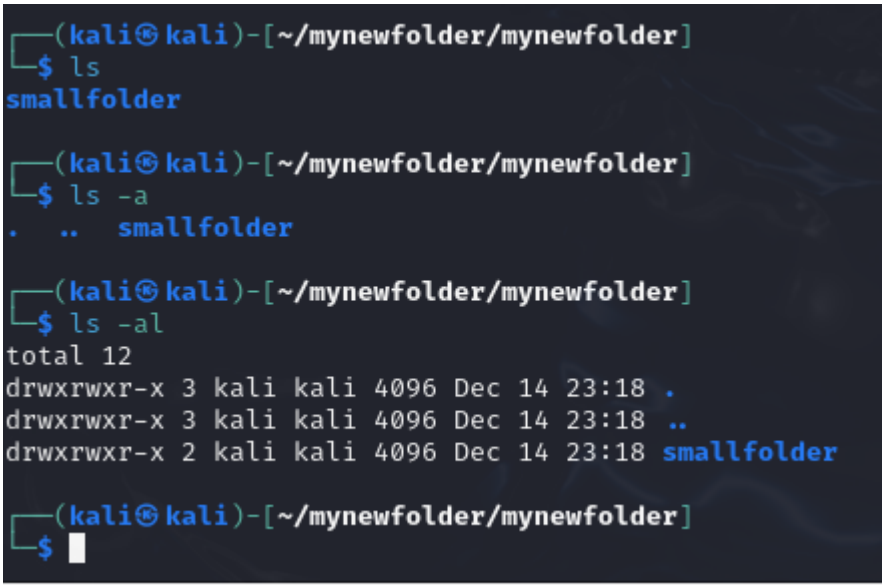

Figure 8: Comparing outputs of ls, ls -a, ls -al

7. Using the cat Command

- Displayed a file, created new files, and appended data:

  cat > file1

  Hello, this is file1.

  (Press CTRL+D to save and exit)

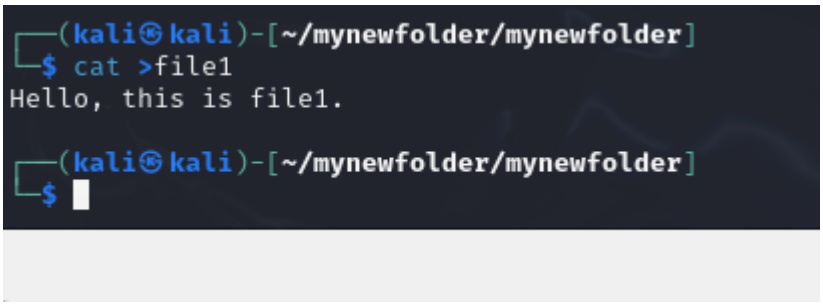

Figure 9: using cat> command to create file

cat >> file1

Appending a new line to file1.

(Press CTRL+D to save and exit)

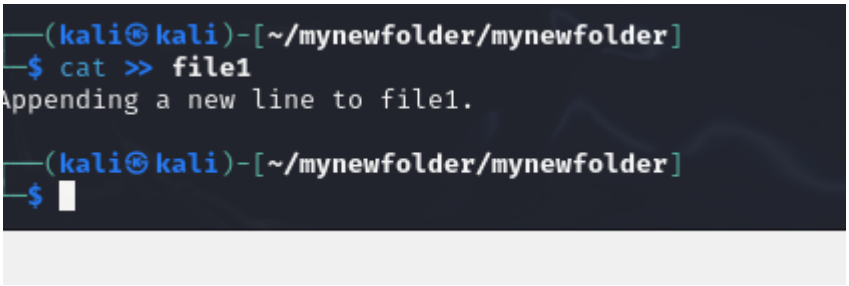

Figure 10: using cat>> command to amend to the file

Part 2

1. Starting a Script Session

- Initiated a script session with *script a1script*:

  script a1script

  Script started, file is a1script

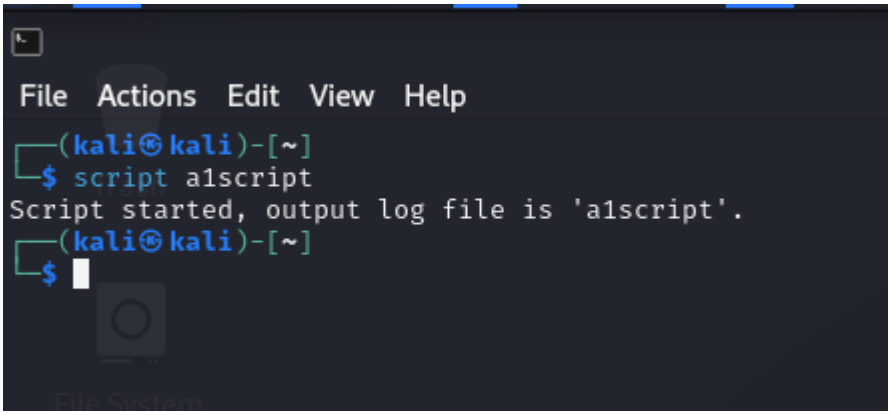

Figure 11: Using script a1script command

2. User and System Information

- Checked the username and logged-in users:

  whoami

  who

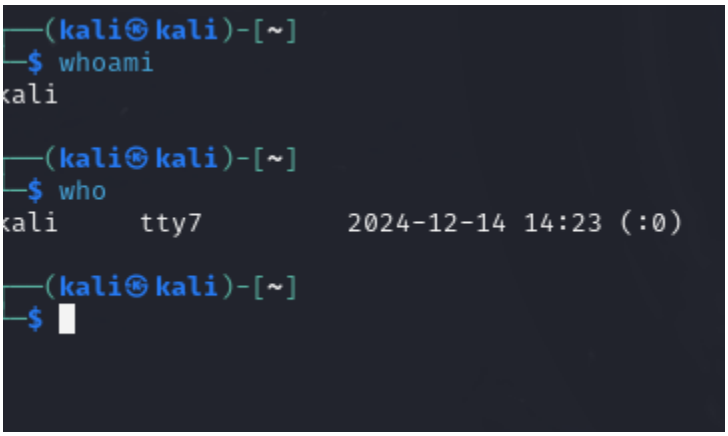

Figure 12: Checking logged in users with whoami and who commands

- Gathered account details:

  finger kali

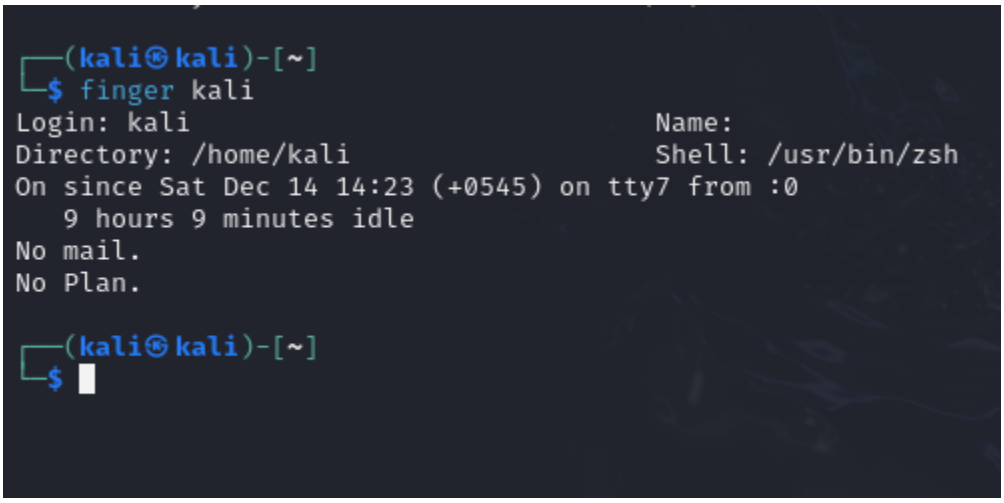

Figure 13: Gathering account details with finger command

3. Viewing System Date and Files

- Displayed the date and file contents:

  date

  ls

  ls -a

  ls -al

Figure 14: using date and ls command

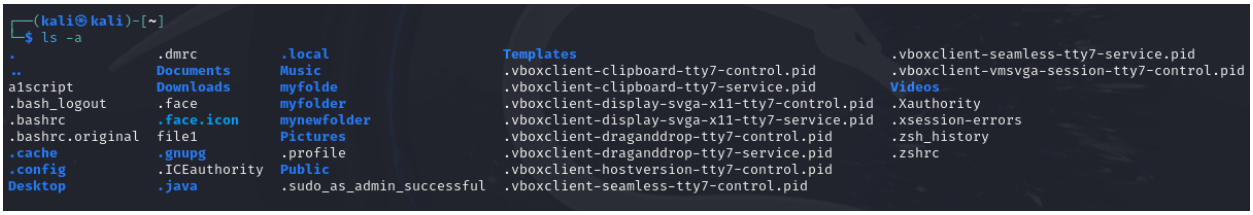

Figure 15: using ls -a command

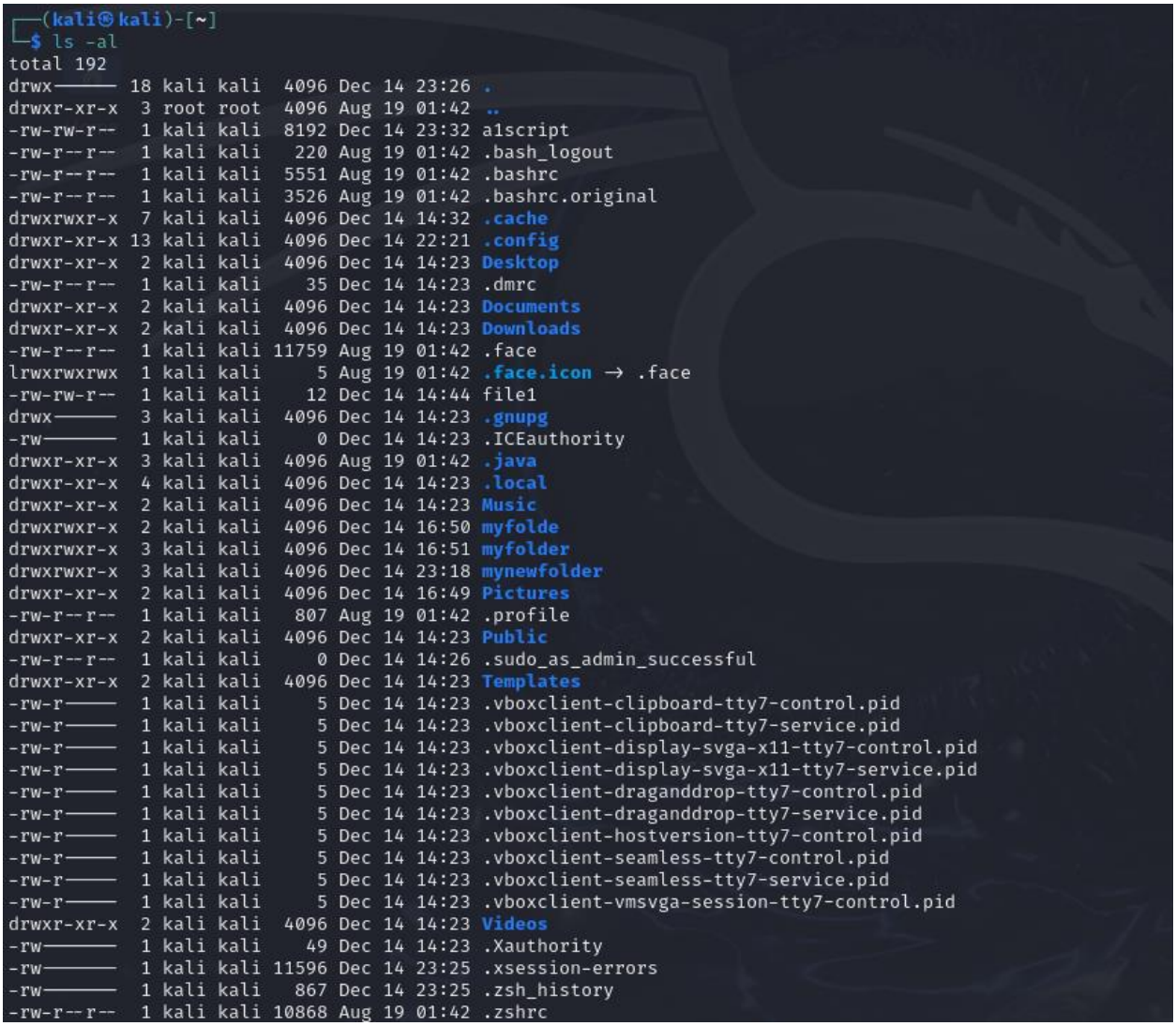

Figure 16: using ls -al command

4. Exploring the File System

- Displayed system information using cat:

  cat /etc/passwd

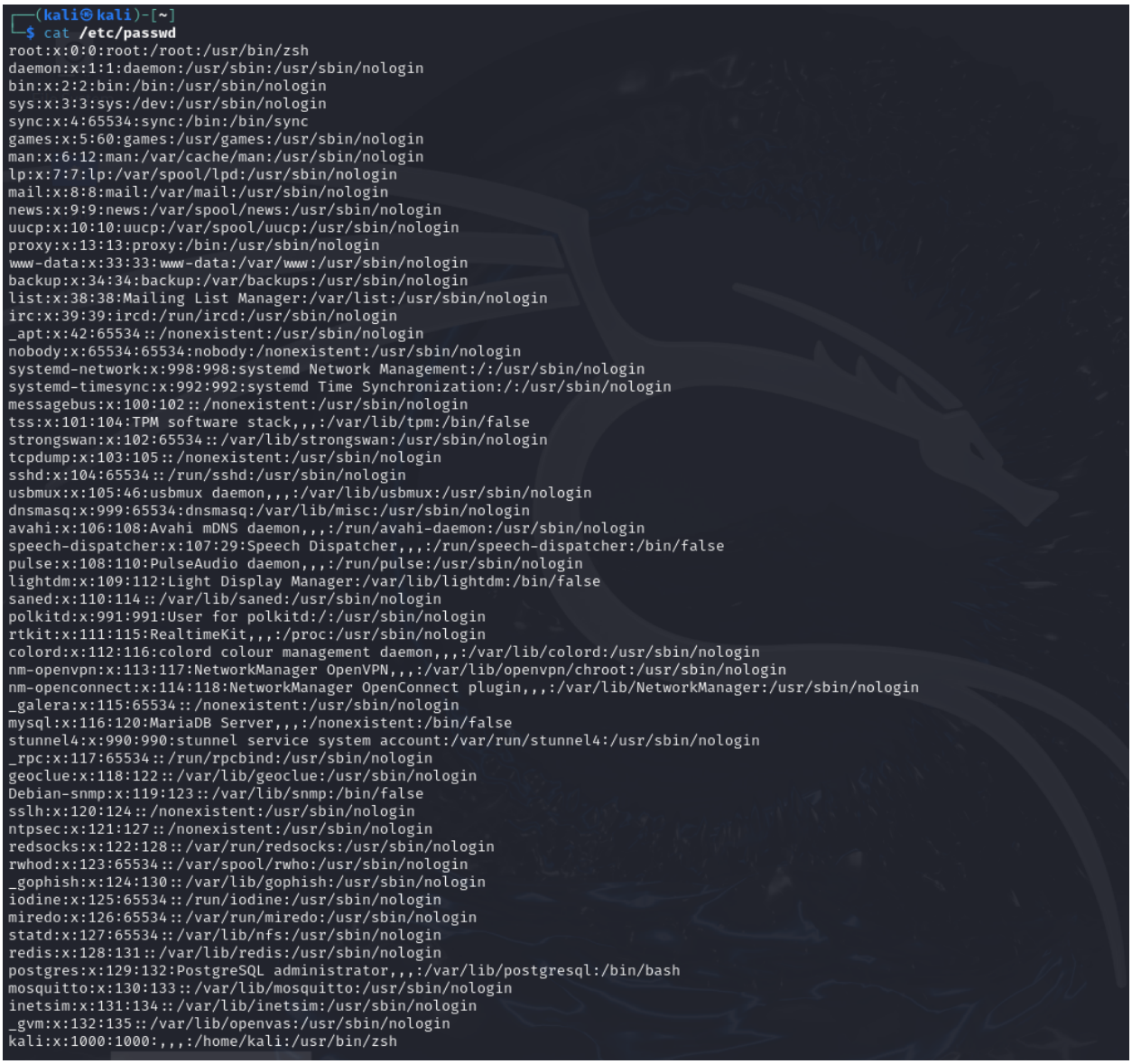

Figure 17: Using cat /etc/passwd command

5. Creating and Managing Files

- Created and viewed test1 and test2:

    echo "This is a one-line file" > test1

    cat > test2

    This is file two.

    It has multiple lines.

    Three lines, to be exact.

    (Press CTRL+D to save and exit)

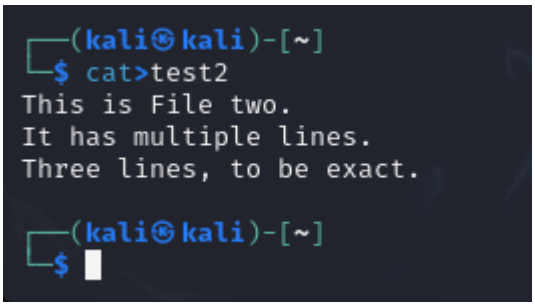

Figure 18:

6. Combining Files

- Combined the contents of test1 and test2 into combined:

  cat test1 test2 > combined

  cat combined

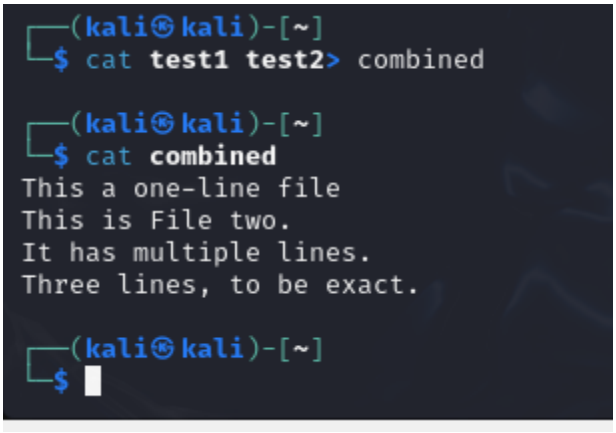

Figure 19:

7. Exiting the Script Session

- Ended the script session:

  exit

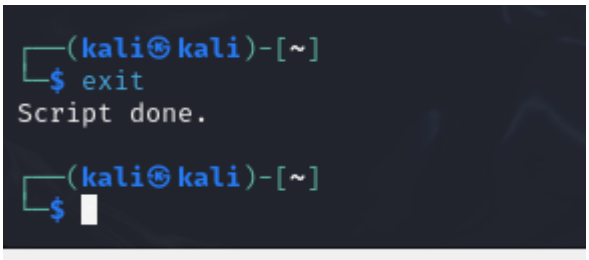

Figure 20:

OBSERVATIONS

1. Basic Linux commands like mkdir, cd, rm, and cat were successfully used to manage files and directories.
2. The outputs of ls, ls -a, and ls -al were compared to understand hidden files and file permissions.
3. The script session (a1script) recorded all commands and outputs for review.
4. Combining files with cat demonstrated its utility for file management.

SUMMARY

In this log, we explored:

1. Core Linux commands for file and directory management.
2. Creating and executing scripts to automate tasks and document system activity.
3. Observing outputs to deepen the understanding of Linux command-line functionality.

These activities enhance familiarity with Linux for tasks such as system administration, file handling, and automation using scripts.

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VMware. (n.d.). *what is server Virtualtization?* Retrieved November 07, 2024, from https://www.vmware.com/topics/server-virtualization