Experiment 01 – Linux Commands

Learning Objective: To explore basic and advanced Linux commands.

Tools: Linux Terminal

Theory: Different Linux commands and its explanation:

Screenshot:

```
bandit0@bandit:~$ ls
readme
bandit0@bandit:~$ cat readme
Congratulations on your first steps into the bandit game!!
Please make sure you have read the rules at https://overthewire.org/rules/
If you are following a course, workshop, walkthrough or other educational act
ivity,
please inform the instructor about the rules as well and encourage them to
contribute to the OverTheWire community so we can keep these games free!

The password you are looking for is: ZjLjTmM6FvvyRnrb2rfNWOZOTa6ip5If

bandit0@bandit:~$ exit
logout
Connection to bandit.labs.overthewire.org closed.
```

```
bandit8@bandit:~$ ls
data.txt
bandit8@bandit:~$ cat data.txt | sort | uniq -c | grep -v 10
      1 4CKMh1JI91bUIZZPXDqGanal4xvAg0JM
bandit8@bandit:~$ exit
logout
Connection to bandit.labs.overthewire.org closed.
```

```
bandit4@bandit:~$ ls
inhere
bandit4@bandit:~$ cd inhere
bandit4@bandit:~/inhere$ ls -a
.   -file00  -file02  -file04  -file06  -file08
..  -file01  -file03  -file05  -file07  -file09
bandit4@bandit:~/inhere$ for i in $(ls); do file ./$i; done
./-file00: data
./-file01: data
./-file02: data
./-file03: data
./-file04: data
./-file05: data
./-file06: data
./-file07: ASCII text
./-file08: data
./-file09: data
bandit4@bandit:~/inhere$ cat ./-file07
4oQYVPkxZOOEOO5pTW81FB8j8lxXGUQw
bandit4@bandit:~/inhere$ exit
logout
Connection to bandit.labs.overthewire.org closed.
```

```
bandit12@bandit:/tmp/rishabhh1809$ mv data6.bin.gz data8.bin.gz
bandit12@bandit:/tmp/rishabhh1809$ gzip -d data8.bin.gz
bandit12@bandit:/tmp/rishabhh1809$ ls
data5.bin  data6.bin  data8.bin  data.txt  hexdump
bandit12@bandit:/tmp/rishabhh1809$ file data8.bin
data8.bin: ASCII text
bandit12@bandit:/tmp/rishabhh1809$ cat data8.bin
The password is FO5dwFsc0cbaIiH0h8J2eUks2vdTDwAn
bandit12@bandit:/tmp/rishabhh1809$ exit
logout
Connection to bandit.labs.overthewire.org closed.
```

Result and Discussion:

The experiments provided insights into various aspects of system administration and usage:

1. **Understanding File and Directory Details**:
   The ls -l command demonstrated how file metadata is displayed, including permissions. This helps in understanding access control and user roles. For instance, the permissions -rw-r--r-- indicate the file is readable and writable by the owner but only readable by others.
2. **Monitoring Disk Usage**:
   The df -h command is particularly useful for tracking storage utilization. In this experiment, the root filesystem had 40% usage, indicating sufficient free space for further operations. Identifying storage constraints early can help avoid system performance issues.
3. **Process Management**:
   The ps aux command provided a comprehensive view of running processes. This is critical for diagnosing system performance issues, such as identifying processes with high CPU or memory consumption.

Learning Outcomes: The student should have the ability to

LO1: **explain** the various linux commands.

LO2: **execute** the linux commands in terminal

LO3: **experiment** the use of each and every command

Course Outcomes: Upon completion of the course students will be able to make use of various Linux commands.

Conclusion:……

The Linux command experiments highlighted essential tools for system administration and resource monitoring. Commands like ls -l, df -h, and ps aux proved effective for managing files, monitoring disk usage, and analyzing running processes. These commands enhance efficiency, ensure better system resource management, and provide valuable insights for troubleshooting and optimization in Linux environments.

For Faculty Use

Correction Parameters	**Formative Assessment [40%]**	**Timely completion of Practical [40%]**	**Attendance / Learning Attitude [20%]**	
Marks Obtained				