Lab Two: File Management and Filesystem Navigation in RHEL 9

Section 1: Understanding the Filesystem Hierarchy

1. What command can you use to view the filesystem hierarchy from the root directory (/)?
   ls -R / or tree /
2. What is the purpose of the /home, /var, and /usr directories in the Linux filesystem hierarchy?
   `/home`: Contains user home directories
   `/var`: Stores variable data
   `/usr`: Contains user utilities and applications

Section 2: Identifying File Types in Linux

3. What command do you use to determine the type of a file in Linux?
   file target_file

4. What are the main types of files available in Linux?
   (-) --> Regular file(text,binary,etc)
   (d) --> Directory (contain files)
   (l) --> Symbolic link
   (c) --> Character Device(uart)
   (b) --> Block Device (hard disk)

Section 3: Navigating Directories with Absolute and Relative Paths

5. How do you navigate to a directory using an **absolute path**?
   cd /home/abdallah-shehawey/Downloads
6. How do you navigate to a directory using a **relative path**?
   cd abdallah-shehawey
7. What is the difference between absolute and relative paths in Linux?
   Absolute path starts from the root dir /
   relative path starts from the working dir

Section 4: Listing Directory Contents

8. What command do you use to list the contents of a directory?
   ls dir/
9. How do you list **hidden files** in a directory?
   ls -a dir/

Section 5: Creating, Copying, Moving, and Removing Files and Directories

10. How do you create a new directory in the shell?
    mkdir new_dir
11. What is the command to create an empty file?
    touch new_file
12. How do you **copy** a file in the shell?
    cp source_file target_dir
13. How do you **move** a file in the shell?
    mv source_file target_dir
14. How do you **remove** a file or directory?
    rm file / rm -r dir / rmdir dir

Section 6: Creating Hard Links and Soft Links

15. What is the difference between a hard link and a soft link (symbolic link)?
Hard link : **Points to the same inode as the original file.**

Soft link : **Points to the file path, not the inode.**

16. How do you create a **hard link** in Linux?
ln original_file hard_link_file
17. How do you create a **soft (symbolic) link** in Linux?
ln -s original_file Symbolic_link_file
18. What happens if you delete the original file (example.txt) while the soft link still exists? What about the hard link?
Soft link: The link becomes broken and does not work.

Hard link: **The file still exists and works normally.**