### **Operating Systems**

Lab assignment 2

### **PART 2:**

**1. How to navigate to a Specific Directory?**

**Command:** cd /path/to/directory  
**Explanation:** In Linux, the cd (change directory) command is used to move from the current working directory to another specified directory. It helps users navigate through the hierarchical file system structure.

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### **2. How to see detailed information about files and directories using ls?**

**Command:** ls -l  
**Explanation:** The ls -l command lists all files and directories in the current directory in long format. It provides detailed information such as file permissions, number of links, owner name, group name, file size, and last modification date.

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### **3. How to create multiple directories in Linux using mkdir command?**

**Command:** mkdir dir1 dir2 dir3

**Explanation:** The mkdir command allows users to create new directories. By specifying multiple directory names separated by spaces, users can create multiple directories in one command execution.

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**4. How to remove multiple files at once with rm?**

**Command:** rm file1.txt file2.txt file3.txt  
**Explanation:** The rm command is used to delete files. By listing multiple file names, it enables users to remove several files in a single command.

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### **5. Can rm be used to delete directories?**

**Command:** rm -r directory\_name  
**Explanation:** Yes, the rm command can delete directories when used with the -r (recursive) option. It removes the directory along with all its contents, including subdirectories and files.

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### **6. How Do You Copy Files and Directories in Linux?**

**Command:** cp file1.txt /destination/path/  
 cp -r dir1 /destination/path/  
**Explanation:** The cp command is used to copy files and directories. The –r option enables recursive copying of directories, preserving their internal structure.

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### **7. How to Rename a file in Linux Using mv Command.**

**Command:** mv oldname.txt newname.txt  
**Explanation:** The mv command is used to move or rename files and directories. When used with a new filename, it effectively renames the file.

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### **8. How to Move Multiple files in Linux Using mv Command.**

**Command:** mv file1.txt file2.txt /destination/path/  
**Explanation:** By listing multiple files followed by the destination path, the mv command can move several files at once to another directory.

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### **9. How to Create Multiple Empty Files by Using Touch Command in Linux?**

**Command:** touch file1.txt file2.txt file3.txt  
**Explanation:** The touch command is primarily used to create empty files. Multiple filenames can be specified to create several empty files at once.

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### **10. How to View the Content of Multiple Files in Linux.**

**Command:** cat file1.txt file2.txt  
**Explanation:** The cat command displays the contents of files. It can accept multiple filenames, showing the content of all listed files sequentially.

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### **11. How to Create a file and add content in Linux Using cat Command?**

**Command:** cat > file1.txt  
 **Explanation:** Using cat with the > operator allows creating a new file and writing content to it interactively from the terminal.

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### **12. How to Append the Contents of One File to the End of Another File using cat command?**

**Command:** cat source.txt >> destination.txt  
**Explanation:** The >> operator appends the contents of one file to another, preserving the existing content in the destination file.

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### **13. How to use cat command if the file has a lot of content and can’t fit in the terminal.**

**Command:** cat file.txt | less

**Explanation:** When a file's content exceeds the terminal’s display capacity, piping cat to less allows users to scroll through the content page by page.

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### **14. How to Merge Contents of Multiple Files Using cat Command?**

**Command:** cat file1.txt file2.txt > merged.txt  
**Explanation:**  
 The cat command can combine multiple files into one by redirecting the output to a new file using the > operator.

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### **15. How to use cat Command to Append to an Existing File?**

**Command:** cat >> existing.txt  
 **Explanation:** Using cat with >> allows appending manually entered content to the end of an existing file without overwriting it.

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**16. What is “chmod 777 “, “chmod 755” and “chmod +x “or “chmod a+x”?**

**Command:** chmod 777 file  
 chmod 755 file  
 chmod +x file  
 chmod a+x file

**Explanation:**

* chmod 777: Grants read, write, and execute permissions to all users.
* chmod 755: Grants full permissions to the owner, read and execute permissions to others.
* chmod +x: Adds execute permission to the file.
* chmod a+x: Adds execute permission for all users (owner, group, others).

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### **17. How to find the number of lines that matches the given string/pattern**

**Command:** grep -c "pattern" file.txt  
**Explanation:** The -c option in grep counts the number of lines that contain the specified pattern, providing a quick count result.

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### **18. How to display the files that contains the given string/pattern.**

**Command:** grep -l "pattern" \*.txt

**Explanation:** The -l option lists only the filenames of files containing the specified pattern, without showing the actual matching lines.

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### **19. How to show the line number of file with the line matched.**

**Command:** grep -n "pattern" file.txt  
**Explanation:** The -n option displays the matching lines along with their line numbers, making it easier to locate specific matches.

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### **20. How to match the lines that start with a string using grep**

**Command:** grep "^string" file.txt

**Explanation:** The ^ symbol in regular expressions matches the beginning of a line. This command finds lines that start with the specified string.

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### **21. Can the ‘sort’ command be used to sort files in descending order by default?**

**Command:** sort -r file.txt  
**Explanation:** By default, sort sorts in ascending order. To sort in descending order, the -r (reverse) option must be explicitly used.

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### **22. How can I sort a file based on a specific column using the ‘sort’ command?**

**Command:** sort -k 2 file.txt

**Explanation:** The -k option specifies the column number on which the sort operation should be based, allowing sorting by any column.

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