# ASSIGNMENT NO: 1

## Operating System LAB

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| **UNIX COMMANDS** | | |
| **File commands :** | **Description** | **Exanple** |
| 1. ****touch****: | Creates an empty file or updates the access and modification timestamps of a file. | touch filename.txt |
| 1. **cp** | Copies files or directories. | file1.txt file2.txt |
| 1. ****mv**** | Moves or renames files or directories. | mv file1.txt directory/ |
| 1. ****rm**** | Removes files or directories. | rm filename.txt |
| 1. ****cat**** | Concatenates and displays file content. | cat filename.txt |
| 1. ****more**** | Displays content one screen at a time. | more filename.txt |
| 1. ****less**** | Allows backward and forward navigation through file content. | less filename.txt |
| 1. ****head**** | Displays the beginning of a file. | head filename.txt |
| 1. ****tail****: | Displays the end of a file. | tail filename.txt |
| ****Directory Commands**** |  |  |
| 1. ****mkdir**** | Creates a new directory. | mkdir directoryname |
| 1. ****rmdir**** | Removes a directory (if it's empty). | rmdir directoryname |
| 1. ****cd**** | Changes the current directory. | cd directoryname |
| 1. ****pwd**** | Prints the current working directory. | pwd |
| 1. ****ls**** | Lists directory contents. | ls |
| 1. ****find**** | Searches for files and directori | find . -name "\*.txt" |
| 1. ****tree**** | Displays directory structure as a tree. | tree |
| ****Process Commands:**** |  |  |
| 1. ****ps**** | Displays information about active processes. | ps |
| 1. ****top**** | Displays real-time system resource usage, including CPU, memory, and process information. | top |
| 1. ****htop**** | Interactive process viewer similar to top but with a more user-friendly interface | htop |
| 1. ****pgrep**** | Searches for processes by name or other attributes and prints their process IDs. | pgrep process\_name |
| 1. ****kill**** | Sends a signal to terminate or control processes. | kill PID |
| ****Status Information Commands:**** |  |  |
| 1. ****uptime**** | Displays how long the system has been running, the number of users logged in, and the system load averages. | uptime |
| 1. ****free**** | Displays information about system memory usage, including total, used, and free memory. | free |
| 1. ****df**** | Displays information about disk space usage for mounted filesystems. | df -h |
| 1. ****du**** | Displays information about disk space usage for mounted filesystems. | du -h |
| 1. ****vmstat**** | Displays virtual memory statistics, including information about processes, memory, paging, block I/O, traps, and CPU activity. | vmstat |
| 1. ****iostat**** | Reports CPU utilization and I/O statistics for devices, partitions, and NFS. | iostat |
| 1. ****netstat**** | Displays network connections, routing tables, interface statistics | netstat -tuln |
| **five Unix commands related to file permissions** | | |
| 1. ****chmod**** | Changes file permissions. | chmod +x script.sh |
| 1. ****chown**** | Changes file ownership. | chown user1 file.txt |
| 1. ****chgrp**** | Changes file group ownership. | chgrp group2 file.txt |
| 1. ****umask**** | Sets the default permissions for newly created files. | umask 022 |
| 1. ****ls**** | Lists directory contents along with permissions. | ls -l |
| **Useful Commands** |  |  |
| 1. **Exit** | The exit command is used to close the current shell or terminal session | $ exit |
| 1. **Ctrl+I** | used as a shortcut to speed up command line navigation and reduce typing. | ls |
| 1. **Ctrl+C** | The Ctrl+C command, often referred to as the interrupt command | $ long\_running\_command  ^C  $ |
| 1. **Ctrl+Z** | The Ctrl+Z command, often referred to as the suspend command | $ long\_running\_command  ^Z  [1]+ Stopped long\_running\_command  $ |
| 1. ****man**** | Displays the manual pages for commands. | **man commandname** |
| 1. **history** | The history command is used to display a list of previously executed commands in a Unix-like operating system's shell session | $ history  1 ls  2 cd Documents  3 vim report.txt  4 ./script.sh  5 history |
| 1. **more** | command is useful when you want to view the contents of multiple files sequentially with the ability to navigate through each file individually. | cat file1.txt file2.txt file3.txt |
| 1. **less** | This command will open each file one by one in the less pager | less file1.txt file2.txt file3.txt |
| 1. **Ipr** | "IPR" commonly refers to Autodesk Inventor project files | The ‘’ \* ’’  $ cat ap\*  The ‘’ ? ‘’  The [ ] |
| **Pipes and filters** | | |
| 1. ****| (Pipe)****: | This symbol is used to send the output of one command as input to another command. | command1 | command2 |
| 1. ****grep**** | Filters lines of text based on a pattern | grep pattern filename |
| 1. ****sed**** | Stream editor for filtering and transforming text. | sed 's/search/replace/g' filename |
| 1. ****awk****: | Powerful pattern scanning and processing language. | awk '{print $1}' filename |
| 1. ****sort**** | Sorts lines of text | sort filename |
| 1. ****uniq**** | Filters out repeated lines in a sorted file. | uniq filename |
| 1. ****head**** | Outputs the first part of files. | head filename |
| 1. ****tail**** | Outputs the last part of files. | tail filename |
| 1. ****cut**** | Removes sections from each line of files. | cut -d' ' -f1 filename |
| 1. ****tr**** | Translates or deletes characters. | tr '[:lower:]' '[:upper:]' < filename |
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