Lab 1: Basic GATE operations
Operating Systems Lab (20CP207P)

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Introduction of Linux OS:

In this lab, you will learn to use various Linux commands to operate the Linux operating systems. Linux is a family of open-source Unix-like operating systems based on the Linux kernel, an operating system kernel first released on September 17, 1991, by Linus Torvalds. Popular Linux distributions include Debian, Fedora Linux, and Ubuntu, the latter of which itself consists of many different distributions and modifications, including Lubuntu and Xubuntu. Linux was originally developed for personal computers based on the Intel x86 architecture, but has since been ported to more platforms than any other operating system. Because of the dominance of the Linux-based Android on smartphones, Linux, including Android, has the largest installed base of all general-purpose operating systems, as of May 2022 [1].

Linux has a worldwide market share of 2.68% on desktops, but over 90% of all cloud infrastructure and hosting services run in this operating system. For this reason alone, it is crucial to be familiar with popular Linux commands [2].

Linux Commands:

- A Linux command is a program or utility that runs on the command line. A command line is an interface that accepts lines of text and processes them into instructions for your computer.

- Any graphical user interface (GUI) is just an abstraction of command-line programs. For example, when you close a window by clicking on the "X," there's a command running behind that action.

- A flag is a way we can pass options to the command you run. Most Linux commands have a help page that we can call with the flag -h. Most of the time, flags are optional.

- An argument or parameter is the input we give to a command so it can run properly. In most cases, the argument is a file path, but it can be anything you type in the terminal.

- You can invoke flags using hyphens (-) and double hyphens (--), while argument execution depends on the order in which you pass them to the function.

Execute the following Linux commands on Linux terminal of your choice and verify the output.

1. Whoami
2. PWD

3. ls
4. ls –R
5. ls –a
6. History
7. clear
8. echo
9. touch
10. rm
11. mkdir
12. rmdir
13. mv
14. cd
15. cmp
16. cat
17. cal
18. cal –y
19. cal 2018
20. passwd
21. grep
22. free
23. uname
24. uname –a
25. uname –s
26. uname –n
27. group
28. comm
29. date
30. date –d
31. chmod
32. wc

Submission Instruction:

1. Execute each command on the terminal with all common options (For example : date, date –d, etc) and record the snapshot of the output.
2. Prepare a PDF file comprised of all the commands with the corresponding output. Print the PDF file and prepare a file (Hard copy).
3. The assignment of the previous lab will be verified in the very next lab. Therefore, it is mandatory to bring the file in each lab.
4. Late submissions have inherent penalty and it will be reflected in your internal assessment.

5. Any form of plagiarism/copying from peer or internet sources will not be compromised.

References:

1. https://en.wikipedia.org/wiki/Linux
2. The 40 Most-Used Linux Commands You Should Know (kinsta.com)