**Concepts of Operating System**

**Assignment 1**

**Problem 1: Read the instructions carefully and answer accordingly. If there is any need to insert some data then do that as well.**

1. Navigate and List: a. Start by navigating to your home directory and list its contents. Then, move into a directory named "LinuxAssignment" if it exists; otherwise, create it.

cdac@SANKET:~$ ls

cdac@SANKET:~$ mkdir LinuxAssignment

cdac@SANKET:~$ ls

LinuxAssignment

cdac@SANKET:~$

1. File Management: a. Inside the "LinuxAssignment" directory, create a new file named "file1.txt". Display its contents.

cdac@SANKET:~$ pwd

/home/cdac

cdac@SANKET:~$ cd LinuxAssignment/

cdac@SANKET:~/LinuxAssignment$ nano file1.txt

cdac@SANKET:~/LinuxAssignment$ cat file1.txt

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C-DAC Kharghar

1. Directory Management: a. Create a new directory named "docs" inside the "LinuxAssignment" directory.

cdac@SANKET:~/LinuxAssignment$ ls

file1.txt

cdac@SANKET:~/LinuxAssignment$ mkdir docs

cdac@SANKET:~/LinuxAssignment$ ls

docs file1.txt

cdac@SANKET:~/LinuxAssignment$

1. Copy and Move Files: a. Copy the "file1.txt" file into the "docs" directory and rename it to "file2.txt".

cdac@SANKET:~/LinuxAssignment$ touch docs/file2.txt

cdac@SANKET:~/LinuxAssignment$ head file1.txt > docs/file2.txt

cdac@SANKET:~/LinuxAssignment$ cat docs/file2.txt

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1. Permissions and Ownership: a. Change the permissions of "file2.txt" to allow read, write, and execute permissions for the owner and only read permissions for others. Then, change the owner of "file2.txt" to the current user.

cdac@SANKET:~/LinuxAssignment/docs$ ls -l

total 4

-rw-r--r-- 1 cdac cdac 35 Aug 28 18:22 file2.txt

cdac@SANKET:~/LinuxAssignment/docs$ chmod u+rwx file2.txt

cdac@SANKET:~/LinuxAssignment/docs$ ls -l

total 4

-rwxr--r-- 1 cdac cdac 35 Aug 28 18:22 file2.txt

cdac@SANKET:~/LinuxAssignment/docs$

1. Final Checklist: a. Finally, list the contents of the "LinuxAssignment" directory and the root directory to ensure that all operations were performed correctly.

cdac@SANKET:~/LinuxAssignment/docs$ ls

file2.txt

cdac@SANKET:~/LinuxAssignment/docs$ cd ..

cdac@SANKET:~/LinuxAssignment$ ls

docs file1.txt nano touch

cdac@SANKET:~/LinuxAssignment$ cd ..

cdac@SANKET:~$ ls

LinuxAssignment

cdac@SANKET:~$ cd ..

cdac@SANKET:/home$ ls

cdac

cdac@SANKET:/home$ cd ..

cdac@SANKET:/$ ls

bin dev home lib lib64 lost+found mnt proc run snap sys usr

boot etc init lib32 libx32 media opt root sbin srv tmp var

cdac@SANKET:/$

1. File Searching: a. Search for all files with the extension ".txt" in the current directory and its subdirectories. b. Display lines containing a specific word in a file (provide a file name and the specific word to search).

cdac@SANKET:~/LinuxAssignment$ find \*.txt

file1.txt

cdac@SANKET:~/LinuxAssignment$ grep "Sanket" file1.txt

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cdac@SANKET:~/LinuxAssignment$

1. System Information: a. Display the current system date and time.

cdac@SANKET:~/LinuxAssignment$ date

Wed Aug 28 18:31:51 IST 2024

1. Networking: a. Display the IP address of the system. b. Ping a remote server to check connectivity (provide a remote server address to ping).

cdac@SANKET:~/LinuxAssignment$ hostname

SANKET

cdac@SANKET:~/LinuxAssignment$ hostname -i

127.0.1.1

cdac@SANKET:~/LinuxAssignment$

1. File Compression: a. Compress the "docs" directory into a zip file. b. Extract the contents of the zip file into a new directory.

cdac@SANKET:~/LinuxAssignment$ zip -r docs.zip docs

Command 'zip' not found, but can be installed with:

sudo apt install zip

cdac@SANKET:~/LinuxAssignment$ sudo apt install zip

[sudo] password for cdac:

Waiting for cache lock: Could not get lock /var/lib/dpkg/lock-frontend. It iWaiting for cache lock: Could not get lock /var/lib/dpkg/lock-frontend. It is held by process 6135 (unattended-upgr)

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Reading package lists... 0%

Reading package lists... Done

Building dependency tree... Done

Reading state information... Done

The following additional packages will be installed:

unzip

The following NEW packages will be installed:

unzip zip

0 upgraded, 2 newly installed, 0 to remove and 128 not upgraded.

Need to get 350 kB of archives.

After this operation, 930 kB of additional disk space will be used.

Do you want to continue? [Y/n] Y

Get:1 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 unzip amd64 6.0-26ubuntu3.2 [175 kB]

Get:2 http://archive.ubuntu.com/ubuntu jammy/main amd64 zip amd64 3.0-12build2 [176 kB]

Fetched 350 kB in 1s (261 kB/s)

Selecting previously unselected package unzip.

(Reading database ... 24208 files and directories currently installed.)

Preparing to unpack .../unzip\_6.0-26ubuntu3.2\_amd64.deb ...

Unpacking unzip (6.0-26ubuntu3.2) ...

Selecting previously unselected package zip.

Preparing to unpack .../zip\_3.0-12build2\_amd64.deb ...

Unpacking zip (3.0-12build2) ...

Setting up unzip (6.0-26ubuntu3.2) ...

Setting up zip (3.0-12build2) ...

Processing triggers for man-db (2.10.2-1) ...

cdac@SANKET:~/LinuxAssignment$ zip -r docs.zip docs

adding: docs/ (stored 0%)

adding: docs/file2.txt (stored 0%)

cdac@SANKET:~/LinuxAssignment$ zip -r docs.zip docs

adding: docs/ (stored 0%)

adding: docs/file2.txt (stored 0%)

cdac@SANKET:~/LinuxAssignment$ mkdir new

cdac@SANKET:~/LinuxAssignment$ unzip docs.zip -d new\_docs

Archive: docs.zip

creating: new\_docs/docs/

extracting: new\_docs/docs/file2.txt

cdac@SANKET:~/LinuxAssignment$

1. File Editing: a. Open the "file1.txt" file in a text editor and add some text to it. b. Replace a specific word in the "file1.txt" file with another word (provide the original word and the word to replace it with).

cdac@SANKET:~/LinuxAssignment$ nano file1.txt

cdac@SANKET:~/LinuxAssignment$ sed -i 's/Thank/HELLOSANKET/g' file1.txt

cdac@SANKET:~/LinuxAssignment$ cat file1.txt

Sanket Dagadu Ahire

C-DAC Kharghar

New Text Added by me

HELLOSANKET You

cdac@SANKET:~/LinuxAssignment$

**Problem 2: Read the instructions carefully and answer accordingly. If there is any need to insert some data then do that as well.**

1. Suppose you have a file named "data.txt" containing important information. Display the

first 10 lines of this file to quickly glance at its contents using a command.

cdac@SANKET:~/LinuxAssignment$ nano data.txt

cdac@SANKET:~/LinuxAssignment$ head -n 10 data.txt

Sanket

Ahire

C-DAC

Thank You

Best Luck

Thank you

Be positive

Happy

Good Thought

Demo Code

1. Now, to check the end of the file for any recent additions, display the last 5 lines of

"data.txt" using another command.

cdac@SANKET:~/LinuxAssignment$ tail -n 5 data.txt

Kharghar C-DAC

Linux Module

Thank you Sanket

How are yuo?

Good Bye

1. In a file named "numbers.txt," there are a series of numbers. Display the first 15 lines of

this file to analyze the initial data set.

cdac@SANKET:~/LinuxAssignment$ head -n 15 numbers.txt

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

1. To focus on the last few numbers of the dataset, display the last 3 lines of "numbers.txt".

cdac@SANKET:~/LinuxAssignment$ tail -3 numbers.txt

18

19

20

1. Imagine you have a file named "input.txt" with text content. Use a command to translate

all lowercase letters to uppercase in "input.txt" and save the modified text in a new file

named "output.txt."

cdac@SANKET:~/LinuxAssignment$ cat data.txt

Sanket

Ahire

C-DAC

Thank You

Best Luck

Thank you

Be positive

Happy

Good Thought

Demo Code

Hello Sanket

Computer Systems

Operating Syatems

Ubantu

Kharghar C-DAC

Linux Module

Thank you Sanket

How are yuo?

Good Bye

cdac@SANKET:~/LinuxAssignment$ tr 'a-z' 'A-Z' < data.txt > output.txt

cdac@SANKET:~/LinuxAssignment$ cat output.txt

SANKET

AHIRE

C-DAC

THANK YOU

BEST LUCK

THANK YOU

BE POSITIVE

HAPPY

GOOD THOUGHT

DEMO CODE

HELLO SANKET

COMPUTER SYSTEMS

OPERATING SYATEMS

UBANTU

KHARGHAR C-DAC

LINUX MODULE

THANK YOU SANKET

HOW ARE YUO?

GOOD BYE

1. In a file named "duplicate.txt," there are several lines of text, some of which are

duplicates. Use a command to display only the unique lines from "duplicate.txt."

cdac@SANKET:~/LinuxAssignment$ sort fruit.txt | uniq

Apricot

Banana

Berry

Blueberry

Cherry

Grapefruit

Lemon

Mango

Orange

Papaya

Strawberry

1. In a file named "fruit.txt," there is a list of fruits, but some fruits are repeated. Use a

command to display each unique fruit along with the count of its occurrences in

"fruit.txt."

cdac@SANKET:~/LinuxAssignment$ sort fruit.txt | uniq -c

1 Apricot

3 Banana

1 Berry

1 Blueberry

1 Cherry

1 Grapefruit

1 Lemon

3 Mango

3 Orange

1 Papaya

1 Strawberry