# DETA

# Understand the inode, access time & modification time of a file using stat

# Using date command

# Create two or more files and understand inode

# Add contents to the file using cat command

# Understand the inode, block, access time & modification time of a file using gh

# List the files in current directory using ls command

# Copy the content of file1 to another file using cp

# Understand the difference between cp & mv

# Delete the copy of the file using rm

# Create hard link & soft link for a file using ln command

# Create a file "data.txt" with content "data.txt"

# Create a hard link for "data.txt" & name it as "dataLink.txt"

# Understand the inode of the links created

# Change the content of "dataLink.txt" to "dataLink.txt"

# Understand the inode of the links created

# Check the content of "data.txt" & "dataLink.txt"

# Delete "data.txt" & check the content of "dataLink.txt"

# Create a soft link for "dataLink.txt" & name it as "dataSoft.txt"

# Understand the inode of the links created

# Change the content of "dataSoft.txt" to "dataSoft.txt"

# Understand the inode of the links created

# Check the content of "data.txt" & "dataLink.txt"

# Delete "dataLink.txt" & check the content of "dataSoft.txt"

# 

# Create a directory Day01 & Day02 using mkdir

# Moving file1 to Day01 directory using mv

# Copy file1 from Day01 to Day02

# Remove directory Day02 using rmdir & rm

# Understanding the directory structure using cd & pwd

# Understanding . & ..

# Add contents to the file using vim editor

# Display the contents of a file using cat command

# Statistics on the content of the file using wc command

# Get number of characters stored in a file

# ILED EXERCISES

## Day 01 - Exercises

1. Create a file using **touch** commandGet number of lines stored in a file
   1. Get number of words stored in a file
2. Understanding **df** and **du** & difference between size of a file and size on disk
3. Understanding lsof command

~$

mkdir: cannot create directory ‘amudha’: File exists

~$ mkdir anandh

~$ touch anu

~$ cat > avi

i am a trainer

welcome to volkswagon

we are studying

~$ cat avi

i am a trainer

welcome to volkswagon

we are studying

~$ cat > anu

we are ver good

how r u

~$ cat anu

we are ver good

how r u

~$ touch -t amu

touch: invalid date format ‘amu’

~$ stat anu

File: anu

Size: 24 Blocks: 2 IO Block: 512 regular file

Device: 10006eh/1048686d Inode: 256 Links: 1

Access: (0644/-rw-r--r--) Uid: ( 2001/ user) Gid: ( 2001/ user)

Access: 2022-09-26 04:45:44.065861989 +0000

Modify: 2022-09-26 04:48:57.268582879 +0000

Change: 2022-09-26 04:48:57.268582879 +0000

Birth: -

~$ cat >> anu

i want to ass something

~$ cat anu

we are ver good

how r u

i want to ass something

~$ mv anu avi

~$ cat avi

we are ver good

how r u

i want to ass something

~$ cat anu

cat: anu: No such file or directory

~$ ls

2022-09-25-101302.term adhi.term amudha anandh avi dwarak sri

~$ ls -l

total 5

-rw-r--r-- 1 user user 0 Sep 26 04:44 2022-09-25-101302.term

-rw-r--r-- 1 user user 0 Sep 26 03:18 adhi.term

drwxr-xr-x 2 user user 2 Sep 25 17:14 amudha

drwxr-xr-x 2 user user 2 Sep 26 04:45 anandh

-rw-r--r-- 1 user user 48 Sep 26 04:52 avi

-rw-r--r-- 1 user user 19 Sep 25 17:38 dwarak

-rw-r--r-- 1 user user 37 Sep 25 17:24 sri

~$

~$ ls -a

. .2022-09-25-101302.term-0.term .bash\_history .bashrc .smc .ssh adhi.term anandh dwarak

.. .adhi.term-0.term .bash\_profile .jupyter-blobs-v0.db .snapshots 2022-09-25-101302.term amudha avi sri

~$ ls -d

.

~$ cat > asi

here is the new file

with new content

~$

~$ cat asi

here is the new file

with new content

~$ cp avi asi

~$ cat asi

we are ver good

how r u

i want to ass something

~$ cat avi

we are ver good

how r u

i want to ass something444444

~$ rm asi

~$ cat asi

cat: asi: No such file or directory

~$ rmdir amudha

~$ mkdir amudha

~$ pwd

/home/user

~$ wc avi

3 12 48 avi

~$ wc -c avi

48 avi

~$ wc -m avi

48 avi

~$ wc -l avi

3 avi

~$ wc -w avi

12 avi

~$ df

Filesystem 1K-blocks Used Available Use% Mounted on

overlay 124819248 8807188 115995676 8% /

tmpfs 65536 0 65536 0% /dev

tmpfs 16437424 0 16437424 0% /sys/fs/cgroup

10.105.159.225:/ubuntu-2004\_2022-09-14/linux/Ubuntu-20.04/bin 1470103552 1323378688 141390848 91% /bin

10.105.159.225:/ubuntu-2004\_2022-09-14/linux/Ubuntu-20.04/lib 1470103552 1323378688 141390848 91% /lib

10.105.159.225:/ubuntu-2004\_2022-09-14/linux/Ubuntu-20.04/lib32 1470103552 1323378688 141390848 91% /lib32

10.105.159.225:/ubuntu-2004\_2022-09-14/linux/Ubuntu-20.04/usr 1470103552 1323378688 141390848 91% /usr

10.105.159.225:/ubuntu-2004\_2022-09-14/linux/Ubuntu-20.04/var 1470103552 1323378688 141390848 91% /var

10.105.159.225:/ubuntu-2004\_2022-09-14 1470103552 1323378688 141390848 91% /ext

10.105.159.225:/project/2022-08-19-182453-hsy-detection-bugfix 1470103552 1323378688 141390848 91% /cocalc

10.105.159.225:/ubuntu-2004\_2022-09-14/linux/Ubuntu-20.04/sbin 1470103552 1323378688 141390848 91% /sbin

10.105.159.225:/ubuntu-2004\_2022-09-14/linux/Ubuntu-20.04/lib64 1470103552 1323378688 141390848 91% /lib64

10.105.159.225:/ubuntu-2004\_2022-09-14/linux/Ubuntu-20.04/opt 1470103552 1323378688 141390848 91% /opt

tmpfs 16437424 40 16437384 1% /tmp

10.105.159.225:/ubuntu-2004\_2022-09-14/linux/Ubuntu-20.04/libx32 1470103552 1323378688 141390848 91% /libx32

10.105.159.225:/ubuntu-2004\_2022-09-14/linux/Ubuntu-20.04/srv 1470103552 1323378688 141390848 91% /srv

10.105.159.225:/ubuntu-2004\_2022-09-14/linux/Ubuntu-20.04/etc 1470103552 1323378688 141390848 91% /etc

tmpfs 16437424 0 16437424 0% /data

kucalc-default-project-e124e2cf-6b82-401d-af08-b66a23374584 3072000 128 3071872 1% /home/user

/var/lib/kubelet/pods/020d22c2-8b39-41f4-9a2b-e4fdd3cb8b71/volumes/cocalc~zfs/home/.zfs/snapshot 3072000 128 3071872 1% /home/user/.snapshots

/dev/sda1 124819248 8807188 115995676 8% /etc/hosts

tmpfs 16437424 4 16437420 1% /secrets/gateway-public

tmpfs 16437424 4 16437420 1% /secrets/secret-token

shm 65536 0 65536 0% /dev/shm

tmpfs 16437424 0 16437424 0% /proc/acpi

tmpfs 16437424 0 16437424 0% /proc/scsi

tmpfs 16437424 0 16437424 0% /sys/firmware

~$

~$ du -a

3 ./.bashrc

1 ./anandh

1 ./.bash\_profile

1 ./.jupyter-blobs-v0.db

1 ./amudha

1 ./2022-09-25-101302.term

1 ./dwarak

1 ./.smc

1 ./adhi.term

1 ./.ssh/authorized\_keys

2 ./.ssh

1 ./avi

1 ./.bash\_history

3 ./.snapshots/2022-09-26-032941/.bashrc

1 ./.snapshots/2022-09-26-032941/.bash\_profile

1 ./.snapshots/2022-09-26-032941/.jupyter-blobs-v0.db

1 ./.snapshots/2022-09-26-032941/amudha

1 ./.snapshots/2022-09-26-032941/2022-09-25-101302.term

1 ./.snapshots/2022-09-26-032941/dwarak

1 ./.snapshots/2022-09-26-032941/.smc

1 ./.snapshots/2022-09-26-032941/adhi.term

1 ./.snapshots/2022-09-26-032941/.ssh/authorized\_keys

2 ./.snapshots/2022-09-26-032941/.ssh

1 ./.snapshots/2022-09-26-032941/.bash\_history

1 ./.snapshots/2022-09-26-032941/.2022-09-25-101302.term-0.term

3 ./.snapshots/2022-09-26-032941/.adhi.term-0.term

1 ./.snapshots/2022-09-26-032941/sri

15 ./.snapshots/2022-09-26-032941

3 ./.snapshots/2022-09-25-175518/.bashrc

1 ./.snapshots/2022-09-25-175518/.bash\_profile

1 ./.snapshots/2022-09-25-175518/.jupyter-blobs-v0.db

1 ./.snapshots/2022-09-25-175518/amudha

1 ./.snapshots/2022-09-25-175518/2022-09-25-101302.term

1 ./.snapshots/2022-09-25-175518/dwarak

1 ./.snapshots/2022-09-25-175518/.smc

1 ./.snapshots/2022-09-25-175518/adhi.term

1 ./.snapshots/2022-09-25-175518/.ssh/authorized\_keys

2 ./.snapshots/2022-09-25-175518/.ssh

1 ./.snapshots/2022-09-25-175518/.bash\_history

1 ./.snapshots/2022-09-25-175518/.2022-09-25-101302.term-0.term

3 ./.snapshots/2022-09-25-175518/.adhi.term-0.term

1 ./.snapshots/2022-09-25-175518/sri

15 ./.snapshots/2022-09-25-175518

3 ./.snapshots/2022-09-25-171414/.bashrc

1 ./.snapshots/2022-09-25-171414/.bash\_profile

1 ./.snapshots/2022-09-25-171414/.jupyter-blobs-v0.db

1 ./.snapshots/2022-09-25-171414/2022-09-25-101302.term

1 ./.snapshots/2022-09-25-171414/.smc

1 ./.snapshots/2022-09-25-171414/adhi.term

1 ./.snapshots/2022-09-25-171414/.ssh/authorized\_keys

2 ./.snapshots/2022-09-25-171414/.ssh

1 ./.snapshots/2022-09-25-171414/.snapshots

1 ./.snapshots/2022-09-25-171414/.2022-09-25-101302.term-0.term

1 ./.snapshots/2022-09-25-171414/.adhi.term-0.term

10 ./.snapshots/2022-09-25-171414

3 ./.snapshots/2022-09-26-045159/.bashrc

1 ./.snapshots/2022-09-26-045159/anandh

1 ./.snapshots/2022-09-26-045159/.bash\_profile

1 ./.snapshots/2022-09-26-045159/.jupyter-blobs-v0.db

1 ./.snapshots/2022-09-26-045159/amudha

1 ./.snapshots/2022-09-26-045159/anu

1 ./.snapshots/2022-09-26-045159/2022-09-25-101302.term

1 ./.snapshots/2022-09-26-045159/dwarak

1 ./.snapshots/2022-09-26-045159/.smc

1 ./.snapshots/2022-09-26-045159/adhi.term

1 ./.snapshots/2022-09-26-045159/.ssh/authorized\_keys

2 ./.snapshots/2022-09-26-045159/.ssh

1 ./.snapshots/2022-09-26-045159/avi

1 ./.snapshots/2022-09-26-045159/.bash\_history

1 ./.snapshots/2022-09-26-045159/.snapshots

2 ./.snapshots/2022-09-26-045159/.2022-09-25-101302.term-0.term

3 ./.snapshots/2022-09-26-045159/.adhi.term-0.term

1 ./.snapshots/2022-09-26-045159/sri

18 ./.snapshots/2022-09-26-045159

57 ./.snapshots

3 ./.2022-09-25-101302.term-0.term

3 ./.adhi.term-0.term

1 ./sri

76 .

~$ date

Mon Sep 26 05:05:40 UTC 2022

~$ who

**DETAILED HANDSON**

Day 01 - Handson

Objective

To be able to create and manipulate files in a directory. To be able to create and

manipulate data in a file.

Problem

1. Create a directory for storing employee and department details called as

"EmployeeManagement"

2. Create a file “employee.txt” for storing employee details

3. Create a file “departments.txt” for storing department details

4. Open employee.txt and write the following data.

E1001:James:FIN:40000:987654371

E1002:Smith:BD:23000:987654381

E1003:Kevin:TECH:54000:987654341

E1004:Raj:TECH:125000:987654351

E1005:Prem:FIN:75000:987654321

E1006:Guru:BD:175000:987654311

5. Open employee.txt and change the content as per the below information, save

and close the file.

E1001:James:FIN:50000:987654371

E1002:Smith:BD:73000:987654381

E1003:Kevin:TECH:78000:987654341

E1004:Raj:TECH:145000:987654351

E1005:Prem:FIN:95000:987654321

E1006:Guru:BD:195000:987654311

6. Rename employee.txt to employees.txt

7. Delete file “department.txt”

8. Find the name of the recently modified file

13/10/2022

Data processing related commands

Piping works

Permission related commands,

Calculating the permission

Permission handled

1) How to give input using the vi editor

2) Sort - Concatenate all the standard outputs

3) Uniq –filter the adjacent matching lines

Print the content of the file after removing all the adjacent lines

4) Tr – translate, squeeze, and/or delete characters

5) Cut command – print the selected parts of lines from each file

6) Head command – print the first 10 lines of the file

7) Tail command – print the last 10 lines

8) Cmp – to compare files

9) Diff – difference- used to display the differences in the files

-context, unified, version

10) COMM – compare two sorted line by line

**PIPING**

**PERMISSION**

**Groups**

1) Owner

2) Group

3) All users

Permission types

Read-r

Write-w

Execute-x

Changing security permissions

Chmod o

Chmod o+

Chmod o+x

Chmod o+x animals

**Calculating the permissions**

0 ----none

1--xexecute only

2-w-write only

3-wxwrite and execute

4r--read only

5r-xread and execute

6rw-read and write

7rwxread, write and execute

Chmod ugo+rwx [filename]

Chmod 777 [filename]

**Passwd**

Change the user account passwords

Passwd [options] [username]

h**and on**

**~$ vi maha**

**~$ cat maha**

**maha avatar babaji**

**be with your breath**

**welcome to volkswagen**

**happy joining**

**~$ vi maha**

**~$ cat maha**

**maha avatar babaji**

**be with your breath**

**electronic devices**

**welcome to volkswagen**

**happy joining**

**~$ cat > avatar**

**lion, tiger, fox, giraffe are the animals**

**apple, orange, kiwi are the fruits~$**

**~$ cat avatar**

**lion, tiger, fox, giraffe are the animals**

**apple, orange, kiwi are the fruits~$**

**~$ sort maha**

**welcome to volkswagen**

**be with your breath**

**electronic devices**

**happy joining**

**maha avatar babaji**

**~$ sort -r maha**

**maha avatar babaji**

**happy joining**

**electronic devices**

**be with your breath**

**welcome to volkswagen**

**~$ sort -n maha**

**welcome to volkswagen.**

**be with your breath**

**electronic devices**

**happy joining**

**maha avatar babaji**

**~$ sort -b avatar**

**apple, orange, kiwi are the fruits**

**lion, tiger, fox, giraffe are the animals**

**~$ cat > maha**

**elctronic devices**

**welcome to volkswagen**

**cat maha**

**~$ cat maha**

**elctronic devices**

**welcome to volkswagen**

**cat maha**

**~$ cat mha**

**cat: mha: No such file or directory**

**~$ cat maha**

**elctronic devices**

**welcome to volkswagen**

**cat maha**

**~$ cat >> maha**

**cat maha**

**~$ cat maha**

**elctronic devices**

**welcome to volkswagen**

**cat maha**

**cat maha**

**~$ uniq maha**

**elctronic devices**

**welcome to volkswagen**

**cat maha**

**~$ uniq -c maha**

**1 elctronic devices**

**1 welcome to volkswagen**

**2 cat maha**

**~$ uniq -d maha**

**cat maha**

**~$ cat avatar**

**lion, tiger, fox, giraffe are the animals**

**apple, orange, kiwi are the fruits~$**

**~$ cat avatar|tr "," "\t"**

**lion tiger fox giraffe are the animals**

**apple orange kiwi are the fruits~$**

**~$ cat avatar|tr -s ","**

**lion, tiger, fox, giraffe are the animals**

**apple, orange, kiwi are the fruits~$**

**~$ cat avatar|tr -d ","**

**lion tiger fox giraffe are the animals**

**apple orange kiwi are the fruits~$**

**~$ cut -d ' ' avatar**

**cut: you must specify a list of bytes, characters, or fields**

**Try 'cut --help' for more information.**

**~$ cut -b1,2 avatar**

**li**

**ap**

**~$ cut -b1,2 maha**

**el**

**we**

**ca**

**ca**

**~$ cat maha**

**elctronic devices**

**welcome to volkswagen**

**cat maha**

**cat maha**

**~$ cut -b1,2,3 maha**

**elc**

**wel**

**cat**

**cat**

**~$ cut -b1,2,3,4 maha**

**elct**

**welc**

**cat**

**cat**

**~$ head maha**

**elctronic devices**

**welcome to volkswagen**

**cat maha**

**cat mahacut**

**~$ head -n2 maha**

**elctronic devices**

**welcome to volkswagen**

**~$ head -n-2 maha**

**elctronic devices**

**welcome to volkswagen**

**~$ head avatar maha**

**==> avatar <==**

**lion, tiger, fox, giraffe are the animals**

**apple, orange, kiwi are the fruits**

**==> maha <==**

**elctronic devices**

**welcome to volkswagen**

**cat maha**

**cat maha**

**~$ head -3 maha**

**elctronic devices**

**welcome to volkswagen**

**cat maha**

**~$ tail maha**

**elctronic device**

**welcome to volkswagen**

**cat maha**

**cat maha**

**~$ tail -n2 maha**

**cat maha**

**cat maha**

**~$ cmp maha avatar**

**maha avatar differ: byte 1, line 1**

**~$ diff -c avatar maha**

**\*\*\* avatar 2022-10-13 09:09:08.189775056 +0000**

**--- maha 2022-10-13 09:17:50.918796691 +0000**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**\*\*\* 1,3 \*\*\*\***

**! lion, tiger, fox, giraffe are the animals**

**!**

**! apple, orange, kiwi are the fruits**

**\ No newline at end of file**

**--- 1,4 ----**

**! elctronic devices**

**! welcome to volkswagen**

**! cat maha**

**! cat maha**

**~$ cat > fruits**

**apple**

**banana**

**custard apple**

**grapes**

**~$ cat fruits**

**apple**

**banana**

**custard apple**

**grapes**

**~$ cat > animals**

**anaconda**

**bear**

**cat**

**dog**

**elephant**

**~$ cat animals**

**anaconda**

**bear**

**cat**

**dog**

**elephant**

**~$ comm fruits animals**

**anaconda**

**apple**

**banana**

**bear**

**cat**

**custard apple**

**dog**

**elephant**

**grapes**

**~$ cat>>animals**

**fox**

**giraffe**

**horse**

**iguana**

**jaguar**

**kangaroo**

**lion**

**monkey**

**ostrich**

**penguin**

**rabbit**

**snake**

**~$**

**~$ cat animals**

**anaconda**

**bear**

**cat**

**dog**

**elephant**

**fox**

**giraffe**

**horse**

**iguana**

**jaguar**

**kangaroo**

**lion**

**monkey**

**ostrich**

**penguin**

**rabbit**

**snake**

**~$ cat animals|head-7|tail-5**

**bash: head-7: command not found**

**bash: tail-5: command not found**

**~$ cat animals|head -7|tail -5**

**cat**

**dog**

**elephant**

**fox**

**giraffe**

**~$ chmod ugo+rwx animals**

**~$ sudo passwd root**

**╔══════════════════════════════════════════════════════════════════╗**

**║ /!\ STOP: YOUR ARE NOT AN ADMINISTRATOR /!\ ║**

**╠══════════════════════════════════════════════════════════════════╣**

**║ It is not possible to gain elevated privileges – neither via ║**

**║ sudo nor any other mechanism. CoCalc projects run in heavily ║**

**║ restricted containers for security reasons! ║**

**║ ║**

**║ In case you want to install some software, some quick help: ║**

**║ Python: pip3 install --user [pkgname] ║**

**║ https://doc.cocalc.com/howto/install-python-lib.html ║**

**║ Node: npm [pkg] instead of sudo npm -g [pkg] ║**

**║ R: open Terminal, run R, and then install.package(...) ║**

**║ https://doc.cocalc.com/howto/install-r-package.html ║**

**║ Build: ./configure --prefix=~/.local && make && make install ║**

**║ ║**

**║ Support: help@cocalc.com – for global software install requests ║**

**╚══════════════════════════════════════════════════════════════════╝**

**~$**

**ASSIGNMENT**

## Day 02 - Handson Objective

**To be able to select required data from the files. To be able to process data and get information from a file. To be able to change and understand permissions of a file**

## Problem

**1. Get only the employee id of all employees from file “employees.txt”**

**2. Get the total number of employees**

**3. Mask employee mobiles numbers and change them with \***

**4. Open employees.txt and write the following data. (if you do not have employees.txt ready)**

**E1001:James:FIN:50000:987654371 E1002:Smith:BD:73000:987654381 E1003:Kevin:TECH:78000:987654341 E1004:Raj:TECH:145000:987654351 E1005:Prem:FIN:95000:987654321 E1006:Guru:BD:195000:987654311 E1006:Guru:BD:195000:987654311**

**5. Get the last used employee id**

**6. Get maximum salary earned by the employees**

**7. Hide duplicate rows from the employees.txt**

**8. Change the permission of employees.txt to**

**a. user = rwx**

**b. group = rw-**

**c. others = r--**

**9. Change the permission of employees.txt to**

**a. user = r--**

**b. group = ---**

**c. others = ---**

**10. Try cat >> employees.txt**

**11. Change the permission of employees.txt to**

**a. user = -w-**

**b. group = ---**

**c. others = ---**

**12. Try cat employees.txt**

**13. Find all the open directories by the current logged in user**

**14. Find the identical files in the present working directory**