**UNIX File System & Permissions**

**1: Give the execute permission for the user for a file chap1.**

* [admin@sushil Desktop]$ chmod u+x chap1

**2: Give execute permission for user, group and others for a file add.c**

* [admin@sushil Desktop]$ chmod a+x add.c

**3: Remove the execute permission from user, give read permission to group and others for a file aa.c**

* [admin@sushil Desktop]$ chmod u-x,go+r,o+r aa.c

**4: Give execute permission for users for a.c, kk.c, nato and myfile using single command.**

* [admin@sushil Desktop]$ chmod u+x a.c kk.c nato myfile

**5: Change the directory to root directory. Check the system directories, like bin, etc, usr etc.**

* [admin@sushil /]$ cd ~

[admin@sushil /]$ ls -d /bin /etc /usr

/bin /etc /usr

**Using Pipes and Filters**

**1: Redirect the content of the help document ls, into a file called as lsdoc.**

* [admin@sushil ~]$ ls > lsdoc

**2: Display the content of the lsdoc page wise.**

* [root@sushil ~]# more lsdoc

**3: Display only the first 4 lines of the lsdoc file.**

* [admin@sushil ~]$ head -n 4 lsdoc

Desktop

Documents

Downloads

first.unix

**4: Display only the last 7 lines of the file lsdoc.**

* [admin@sushil ~]$ tail -n 7 lsdoc

lsdoc

Music

Pictures

programs

Public

Templates

**Videos 5: Remove the file lsdoc.**

* [admin@sushil ~]$ rm lsdoc

**6: There will be B’day celebration from the friends file, find how many B’day parties**

**will be held. If two of the friends have the B’date on the same day, then we will be**

**having one party on that day.**

* [admin@sushil ~]$ cut -d ' ' -f 2 friends | sort | uniq | wc -l

**7: Display the lines starting with Ma, in the file friends.**

* [admin@sushil ~]$ grep "^ma" friends

**8: Display the lines starting with Ma, ending with i or ending with id, in the file friends.**

* [admin@sushil ~]$ grep -E "^ma.\*(i|id)$" friends

**9: Print all the files and the directory files from the current directory across all the sub directories, along with its path**

* [admin@sushil ~]$ find . -type f

./.mozilla/firefox/77o4snp9.default-default/times.json

./.mozilla/firefox/77o4snp9.default-default/.parentlock

**10: Print only the Directory files.**

* [admin@sushil ~]$ find . -type d

.

./.mozilla

./.mozilla/extensions

**11: Display the files starting with chap, along with its path.**

* [admin@sushil ~]$ find . -name "chap"

./chap

**12: Sort the file friends in ascending order of names.**

* [admin@sushil ~]$ sort -k1,1 friends
* Alice 01-02-2000
* Charlie 01-02-2001
* David 04-02-1995
* Eve 03-02-1999
* Maven 03-02-1998

**13: Display the contents of the file friends in uppercase letters.**

* [admin@sushil ~]$ cat friends | tr 'a-z' 'A-z'

ALICE 01-02-2000

MAVEN 03-02-1998

CHARLIE 01-02-2001

DAVID 04-02-1995

EVE 03-02-199914

**14: Store the contents of your home directory in a file called dir.**

* [admin@sushil ~]$ ls -l ~ > dir

**15: From the above file dir, display the file permissions and the name of the file only.**

* [admin@sushil ~]$ awk '{print $1, $9}' dir

total

d---------. demo

-r--rw----. demofile

drwxr-xr-x. Desktop

-rw-r--r--. dev

-rw-r--r--. dir

drwxr-xr-x. Documents

drwxr-xr-x. Downloads

-rw-r--r--. first.unix

**16: From the same dir file, store only the file names in a file called files.**

* [admin@sushil ~]$ awk '{print $9}' dir > files

**17: From the same dir file, store only the permissions of files in a file called perms.**

* [admin@sushil ~]$ awk '{print $1}' dir > perms

**18: From the same dir file, store only the file sizes in a file called sizes.**

* [admin@sushil ~]$ awk '{print $5}' dir > sizes

**19: Display the file names, sizes and permissions from your directory in that order.**

* [admin@sushil ~]$ awk '{print $9, $5, $1}' dir

total

demo 21 d---------.

demofile 23 -r--rw----.

Desktop 184 drwxr-xr-x.

**20: Display the number of users working on the system.**

* [admin@sushil ~]$ who | wc -l

2

**21: Find out the smallest file in your directory.**

* [admin@sushil ~]$ ls -ls | tail -n 1

0 drwxr-xr-x. 2 admin admin 6 Aug 25 2022 Videos

**22: Display the total number of lines present in the file friends.**

* [admin@sushil ~]$ wc -l friends

6 friends

**23: Create the following fixed record format files (with “|” delimiter between fields) with the structure given below, and populate them with relevant data use these files to solve following questions**

**emp.lst: Empid(4),Name(18),Designation(9),Dept(10),Date of Birth(8),Salary(5)**

**dept.lst: Dept.Code (2), Name (10), Head of Dept’s id(4)**

**desig.lst: Designation Abbr.(2), Name (9)**

1. **Find the record lengths of each file.**

* [admin@sushil ~]$ awk '{print length}' emp.lst | uniq

59

[admin@sushil ~]$ awk '{print length}' dept.lst | uniq

20

[admin@sushil ~]$ awk '{print length}' desig.lst | uniq

14

12

11

13

1. **Display only the date of birth and salary of the last employee record.**

* [admin@sushil ~]$ tail -n 1 emp.lst | awk -F '|' '{print $5, $6}'

19920818 58000

**3. Extract only employee names and designations. (Use column specifications).**

**Save output as cfile1.**

* [admin@sushil ~]$ cut -c6-23,25-33 emp.lst > cfile1

**4. Extract Emp.id, dept, dob and salary. (Use field specifications). Save output as**

**cfile2.**

* [admin@sushil ~]$ cut -d'|' -f1,4,5,6 emp.lst > cfile2

**5. Fix the files cfile1 and cfile2 laterally, along with the delimiter.**

* [admin@sushil ~]$ paste -d'|' cfile1 cfile2 > fixed\_file

**6. Sort the emp.lst file in reverse order of Emp. Names.**

* [admin@sushil ~]$ sort -t'|' -k2,2r emp.lst

1005|Eve Thompson |HR |HR |19920818|58000

1004|David Williams |SE |IT |19930715|52000

1003|Charlie Brown |MGR |FINANCE |19850824|75000

1002|Bob Smith |TL |HR |19891210|60000

1001|Alice Johnson |SE |IT |19950512|50000

**7. Sort the emp.lst file on the salary field, and store the result in file srtf.**

* [admin@sushil ~]$ sort -t'|' -k6,6n emp.lst > srtf

**8. Sort the emp.ls t file on designation followed by name.**

* [admin@sushil ~]$ sort -t'|' -k3,3 -k2,2 emp.lst

1005|Eve Thompson |HR |HR |19920818|58000

1003|Charlie Brown |MGR |FINANCE |19850824|75000

1001|Alice Johnson |SE |IT |19950512|50000

1004|David Williams |SE |IT |19930715|52000

1002|Bob Smith |TL |HR |19891210|60000

**9. Sort the emp.lst file on the year of birth.**

* [admin@sushil ~]$ sort -t'|' -k5,5 emp.lst

**10. Find out the various designations in the employee file. Eliminate duplicate**

**listing of designations.**

* [admin@sushil ~]$ cut -d'|' -f3 emp.lst | sort | uniq

HR

MGR

SE

TL

**11. Find the non-repeated designation in the employee file.**

🡪[admin@sushil ~]$ cut -d'|' -f3 emp.lst | sort | uniq -u

**12. Find the number of employees with various designations in the employee file.**

* [admin@sushil ~]$ cut -d'|' -f3 emp.lst | sort | uniq -c

1 HR

1 MGR

2 SE

1 TL

**13. Create a listing of the years in which employees were born in, along with**

**number of employees born in that year.**

* [admin@sushil ~]$ cut -d'|' -f5 emp.lst | cut -c1-4 | sort | uniq -c

1 1985

1 1989

1 1992

1 1993

1 1995

**14. Use nl command to create a code table for designations to include designation**

**code (Start with dept. code 100, and subsequently 105, 110 …).**

* [admin@sushil ~]$ cut -d'|' -f3 emp.lst | sort | uniq | nl -v100 -i5

100 HR

105 MGR

110 SE

115 TL

**24: PCS has its offices at Pune, TTC and Mumbai. The employees’ data is stored**

**separately for each office. Create appropriate files (with same record structure as**

**in previous assignment) and populate with relevant data.**

1. **List details about an employee ‘Manu Sharma’ in the Mumbai office.**

* [admin@sushil ~]$ grep "Manu Sharma" mumbai.lst

**5001|Manu Sharma |Engineer |H&W |19939830|72000**

1. **List only the Emp.Id. And Dept. of Manu Sharma.**

* [admin@sushil ~]$ grep "Manu Sharma" mumbai.lst | awk -F'|' '{print $1, $4}'

5001 H&W

1. **List details of all managers in all offices. (O/P should not contain file names.).**

* admin@sushil ~]$ grep -i "manager" \* | cut -d':' -f2-

1. **Find the number of S.E. in each office.**

* [admin@sushil ~]$ grep -i "S>E" \* | cut -d':' -f1 | sort | uniq -c

**5. List only the Line Numbers and Employee names of employees in ‘H/W’ in**

**Pune file.**

* [admin@sushil ~]$ grep -r -n "H/W" , | grep "pune" |cut -d: -f1,2

**6. Obtain a listing of all employees other than those in ‘HR’ in the Mumbai file**

**and save contents in a file ‘nonhr’.**

* [admin@sushil ~]$ grep -v "HR" mumbai.lst > nonhr

**7. Find the name and designation of the youngest person who is not a manager.**

* [admin@sushil ~]$ grep -v "manager" mumbai.lst | sort -t'|' -k6,6n | head -n 1 | awk -F'|' '{print $2, $3}'

Manu Sharma Engineer

**8. Display only the filename(s) in which details of employee by the name**

**‘Seema Sharma’ can be found.**

* [admin@sushil ~]$ grep -l "seema sharma" \*.lst

**9. Locate the lines containing saxena and saksena in the Mumbai office.**

* [admin@sushil ~]$ grep -i "saxena\|saksena" mumbai.lst

**10. Find the number of managers who earn between 50000 and 99999 in the Pune**

**office.**

* [admin@sushil ~]$ grep -i "Manager" pune.lst | awk -F'|' '$6 >= 50000 && $6 <= 99999 {print $0}' | wc -l

1

**11. List names of employees whose id is in the range 2000 – 2999: in Pune**

**Office; in all offices.**

* [admin@sushil ~]$ grep -r -E "^[2][0-9]{3}" \*.lst | awk -F'|' '{print $2}'

**12. Locate people having same month of birth as current month in Pune office.**

* [admin@sushil ~]$ cuurent\_month=$(date +%m) grep "pune" pune.lst | awk -F'|' -v month="$current\_month" '{if(substr($5,6,2) == month) print $2, $3}'

**13. List details of all employees other than those of HR and Admin in file F1.**

* [admin@sushil ~]$ grep -v -E "HR|Admin" F1.lst

**14. Locate for all Dwivedi, Trivedi, Chaturvedi in Pune file.**

* [admin@sushil ~]$ grep -i -E "Dwivedi|Trivedi|Chaturvedi" pune.lst

**15. Obtain a list of people in HR, Admin and Recr. depts. sorted in reverse order**

**of the dept.**

* [admin@sushil ~]$ grep -i -E "HR|Admin|Recr." \*.lst | sort -t'|' -k4,4r

pune.lst:3002|Sushil Mahtre |Manager |admin |19939320|35460

[admin@sushil ~]$

**25: Write a command sequence that prints out date information in this order: time,**

**day of week, day number, month, year :**

* [admin@sushil ~]$ date "+%T %A %d %b %Y"

00:24:54 Friday Jan 2025

**26: Write a command sequence that prints the names of the files in the current**

**directory in the descending order of number of links.**

* [admin@sushil ~]$ ls -l | sort -k2 -n -r | awk '{print $9}'

Desktop

Videos

Templates

Public

Pictures

Music

Documents

Downloads

programs

lsdoc

friends

dir

dept.lst

desig.lst

emp.lst

fixed\_file

cfile2

cfile1

first.unix

chap

sizes

networrk.txt

pune.lst

ttc.lst

nonhr

mumbai.lst

**27: Write a command sequence that prints only names of files in current working**

**directory in alphabetical order.**

* [admin@sushil ~]$ ls -l | sort

drwxr-xr-x. 2 admin admin 150 Jan 31 23:17 programs

drwxr-xr-x. 2 admin admin 50 Aug 25 2022 Downloads

drwxr-xr-x. 2 admin admin 6 Aug 25 2022 Documents

drwxr-xr-x. 2 admin admin 6 Aug 25 2022 Music

drwxr-xr-x. 2 admin admin 6 Aug 25 2022 Pictures

drwxr-xr-x. 2 admin admin 6 Aug 25 2022 Public

drwxr-xr-x. 2 admin admin 6 Aug 25 2022 Templates

drwxr-xr-x. 2 admin admin 6 Aug 25 2022 Videos

drwxr-xr-x. 3 admin admin 4096 Jan 30 20:56 Desktop

-rw-r--r--. 1 admin admin 0 Feb 1 00:54 chap

-rw-r--r--. 1 admin admin 0 Jan 28 02:22 first.unix

-rw-r--r--. 1 admin admin 140 Feb 1 01:07 cfile1

-rw-r--r--. 1 admin admin 735 Feb 1 00:57 dir

-rw-r--r--. 1 admin admin 86 Feb 1 00:49 friends

-rw-r--r--. 1 admin admin 93 Feb 1 00:43 lsdoc

**28: Write a command sequence to print names and sizes of all the files in current**

**working directory in order of size.**

* [admin@sushil ~]$ ls -lS | awk '{print $9, $5}'

Desktop 4096

dir 735

emp.lst 300

fixed\_file 295

cfile2 155

programs 150

cfile1 140

lsdoc 93

**29: Determine the latest file updated by the user.**

* [admin@sushil ~]$ ls -1t | head -n 1

fixed\_file