**UNIX File System & Permissions**

**1: Give the execute permission for the user for a file chap1.** $ chmod u+x chap1

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

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

$ chmod u-x,g+r,o+r aa.c

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

$ 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.**

$ cd /

$ ls -l

**Using Pipes and Filters**

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

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

**3: Display only the first 4 lines of the lsdoc file.**  $ head -n 4 lsdoc

**4: Display only the last 7 lines of the file lsdoc.** $ tail -n 7 lsdoc

**5: Remove the file lsdoc.** $ 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.** $ cut -d’ ‘ -f2 friends | sort | uniq | wc -l

**7: Display the lines starting with Ma, in the file friends.** $ grep “^Ma” friends

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

$ grep “^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** $ find . -print

**10: Print only the Directory files.** $ find . -type d

**11: Display the files starting with chap, along with its path.** $ find . -type f -name “chap\*” -print

**12: Sort the file friends in ascending order of names.** $ sort friends > sorted\_friends

**13: Display the contents of the file friends in uppercase letters.** $ cat friends | tr ‘[:lower:]’ ‘[:upper:]’

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

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

$ awk ‘{print $1, $9}’ dir

**16: From the same dir file, store only the file names in a file called files.** $ awk ‘{print $9}’ dir > files

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

$ awk ‘{print $1}’ dir > perms

**18: From the same dir file, store only the file sizes in a file called sizes.** $ awk ‘{print $5}’ dir > sizes

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

$ awk ‘{print $9, $5, $1}’ dir

**20: Display the number of users working on the system**. $ who | wc -l

**21: Find out the smallest file in your directory.** $ ls -lS ~ | tail -n 1

**22: Display the total number of lines present in the file friends.** $ wc -l 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)**

$ cat > emp.lst <<EOF

$ cat > dept.lst <<EOF

$ cat > desig.lst <<EOF

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

$ head 1 emp.lst | wc -c

$ head 1 dept.lst | wc -c

$ head 1 desin.lst | wc -c

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

$ tail -1 emp.lst | awk -F”|” ‘{print $5, $6}’

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

**Save output as cfile1.** $ cut -d”|” -f2,3 emp.lst > cfile1

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

**cfile2.**  $ cut -d”|” -f1,4,5,6 emp.lst > cfile2

**5. Fix the files cfile1 and cfile2 laterally, along with the delimiter.**  $ paste -d”|” cfile1 cfile2

**6. Sort the emp.lst file in reverse order of Emp. Names.** $ sort -t”|” -k2,2r emp.lst

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

$ sort -t”|” -k6,6n emp.lst > setf

**8. Sort the emp.ls t file on designation followed by name.** $ sort -t”|” -k3,3 -k2,2 emp.lst

**9. Sort the emp.lst file on the year of birth.** $ sort -t”|” -k5.1,5.4 emp.lst

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

**listing of designations**. $ cut -d”|” -f3 emp.lst | sort |uniq

**11. Find the non-repeated designation in employee file.** $ cut -d”|” -f3 emp.lst | sort |uniq -u

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

$ cut -d”|” -f3 emp.lst | sort |uniq -c

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

**number of employees born in that year.** $ cut -d”|” -f5 emp.lst | cut -c1-4 | sort | uniq -c

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

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

$ awk -F”|” ‘{print 100 + (NR-1)\*5, $1, $2}’ desig.lst > designation\_code\_table.lst

**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.**

$ cat > pune.lst <<EOF

$ cat > ttc.lst <<EOF

$ cat > mumbai.lst <<EOF

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

$ grep “Manu Sharma” Mumbai.l

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

$ grep “Manu Sharma” Mumbai.lst | cut -d”|” -f1,4

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

$ grep “Manager” pune.lst ttc.lst Mumbai.lst | cut -d”|” -f2-

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

$ grep “S.E.” pune.lst | wc -l

$ grep “S.E.” ttc.lst | wc -l

$ grep “S.E.” mumbai.lst | wc -l

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

**Pune file.** $ grep -n “H/W” pune.lst | awk -F”|” ‘{print $1, $2}’

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

**and save contents in a file ‘nonhr’**. $ grep -v “|HR|” mumbai.lst > nonhr

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

$ grep -v “Manager” pune.lst ttc.lst mumbai.lst | sort -t”|” -k5,5r | head -1 | cut -d”|” -f2,3

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

**‘Seema Sharma’ can be found.** $ grep -l “Seema Sharma” pune.lst ttc.lst mumbai.lst

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

$ grep -E “Saxena|Saksena” mumbai.lst

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

**office.** $ awk -F”|” ‘$3 == “Manager” && $6 >= 50000 && $6 <= 999999’ pune.lst | wc -l

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

**Office; in all offices.** $ awk -F”|” ‘$1 >= 2000 && $1 <= 2999’ pune.lst ttc.lst mumbai.lst

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

$ current \_month=$(date +%m)

$ awk -F”|” -v month=$current\_month ‘substr($5, 5, 2) == month’ pune.lst

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

$ grep -vE “|HR|Admin|” pune.lst > F1

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

$ grep -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.**

$ grep -E “|HR|Admin|Recr|” pune.lst ttc.lst mumbai.lst | sort -t”|” -k4,4r

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

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

**13:44:42 IST Sun 16 Sept 1994** $ date +”%T %a %d %b %Y”

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

**directory in the descending order of number of links.** $ ls -l | sort -k2,2nr | awk ‘{print $9}’

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

**directory in alphabetical order.** $ ls -1p | grep -v / | sort

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

**working directory in order of size.** $ ls -lS | awk ‘{print $9, $5}’

**29: Determine the latest file updated by the user.** $ ls -lt | head -n 1