

Assignment -2

```
=====
Name :      PRATEEK MARU
Roll No. :  15
Subject :   Operating System
Class :     MCA III
=====
```

#Q1)

In a college, students are allowed to select any one sporting event during his

studies. Create two files as mentioned below :

File : sports.dat

Code Game

101 Cricket

102 Football

103 Tennis

104 Badminton

File : students.dat

Name Code

#-----

Aamir 101

Sharukh 103

Salman 103

Ajay 102

Write a shell script to list the students according to their choice of games ...

Eg. Cricket : Aamir

```

# Football : Ajay
# Tennis : Sharukh, Salman

#-----

while read line
do
    echo $line

done < sports.dat

echo -e "Choose sport name : "
read sport

code=`grep $sport sports.dat | cut -d ":" -f1`

echo "Following students play $sport"
`grep $code students.dat | cut -d " " -f1 > display.txt`
cat display.txt
rm display.txt

=====
# Q2)

# Write a shell script to generate summary from the sales.dat file.
# Sales made by 3 salesman by selling 3 products are entered in a file. Add
atleast
# 10 records. The format is as shown below:
# Salesman:Product1:Product2:Product3
# Sample data:
# Mr. Abhishek Sharma:21:29:12
# Mr. Akash Srivastava:11:15:28

```

```

# Mr. Abhilash Dwivedi:31:04:13
#
# Calculate the followings :
# • Total sales of the company
# • Highest sold product
# • Best salesman (who sold the most)
# • Worst salesman (who sold the least)
#
*****
*****

sp1=0
sp2=0
sp3=0
ts=0

while read line
do
    p1=`echo $line | cut -d ":" -f2`
    p2=`echo $line | cut -d ":" -f3`
    p3=`echo $line | cut -d ":" -f4`
    sp1=`expr $sp1 + $p1`
    sp2=`expr $sp2 + $p2`
    sp3=`expr $sp3 + $p3`

    t=`expr $p1 + $p2 + $p3`
    sman=`echo $line | cut -d ":" -f1`
    echo "$sman $t" >> highsaleman.txt

done < Sales.dat

```

```
ts=`expr $sp1 + $sp2 + $sp3`  
echo "Total sale of company : $ts"
```

```
echo "Product1 $sp1" > high.txt  
echo "Product2 $sp2" >> high.txt  
echo "Product3 $sp3" >> high.txt
```

```
echo "`sort -k2 -r -n high.txt | head -1 | cut -d " " -f1` is highest selling  
product"
```

```
echo "`sort -k4 -r -n highsaleman.txt | head -1 | cut -d " " -f 1-3` is best  
salesman"
```

```
rm high.txt  
rm highsaleman.txt
```

```
=====
```

```
#Q3)
```

```
# Create a file "medals.dat" which contains the details of medals won by each  
# country in Olympics. The data in the file may be as given below :  
# ( Country name is Primary key.)  
# Country Gold Silver Bronze  
# -----  
# India 21 12 15  
# Pakistan 12 10 08  
# USA 10 14 19  
# Srilanka 00 09 07  
# .....and so on.....  
# • Write a shell script which will ask the user to enter the Country name,  
further modify the no. of medals for that country.  
# • Delete all the countries who get zero Gold medals.  
# • Calculate the total no. of medals won by each country.
```

• Find the country with highest Gold medals.

```
#####  
#####
```

```
cat "medals.dat"
```

```
echo -n "Enter country name to modify medals : "
```

```
read country
```

```
echo -n "Enter gold medals :"
```

```
read gold
```

```
echo -n "Enter silver medals : "
```

```
read silver
```

```
echo -n "Enter bronze medals : "
```

```
read bronze
```

```
while read line
```

```
do
```

```
    set $line
```

```
    if [ $country == $1 ]
```

```
    then
```

```
        echo "$1 $gold $silver $bronze" >> "temp.dat"
```

```
    else
```

```
        echo $line >> "temp.dat"
```

```
    fi
```

```
done < "medals.dat"
```

```
cp "temp.dat" "medals.dat"
```

```
echo "Medal list after update"
```

```
cat "medals.dat"
```

```

rm temp.dat

echo "-----"
while read line
do
    set $line
    if [ $2 -eq 00 ]
    then
        echo "$1 country deleted"
    else
        echo $line >> "temp.dat"
    fi
done < "medals.dat"

cp "temp.dat" "medals.dat"
cat "medals.dat"

rm temp.dat

echo "-----"

while read line
do
    set $line
    total=`expr $2 + $3 + $4`
    echo "Total medals won by $1 = $total"
    echo "$1 $2" >> highmedals.txt
done < "medals.dat"

echo "-----"

```

```
echo "`sort -k2 -n -r highmedals.txt | head -1 | cut -d " " -f1` won the
highest
gold medals"
```

```
rm highmedals.txt
```

```
=====
```

```
# Q4)
```

```
# Write a shell script to generate summary from a file : "student.dat" with
following format :
```

```
#
```

```
# Student_no : student_name : gender : marks1 : marks2 : marks3 Each field
must be separated by a delimiter '-'
```

```
#
```

```
# Process the following queries:
```

```
# • Calculate the total marks of each student
```

```
# • Calculate the percentage of marks for each student
```

```
# • Count the total number of male and female students
```

```
# • Count the total number of students who pass and those who fail.
```

```
#
```

```
#####
#####
```

```
cat student.dat
```

```
male=0
```

```
female=0
```

```
pass=0
```

```
fail=0
```

```
while read line
```

do

```
set $line
total=`expr $4 + $5 + $6`
echo "$2 obtained $total marks out of 300"
per=`expr $total \* 100 / 300`
echo "$2 obtained $per percentage"
```

```
if [ $3 == 'M' ]
then
    male=`expr $male + 1`
else
    female=`expr $female + 1`
fi
```

```
if [ $4 -ge 35 -a $5 -ge 35 -a $6 -ge 35 ]
then
    pass=$(( $pass + 1 ))
else
    fail=$(( $fail + 1 ))
fi
```

done < student.dat

```
echo "Toatal male students = $male"
echo "Total female students = $female"
echo "Total pass students = $pass"
echo "Total fail students = $fail"
```

=====

Q.5) A reputed MCA institute of Gujarat has students from various states.
A sample file "students.dat" is shown as under :

# State	M	F
---------	---	---


```
# -----
# Gujarat          18      12
# Maharashtra      12      04
# M.P.             08      04
# UP               05      00
# Rajasthan        07      00
```

Total Male candidates are 50 and Female are 20. Write a shell script to generate a Statewise Candidate Distribution Report as under :

```
#                               STATEWISE CANDIDATES LISTING
# -----
#                               -----
#                               STATE          %MALE          %FEMALE
#                               TOTAL
# -----
#                               GUJARAT          36          60
#                               30
#                               MAHARASHTRA      24          20
#                               16
# ..... And so on .....
echo "                               STATEWISE CANDIDATES LISTING                               "
echo "-----"
echo "  State          %Male          %Female          Total"
echo "-----"

while read line
do
    set $line
    mper=`expr $2 \* 100 / 50`
    fper=`expr $3 \* 100 / 20`
```

```
echo "$1 $mper $fper `expr $2 + $3` "
```

```
done < "candidate.dat"
```

```
=====
```

```
# Q6)
```

```
# Write a Shell script to generate summary from a file "books.dat" which  
contains the following details :
```

```
#      Field      Description
#      -----
#      No          Numeric (4) - uniquely identifies each book.
#      Title       Alphanumeric(30) - title of the book
#      Author      Character(20) - Author of the book
#      Publisher   Character(20) - Publisher (PHI , TMH, BPB...)
#      Edition     Numeric (2)

#      Sample Data:
#      b1001 Programming in Java      Balagurusway      TMH
#      Second
#      b1002 Computer Networks      Tanenbaum      Pearson Fifth
#      b1003 Operating Systems      Chaudhari      Jaico      First

#      After creating the file do the followings :
#      • Your script must replace all the BPB publisher with TMH.
#      • List the titles with the name 'Java'.
#      • List the books written 'Balaguruswamy
#      • List the books which are not the first edition
#
*****
*****
```

```
echo "File before modify"
```

```
cat "books.dat"
```

```
echo "File after modify"
```

```
cat "books.dat" | tr "TMH" "BPB"
```

```
echo "Books named as java"
```

```
grep "java" "books.dat" | cut -d " " -f2-4
```

```
echo "Books written by balagurusway are as follow:"
```

```
grep "Balagurusway" books.dat | cut -d " " -f2-4
```

```
echo "Books which are not first edition:"
```

```
grep -v "First" "books.dat" | cut -d " " -f2-4
```

```
=====
```

```
#Q7)
```

```
#Create a file "election.dat" which contains the Election details for a  
specific city.
```

```
#      Field              Description  
#      -----  
#      Idno               Numeric    - Unique  
#      Name               Character - Voter's Name  
#      Sex                Character - M / F  
#      Age                Numeric  
#      Ward               Numeric   - Ward no. / Division no. of the city.  
  
#      Sample data:  
#      e101 - abhishek - M - 35 - 44
```

```

#           e102 - ashutosh - M - 97 - 14
#           e103 - anamika - F - 21 - 50

#       Suppose the same file is to be modified after 4 years. Write a shell
script to simulate this process.

#       Your program must update the age of all People ( Add 4 years to age).
In case if the age exceeds 99 then delete the record

#       from the file, assuming that the person is dead.

#       Display the election.dat and final output of your program.

#####
#####

echo "File before update"
cat "election.dat"

while read line
do
    set $line
    age=$(( $4 + 4 ))

    if [ $age -gt 99 ]
    then
        echo "$1 record deleted"
    else
        echo "$1 $2 $3 $age $5" >> "modify.dat"
    fi
done < "election.dat"

cp "modify.dat" "election.dat"
rm "modify.dat"

```

```
echo "File after update"
```

```
cat election.dat
```

Q.8) In a college, students are allowed to select any one elective subject during his studies. Create two files by entering the data as mentioned below (you may skip the heading line if required) :

```
# File : elective.dat
```

```
#      Code      Game
```

```
# -----
```

```
#      101 AI
```

```
#      102 Computer Graphics
```

```
#      103 Parallel Processing
```

```
#      104 Data Mining
```

```
# File : students.dat
```

```
# RollNo.      Name      Code
```

```
# -----
```

```
# 1          Sonal          101
```

```
# 2          Madhu          101
```

```
# 3          Mahim          103
```

```
# 4          Esha           104
```

Write a shell script to list the students according to their choice of electives ...

```
# Eg. AI :- Sonal, Madhu
```

```
#      Computer Graphics: -
```

```
#      Parallel Processing :- Mahim
```

```
#      Data Mining :- Esha
```

```
echo "Elective subjects"
```

```
cat "elective.dat"
```

```

echo "Students details:"
cat "students1.dat"

while read line
do
    set $line
    echo "$2 $3"
    c=`grep -c $1 "students1.dat"`

    if [ $c -eq 0 ]
    then
        echo "No one choosen $2 $3 as elective subject"
    else
        grep $1 "students1.dat" | cut -d " " -f2
    fi
done < "elective.dat"

=====
# Q9)

# Create two files: subjects.dat and students.dat containing the subject
details and the student details.

# Sample data is as shown below:

# subjects.dat
#
# Course_id-Semester_id-Subject_id-Subject_name
# CS-1-1-FCO
# CS-1-2-FOP
# CS-1-3-SL

```

```

#      CS-2-1-DS
#      CS-2-2-DBMS
#      CS-3-1-OS
#      CS-3-2-JAVA
#
#      faculty.dat
#
#      Faculty_id:Semester_id:Subject_id
#      F1-2-1
#      F2-3-2
#      F3-1-3
#      F1-1-1

#   Write a shell script to list the faculties and their respective subjects.
#   Sample Output will be :
#
#      F1 : FCO, DS
#      F2 : JAVA
#      F3 : SL
#*****
#*****

while read line
do
    sem=`echo $line | cut -d " " -f2`
    sub=`echo $line | cut -d " " -f3`
    fac=`echo $line | cut -d " " -f1`

    while read line2
    do
        set $line2

```

```

        if [ $sem == $2 -a $sub == $3 ]
        then
            echo "$fac teaches $4 subject"
        fi
    done < "subjects.dat"

done < "faculty.dat"
=====
# Q10)

# Create two files employee.dat and departments.dat and add atleast 10
records in the following format :

#     employee.dat

#     emp_id:department_id:birthdate
#     e101:M1:11-01-1960
#     e102:C1:21-03-1973
#     e103:M2:21-03-1973
#     e104:C1:21-03-1973
#     e105:B1:08-10-1965
#     e101:M1:11-11-1964

#     departments.dat

#     department_id:department_name
#     B1:Botany
#     C1:Chemistry
#     M1:Mathematics
#     M2:Management

```



```

# Write a shell script to do the followings:
# 1) List all the employee_ids department-wise
# 2) List the employee_ids born after 1970
# 3) List the employee_ids according to birthdate in sorted order
#####
#####

echo "Department wise employees"

while read line
do
    did=`echo $line | cut -d " " -f1`
    dname=`echo $line | cut -d " " -f2`

    echo "Department $dname"
    while read line2
    do
        edid=`echo $line2 | cut -d " " -f2`
        eid=`echo $line2 | cut -d " " -f1`

        if [ $edid == $did ]
        then
            echo $eid
        fi

    done < "employee.dat"
done < "department.dat"

echo "Employees born after year 1970 are as follow:"

```

```
while read line
do
    age=`echo $line | cut -d " " -f3 | cut -d "-" -f3`

    if [ $age -gt 1970 ]
    then
        echo $line
    fi

done < "employee.dat"

echo "Employees sorted according to their DOB"

sort -n -k 3.9 -k 3.5 -k 3 "employee.dat"
=====
```