LABSHEET 2

1. Create a file demo with the following contents

Student Alice Essentials 20 PSAT 22 Maths 34 Cultural 25 English 70

Student Bob Essentials 23 PSAT 21 Maths 32 Cultural 18 English 94

Student Boby Essentials 43 PSAT 31 Maths 22 Cultural 8 English 93

Student Clara Essentials 18 PSAT 16 Maths 27 Cultural 12 English 45

Student Dirck Essentials 25 PSAT 23 Maths 48 Cultural 25 English 98

Student Eve Essentials 8 PSAT 6 Maths 12 Cultural 13 English 5

```
┌──(kali㉿kali)-[~]
└─$ cat >demo
Student Alice Essentials 20 PSAT 22 Maths 34 Cultural 25 English 70
Student Bob Essentials 23 PSAT 21 Maths 32 Cultural 18 English 94
Student Boby Essentials 43 PSAT 31 Maths 22 Cultural 8 English 93
Student Clara Essentials 18 PSAT 16 Maths 27 Cultural 12 English 45
Student Dirck Essentials 25 PSAT 23 Maths 48 Cultural 25 English 98
Student Eve Essentials 8 PSAT 6 Maths 12 Cultural 13 English 5
```

2. Find the marks obtained by Clara in all the subjects

```
┌──(kali㉿kali)-[~]
└─$ grep -i clara demo
Student Clara Essentials 18 PSAT 16 Maths 27 Cultural 12 English 45
```

3. Print the marks for essentials in the increasing order

```
┌──(kali㉿kali)-[~]
└─$ cat demo | cut -d" " -f4 | sort -n
8
18
20
23
25
43
```

4. Find the maximum marks scored in PSAT

```
┌──(kali㉿kali)-[~]
└─$ cut -d" " -f6 demo |sort -nr | head -1
31
```

5. Find the minimum marks obtained in Cultural

```
┌──(kali㉿kali)-[~]
└─$ cut -d" " -f10 demo |sort -n | head -1
8
```

6. Save the marks obtained by all the students in maths into a file and display it in the terminal using a single command

```
┌──(kali㉿kali)-[~]
└─$ cut -d" " -f8 demo |tee maths_marks.txt
34
32
22
27
48
12
```

7. Print the first 3 letters of all student names.

```
┌──(kali㉿kali)-[~]
└─$ cut -d" " -f2  demo | cut -c1-3
Ali
Bob
Bob
Cla
Dir
Eve
```

8. Print the contents of file demo in terminal with all alphabets in capital letters.

```
┌──(kali㉿kali)-[~]
└─$ cat demo | tr a-z A-Z
STUDENT ALICE ESSENTIALS 20 PSAT 22 MATHS 34 CULTURAL 25 ENGLISH 70
STUDENT BOB ESSENTIALS 23 PSAT 21 MATHS 32 CULTURAL 18 ENGLISH 94
STUDENT BOBY ESSENTIALS 43 PSAT 31 MATHS 22 CULTURAL 8 ENGLISH 93
STUDENT CLARA ESSENTIALS 18 PSAT 16 MATHS 27 CULTURAL 12 ENGLISH 45
STUDENT DIRCK ESSENTIALS 25 PSAT 23 MATHS 48 CULTURAL 25 ENGLISH 98
STUDENT EVE ESSENTIALS 8 PSAT 6 MATHS 12 CULTURAL 13 ENGLISH 5
```

9. Print all student names after deleting the letter ‘a’

```
┌──(kali㉿kali)-[~]
└─$ cat demo | cut -d" " -f2 | tr -d 'aA'
lice
Bob
Boby
Clr
Dirck
Eve
```

10. Count the number of lines, words and characters in demo file after removing the letter ‘S’

```
┌──(kali㉿kali)-[~]
└─$ cat demo |tr -d 'Ss' | wc
      6      72     358
```

11. Find the number of students with their names containing the letter a, e or i

```
┌──(kali㉿kali)-[~]
└─$ cut -d" " -f2  demo | grep -E 'a|e|i' | wc -l
4
```

12. Find the marks of students whose names starts with ‘b’ (case insensitive)

```
┌──(kali㉿kali)-[~]
└─$ cut -d" " -f2-12  demo | grep -i ^b
Bob Essentials 23 PSAT 21 Maths 32 Cultural 18 English 94
Boby Essentials 43 PSAT 31 Maths 22 Cultural 8 English 93
```

13. Find the names of students whose names starts with ‘b’ and ends with ‘y’ (case insensitive)

```
┌──(kali㉿kali)-[~]
└─$ cut -d" " -f2 demo | grep -i ^b.*y$
Boby
```

Shell Programming

1. Write a shell program to perform the following actions in the given order.

a. Create a directory hierarchy in your home folder

Test1 ->Test2 ->Test3

b. Create a file file1 in directory Test3 with the contents same as output of the command ls -l

c. Go to directory Test3

d. Find the names of all files and folders in file1

e. Find the names of all files and folders starting with d(case insensitive)

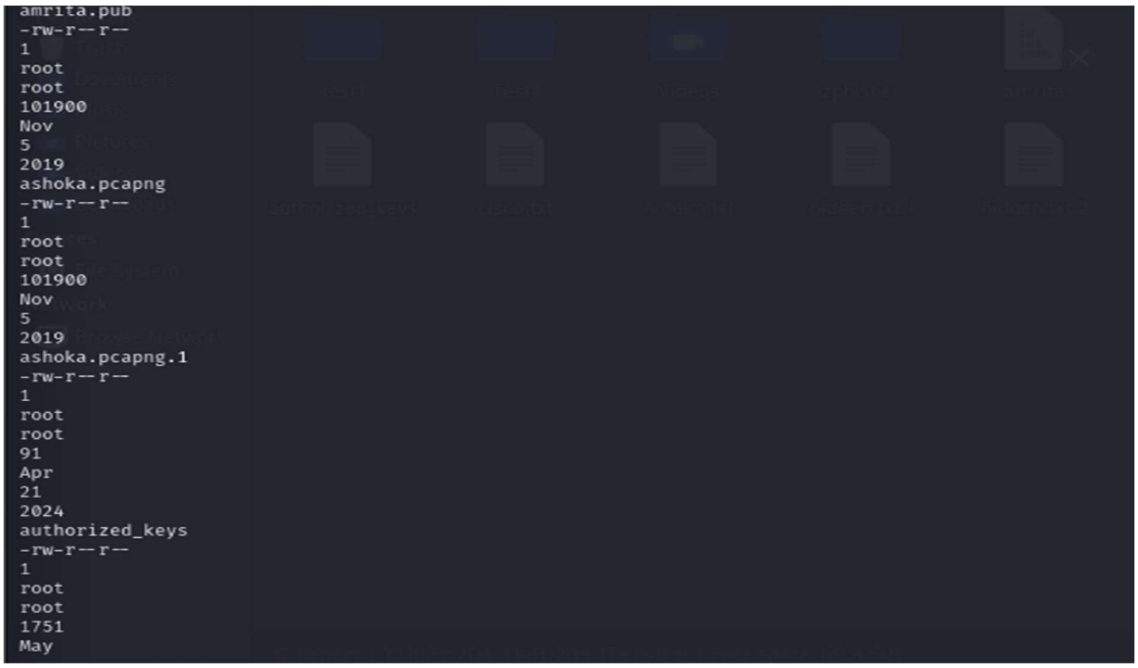
f. Print all words of file1 on a separate line.

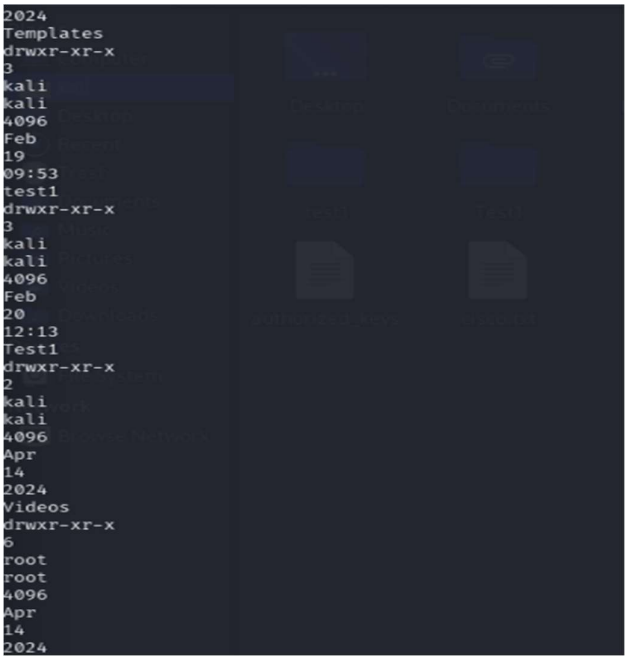
g. Go back to your home directory.

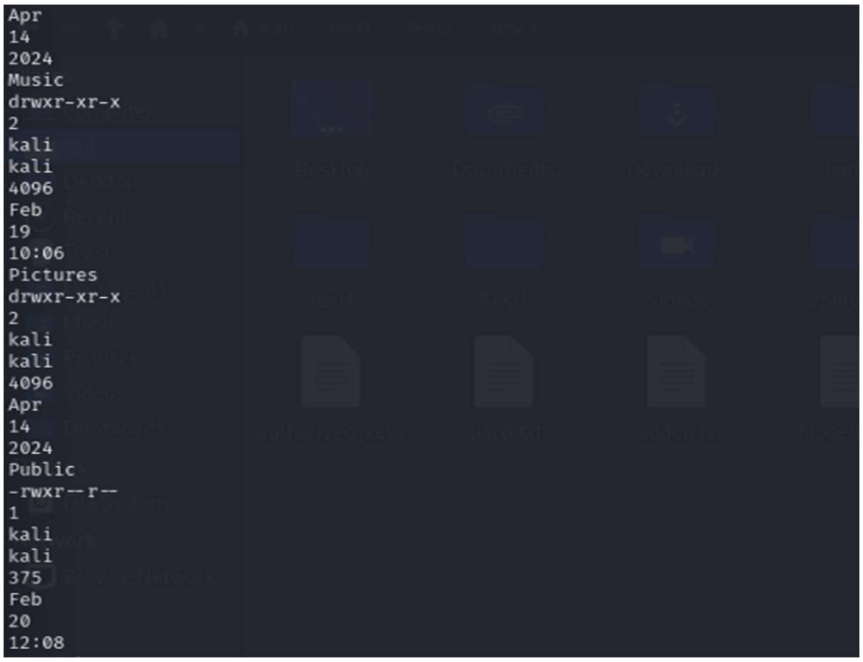
```
#!/bin/bash

#1 a. Create a directory hierarchy in your home folder
#       test1 → test2 → test3

mkdir -p test1/test2/test3

#1 b. Create a file file1 in directory Test3 with the contents same as output of the command ls -l
ls -l > test1/test2/test3/file1

#1 c. . Go to directory Test3
cd test1/test2/test3

#1 d. Find the names of all files and folders in file1

echo All files and folders
cat file1 | tr -s ' ' | cut -d" " -f9

#1 e. Find the names of all files and folders starting with d(case insensitive)
echo "                    "
echo files and folders starting with d
cat file1 | tr -s ' ' | cut -d" " -f9 | grep -i ^d


#1 f. Print all words of file1 on a separate line.
echo Words in file1
cat file1 | tr -s ' ' '\n'

cd ~

```

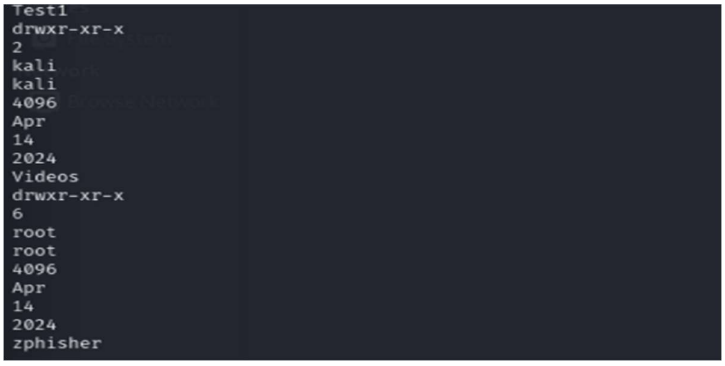
```
┌──(kali㉿kali)-[/home/kali]
└─PS> chmod 744 Q2_1.sh

┌──(kali㉿kali)-[/home/kali]
└─PS> ./Q2_1.sh
All files and folders

amrita
amrita.pub
ashoka.pcapng
ashoka.pcapng.1
authorized_keys
cisco.txt
Desktop
Documents
Downloads
hidden.txt
hidden.txt.1
hidden.txt.2
home
masterfly.txt
Music
Pictures
Public
Q2_1.sh
stealer.py
Templates
test1
Test1
Videos
zphisher
```

```
files and folders starting with d
Desktop
Documents
Downloads

Words in file1
total
288
-rw-------
1
root
root
444
Apr
21
2024
amrita
-rw-r--r--
1
root
root
91
Apr
21
2024
amrita.pub
-rw-r--r--
1
```


amrita.pub
-rw-r--r--
1
root
root
101900
Nov
5
2019
ashoka.pcapng
-rw-r--r--
1
root
root
101900
Nov
5
2019
ashoka.pcapng.1
-rw-r--r--
1
root
root
91
Apr
21
2024
authorized_keys
-rw-r--r--
1
root
root
1751
May


2024
Templates
drwxr-xr-x
3
kali
kali
4096
Feb
19
09:53
test1
drwxr-xr-x
3
kali
kali
4096
Feb
20
12:13
Test1
drwxr-xr-x
2
kali
kali
4096
Apr
14
2024
Videos
drwxr-xr-x
6
root
root
4096
Apr
14
2024





2. Write a shell program to perform the following actions in the given order.

a. Create a file numericdata with the following contents

Karunagappally 34567 7864 6785

Kollam 56754 6754 7654

Vallikkavu 54328 7548 45675

Trivandrum 16423 6654 6754

Ernakulam 28796 8549 9875

Kayamkulam 35589 75892 3451

kottayam 45557 6773 6547

tirukulum 45675 56476 7896

(Hint : First field is referred as Place second as code1 third as code2 and fourth as code3)

b. Display the details of Places that starts with ‘T’(case sensitive)

c. Display code3 in sorted order(ascending) of the places that start with ‘K’(case insensitive)

d. Filter code2 that starts with 6 and ends with 4

e. Filter code2 having one or more occurrence of the digit 6.

f. Filter all code1 having one or more occurrence of the digit 5

```
#!/bin/bash

#2 a.
echo -e "Karunagappally 34567 7864 6785\n
Kollam 56754 6754 7654\n
Vallikkavu 54328 7548 45675\n
Trivandrum 16423 6654 6754\nE
rnakulam 28796 8549 9875\n
Kayamkulam 35589 75892 3451\n
kottayam 45557 6773 6547\n
tirukulum 45675 56476 7896" > numericdata

#2b.
echo "Places starts with 'T' "
cut -d" " -f1 numericdata | grep -i  '^t'

#2c.
echo "code3 in sorted order"
cut -d" " -f4 numericdata | grep -i '^k' | sort -n

#2d.
echo "code2 that starts with 6 and ends with 4"
cut -d" " -f3 numericdata | grep -E '^6.*4$'

#2e.
echo "code2 having one or more occurrence of the digit 6."
cut -d" " -f3 numericdata |grep -E '6+'

#2f.
echo "code1 having one or more occurrence of the digit 5."
cut -d" " -f2 numericdata |grep -E '5+'

```

```
┌──(kali㉿kali)-[~]
└─$ chmod 744 Q2_2.sh

┌──(kali㉿kali)-[~]
└─$ ./Q2_2.sh
Places starts with 'T'
Trivandrum
tirukulum
code3 in sorted order
code2 that starts with 6 and ends with 4
6754
6654
code2 having one or more occurrence of the digit 6.
7864
6754
6654
6773
56476
code1 having one or more occurrence of the digit 5.
34567
56754
54328
35589
45557
45675
```