OPERATING SYSTEM LAB 2

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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

```
sabhishek@s-abhishek:~$ cat > demo <<eof
> 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
> eof
sabhishek@s-abhishek:~$ ls
demo      Documents  Music  Pictures  PycharmProjects  Python  stegdetect  Videos
Desktop   Downloads  OS     Public    pylibemu         snap    Templates
sabhishek@s-abhishek:~$
```

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

```
sabhishek@s-abhishek:~$ cat demo | grep Clara
Student Clara Essentials 18 PSAT 16 Maths 27 Cultural 12 English 45
```

2. Print the marks for essentials in the increasing order

```
sabhishek@S:~/Downloads$ cat demo | cut -d" " -f4 |sort -g
8
18
20
23
25
43
```

3. Find the maximum marks scored in PSAT

```
sabhishek@S:~/Downloads$ cat demo | cut -d" " -f6 |sort -g | tail -1
31
```

4. Find the minimum marks obtained in Cultural

```
sabhishek@S:~/Downloads$ cat demo | cut -d" " -f10 |sort -g | head -1
8
```

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

```
sabhishek@s-abhishek:~$ cat demo | cut -d" " -f8 | tee file
34
32
22
27
48
12
```

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

```
sabhishek@s-abhishek:~$ cat demo | cut -d" " -f2 | cut -c1-3
Ali
Bob
Bob
Cla
Dir
Eve
```

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

```
sabhishek@s-abhishek:~$ 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
```

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

```
sabhishek@s-abhishek:~$ cat demo | cut -d" " -f2 | tr -d a
Alice
Bob
Boby
Clr
Dirck
Eve
```

9. Count the number of lines, words and characters in demo file after removing the letter 'S'

```
sabhishek@s-abhishek:~$ cat demo | tr -d S | wc
      6      72     387
```

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

```
sabhishek@s-abhishek:~$ cat demo | cut -d" " -f2 | grep -E 'a|e|i' | wc -l
4
```

11. Find the marks of students whose names starts with 'b' (case insensitive)

```
sabhishek@s-abhishek:~$ cat demo | cut -d" " -f2
Alice
Bob
Boby
Clara
Dirck
Eve
sabhishek@s-abhishek:~$ cat demo | cut -d" " -f2 | grep -i ^b
Bob
Boby
```

12. Find the names of students whose names starts with 'b' and ends with 'y' (case insensitive)

```
sabhishek@s-abhishek:~$ cat demo | cut -d" " -f2 | grep -i ^b | grep -i y$
Boby
sabhishek@s-abhishek:~$
```

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
mkdir -p Test1/Test2/Test3
ls -l | cat > Test1/Test2/Test3/file1
cd Test1/Test2/Test3
cat file1 | tr -s " " | cut -d" " -f9
cat file1 | tr -s " " | cut -d" " -f9 | grep -i ^d
cat file1 | tr -s " " | tr ' ' '\n'
cd ~
```

```
sabhishek@S:~$ chmod 744 shell.sh
sabhishek@S:~$ ./shell.sh

Bi0s
bin
Desktop
Documents
Downloads
Music
Pictures
Public
shell.sh
snap
Templates
Test1
venv
Videos
Desktop
Documents
Downloads
total
56
drwxrwxr-x
3
sabhishek
sabhishek
4096
Jan
31
11:35
```

```
sabhishek
sabhishek
4096
Feb
2
22:09
Downloads
drwxr-xr-x
2
sabhishek
sabhishek
4096
Jan
29
07:21
Music
drwxr-xr-x
2
sabhishek
sabhishek
4096
Jan
29
08:23
Pictures
drwxr-xr-x
2
sabhishek
sabhishek
4096
```

```
Jan
29
07:21
Public
-rwxr--r--
1
sabhishek
sabhishek
228
Feb
2
22:16
shell.sh
drwxr-xr-x
10
sabhishek
sabhishek
4096
Jan
31
11:35
snap
drwxr-xr-x
2
sabhishek
sabhishek
4096
Jan
29
07:21
```

```
Templates
drwxrwxr-x
3
sabhishek
sabhishek
4096
Feb
2
22:16
Test1
drwxrwxr-x
4
sabhishek
sabhishek
4096
Feb
2
18:40
venv
drwxr-xr-x
2
sabhishek
sabhishek
4096
Jan
29
07:21
Videos
```

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
cat > numericdata << eof
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
eof
cat numericdata | grep ^T
cat numericdata | grep -i ^k | cut -d" " -f4 | sort
cat numericdata | cut -d" " -f3 | grep ^6 | grep 4$
cat numericdata | cut -d" " -f3 | grep -E '6+'
cat numericdata | cut -d" " -f2 | grep -E '5+'
```

```
sabhishek@s-abhishek:~$ chmod +x shell1.sh
sabhishek@s-abhishek:~$ ./shell1.sh
Trivandrum 16423 6654 6754
3451
6547
6785
7654
6754
6654
7864
6754
6654
6773
56476
34567
56754
54328
35589
45557
45675
```

THANKYOU!!