PRACTICAL-7

AIM- To study various filters.

1. <u>cat (Concatenate and Display Files) :</u> Used to view, create, and concatenate files. Concatenate multiple files

```
root@DESKTOP-1FD722E:/mnt/d/DOWNLOADS# cat sample.txt
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vivamus condimentum sagittis lacus, laoreet luctus ligula laore
et ut. Vestibulum ullamcorper accumsan velit vel vehicula. Proin tempor lacus arcu. Nunc at elit condimentum, semper nis
i et, condimentum mi. In venenatis blandit nibh at sollicitudin. Vestibulum dapibus mauris at orci maximus pellentesque.
 Nullam id elementum ipsum. Suspendisse cursus lobortis viverra. Proin et erat at mauris tincidunt porttitor vitae ac du
i.

Donec vulputate lorem tortor, nec fermentum nibh bibendum vel. Lorem ipsum dolor sit amet, consectetur adipiscing elit.
Praesent dictum luctus massa, non euismod lacus. Pellentesque condimentum dolor est, ut dapibus lectus luctus ac. Ut sag
ittis commodo arcu. Integer nisi nulla, facilisis sit amet nulla quis, eleifend suscipit purus. Class aptent taciti soci
osqu ad litora torquent per conubia nostra, per inceptos himenaeos. Aliquam euismod ultrices lorem, sit amet imperdiet e
st tincidunt vel. Phasellus dictum justo sit amet ligula varius aliquet auctor et metus. Fusce vitae tortor et nisi pulv
inar vestibulum eget in risus. Donec ante ex, placerat a lorem eget, ultricies bibendum purus. Nam sit amet neque non an
te laoreet rutrum. Nullam aliquet commodo urna, sed ullamcorper odio feugiat id. Mauris nisi sapien, porttitor in condim
entum nec, venenatis eu urna. Pellentesque feugiat diam est, at rhoncus orci porttitor non.

Nulla luctus sem sit amet nisi consequat, id ornare ipsum dignissim. Sed elementum elit nibh, eu condimentum orci viverr
a quis. Aenean suscipit vitae felis non suscipit. Suspendisse pharetra turpis non eros semper dictum. Etiam tincidunt ve
nenatis venenatis. Praesent eget gravida lorem, ut congue diam. Etiam facilisis elit at porttitor egestas. Praesent cons
equat, velit non vulputate convallis, ligula diam sagittis urna, in venenatis nisi justo ut mauris. Vestibulum posuere s
ollicitudin mi, et vulputate nisl fringilla non. Nulla ornare pretium velit a euismod. Nunc sagittis venenatis vestibulu
m. Nunc sodales libero a est ornare ultricies. Sed sed leo sed orci pellentesque ultrices. Mauris sollicitudin, sem quis
 placerat ornare, velit arcu convallis ligula, pretium finibus nisl sapien vel sem. Vivamus sit amet tortor id lorem con
sequat hendrerit. Nullam at dui risus.
```

2. <u>head (Display First N Lines) :</u> The head command displays the first 10 lines of a file by default.

```
root@DESKTOP-1FD722E:/mnt/d/DOWNLOADS# head -2 sample.txt
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vivamus condimentum sagittis lacus, laoreet luctus ligula laore
et ut. Vestibulum ullamcorper accumsan velit vel vehicula. Proin tempor lacus arcu. Nunc at elit condimentum, semper nis
i et, condimentum mi. In venenatis blandit nibh at sollicitudin. Vestibulum dapibus mauris at orci maximus pellentesque.
 Nullam id elementum ipsum. Suspendisse cursus lobortis viverra. Proin et erat at mauris tincidunt porttitor vitae ac du
i.

root@DESKTOP-1FD722E:/mnt/d/DOWNLOADS#
```

3. <u>tail (Display Last N Lines):</u> The tail command displays the last 10 lines of a file by default. It is useful for viewing logs and real-time updates.

```
root@DESKTOP-1FD722E:/mnt/d/DOWNLOADS# tail -2 sample.txt

Sed tristique auctor tellus id facilisis. Quisque laoreet auctor massa ut venenatis. Sed elementum quis neque non accums
an. Suspendisse eros justo, tempus dapibus facilisis eget, vehicula eu magna. Cras sodales mauris ac tincidunt pellentes
que. Vestibulum hendrerit dictum lectus, quis tempor turpis. Morbi odio risus, ullamcorper ac quam vel, mattis dictum ma
gna. Vivamus in dui diam. Nulla non tristique lectus, quis iaculis magna. Sed vel nisi a ante aliquet accumsan. Suspendi
sse dapibus lacus risus, at vulputate sapien faucibus non. Sed convallis nunc vel risus luctus maximus. Praesent a nulla
 tempus, varius enim non, aliquam tellus. Vestibulum non massa id diam aliquam suscipit non nec purus. Vivamus cursus di
ctum risus id vulputate. In commodo porta tellus, sed pharetra mauris vehicula vel.root@DESKTOP-1FD722E:/mnt/d/DOWNLOADS
# 
```

4. <u>cut (Extract Specific Columns) :</u> The cut command extracts specific columns (fields) from a file using a delimiter.
   - Extract the first three columns from a txt file(-d,-f)

```
root@DESKTOP-1FD722E:/mnt/d/DOWNLOADS# cut -d " " -f 1,3 sample.txt
Lorem dolor

Donec lorem

Nulla sem

Vestibulum ipsum

Etiam accumsan

Integer hendrerit
```

   - Extract columns 3-5 from a space-separated file

```
root@DESKTOP-1FD722E:/mnt/d/DOWNLOADS# cut -d " " -f 1-3 sample.txt
Lorem ipsum dolor

Donec vulputate lorem

Nulla luctus sem

Vestibulum ante ipsum

Etiam vitae accumsan
```

5. <u>sort -r (Sort in Reverse Order) :</u> The sort command arranges lines in ascending order by default, and -r reverses the order.
   - Sort a file in ascending order:

```
root@DESKTOP-1FD722E:/mnt/d/downloads# sort simple.txt

Lorem ipsum dolor sit amet, consectetur adipiscing elit.
Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
This sample TXT file is provided by Sample-Files.com. Visit us for more sample files and resources.
root@DESKTOP-1FD722E:/mnt/d/downloads#
```

   - Sort a file in descending order(-r):

```
root@DESKTOP-1FD722E:/mnt/d/downloads# sort -r simple.txt
This sample TXT file is provided by Sample-Files.com. Visit us for more sample files and resources.
Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
Lorem ipsum dolor sit amet, consectetur adipiscing elit.

root@DESKTOP-1FD722E:/mnt/d/downloads#
```

6. <u>paste (Merge Lines of Files) :</u> The paste command joins corresponding lines from multiple files side by side.

   - Combine lines from two files:

```
root@DESKTOP-1FD722E:/mnt/d/downloads# paste multilang.txt simple.txt
        Lorem ipsum dolor sit amet, consectetur adipiscing elit.
English: Hello, world!  Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
中文: 你好，世界！
Español: ¡Hola, mundo!  This sample TXT file is provided by Sample-Files.com. Visit us for more sample files and resourc
es.
Русский: Привет, мир!
日本語: こんにちは、世界！
한국어: 안녕하세요, 세계！
Français: Bonjour, le monde !
Deutsch: Hallo, Welt!
Italiano: Ciao, mondo!
Português: Olá, mundo!
हिंदी: नमस्ते ，दुनिया！
العربية: مرحبا بالعالم!
```

   - Combine files using a custom delimiter (comma): (-d)

```
root@DESKTOP-1FD722E:/mnt/d/downloads# paste -d "," simple.txt multilang.txt
Lorem ipsum dolor sit amet, consectetur adipiscing elit. ,
Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.,English: Hello, world!
,中文: 你好，世界！
This sample TXT file is provided by Sample-Files.com. Visit us for more sample files and resources.,Español: ¡Hola, mund
o!
,Русский: Привет, мир!
,日本語: こんにちは、世界！
,한국어: 안녕하세요, 세계！
,Français: Bonjour, le monde !
,Deutsch: Hallo, Welt!
,Italiano: Ciao, mondo!
,Português: Olá, mundo!
,हिंदी: नमस्ते ，दुनिया！
العربية: مرحبا بالعالم!
,
```

7. <u>uniq (Remove Duplicate Lines) :</u> The uniq command removes duplicate lines from sorted input.

   - NOTE : The uniq command only removes consecutive duplicate lines
   - Remove duplicate lines
   - Remove duplicates while ignoring case(-i)
   - Show the count of duplicate lines(-c)

```
root@DESKTOP-1FD722E:/mnt/d/downloads# sort simple.txt |uniq -c
      1
      1 Lorem ipsum dolor sit amet, consectetur adipiscing elit.
      1 Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
      1 This sample TXT file is provided by Sample-Files.com. Visit us for more sample files and resources.
root@DESKTOP-1FD722E:/mnt/d/downloads# sort simple.txt |uniq

Lorem ipsum dolor sit amet, consectetur adipiscing elit.
Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
This sample TXT file is provided by Sample-Files.com. Visit us for more sample files and resources.
root@DESKTOP-1FD722E:/mnt/d/downloads# |
```

8. <u>wc (Word Count) :</u> The wc command counts lines, words, and characters in a file.

   - Count lines, words, and characters:
   - Count only lines (-l)

- Count only words (-w)
- Count only characters (-c)

```
root@DESKTOP-1FD722E:/mnt/d/downloads# wc sample.txt
   326  14981 102180 sample.txt
root@DESKTOP-1FD722E:/mnt/d/downloads# wc -l sample.txt
326 sample.txt
root@DESKTOP-1FD722E:/mnt/d/downloads# wc -w sample.txt
14981 sample.txt
root@DESKTOP-1FD722E:/mnt/d/downloads# wc -c sample.txt
102180 sample.txt
root@DESKTOP-1FD722E:/mnt/d/downloads# |
```

9. <u>sed (Stream Editor - Modify Text in Files) :</u> The sed command is used for text replacement, deletion, and modifications in a file.
   - Replace "Lorem" with "amet" in a file

```
root@DESKTOP-1FD722E:/mnt/d/downloads# sed 's/Lorem/amet/g' simple.txt
amet ipsum dolor sit amet, consectetur adipiscing elit.
Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
```

   - Replace only the first occurrence of "Lorem" in each line

```
/mnt/d/downloads# sed 's/Lorem/elit/' simple.txt
elit ipsum dolor sit amet, consectetur adipiscing elit.
Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
```

   - Delete all lines containing "Lorem":

```
/mnt/d/downloads# sed '/Lorem/d' simple.txt
Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
```

10. **tac :** tac is just the reverse of cat and it works the same way, i.e., instead of printing from lines 1 through n, it prints lines n through 1. It is just reverse of cat command.

```
/mnt/d/downloads# tac simple.txt
This sample TXT file is provided by Sample-Files.com. Visit us for more sample files and resources.
Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
Lorem ipsum dolor sit amet, consectetur adipiscing elit.
```

11. <u>nl :</u> nl is used to number the lines of our text data.

```
root@DESKTOP-1FD722E:/mnt/d/downloads# nl simple.txt
     1  Lorem ipsum dolor sit amet, consectetur adipiscing elit.
     2  Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
```