

Operating Systems – Lab
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P18-0030
Section B

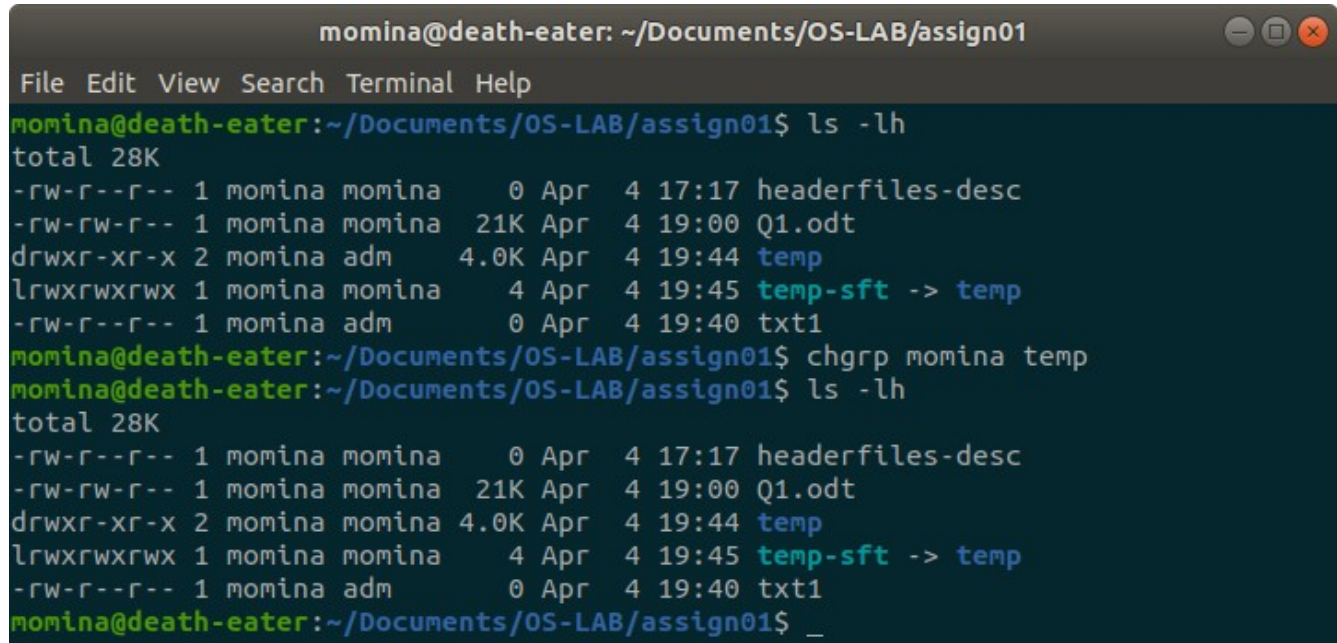
QUESTION 3:

chgrp:

This command changes the group something belongs to, be it file or directory but it doesn't change group of links.

Format: `chgrp [groupname] [file/directory]`

example: `chgrp adm txt1` --- change group of txt1 to admin



```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ ls -lh
total 28K
-rw-r--r-- 1 momina momina    0 Apr  4 17:17 headerfiles-desc
-rw-rw-r-- 1 momina momina  21K Apr  4 19:00 Q1.odt
drwxr-xr-x 2 momina adm     4.0K Apr  4 19:44 temp
lrwxrwxrwx 1 momina momina    4 Apr  4 19:45 temp-sft -> temp
-rw-r--r-- 1 momina adm        0 Apr  4 19:40 txt1
momina@death-eater:~/Documents/OS-LAB/assign01$ chgrp momina temp
momina@death-eater:~/Documents/OS-LAB/assign01$ ls -lh
total 28K
-rw-r--r-- 1 momina momina    0 Apr  4 17:17 headerfiles-desc
-rw-rw-r-- 1 momina momina  21K Apr  4 19:00 Q1.odt
drwxr-xr-x 2 momina momina  4.0K Apr  4 19:44 temp
lrwxrwxrwx 1 momina momina    4 Apr  4 19:45 temp-sft -> temp
-rw-r--r-- 1 momina adm        0 Apr  4 19:40 txt1
momina@death-eater:~/Documents/OS-LAB/assign01$ _
```

find:

This command can find files or directories in the current directory. While finding a directory, it shows the contents of directory as well. In case of file it just displays the file.

Format: `find [file/directory]`

example: `find assign01` or `find txt1`

```
momina@death-eater: ~/Documents/OS-LAB
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ find txt1
txt1
momina@death-eater:~/Documents/OS-LAB/assign01$ cd ..
momina@death-eater:~/Documents/OS-LAB$ find assign01
assign01
assign01/Q2.odt
assign01/headerfiles-desc
assign01/temp
assign01/Q1.odt
assign01/./~lock.Q2.odt#
assign01/temp-sft
assign01/txt1
momina@death-eater:~/Documents/OS-LAB$ _
```

uniq:

This command works on files having text. If you want to omit repeated lines, if you want only the repeated lines, if you want to count how many times a line is repeated this command is used. It has different options to aid you.

Format: `uniq [filename]`

example: `uniq txt01` --- it displays only the unique lines and omit the repeated ones

`uniq -c txt1` --- it counts the occurrence of lines and displays it with the line

`uniq -D txt1` --- it prints only the repeated lines

```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ uniq txt1
This is assign01
This is OS lab assignment.
momina@death-eater:~/Documents/OS-LAB/assign01$ uniq -c txt1
  2 This is assign01
  1 This is OS lab assignment.
momina@death-eater:~/Documents/OS-LAB/assign01$ uniq -D txt1
This is assign01
This is assign01
momina@death-eater:~/Documents/OS-LAB/assign01$ _
```

last:

This command shows all the users logged in since the file `/var/log/wtmp` was created.

Format: `last [username]`

example: `last momina`

```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ last momina
momina  :0          :0          Sat Apr  4 18:20    still logged in
momina  :0          :0          Sat Apr  4 16:18 - 17:28 (01:10)
momina  :0          :0          Sat Apr  4 05:00 - 05:01 (00:00)
momina  :0          :0          Fri Apr  3 19:17 - down  (01:01)
momina  :0          :0          Fri Apr  3 04:51 - 08:24 (03:32)

wtmp begins Wed Apr  1 20:32:00 2020
momina@death-eater:~/Documents/OS-LAB/assign01$ _
```

alias:

This command is used when we want to make commands shorter and we have problem of forgetting options or don't want to option every time we run the command. But aliases retain their life until terminal is closed. If you want to make it permanent you have to work a little more and create a `.bashrc` file.

Format: `alias name = "[complete command]"`

example: `alias ls="ls -lh"` --- after execution of this command everytime we execute `ls` command it will execute like `ls -lh`.

```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ alias ls="ls -lh"
momina@death-eater:~/Documents/OS-LAB/assign01$ ls
total 308K
-rw-r--r-- 1 momina momina  0 Apr  4 2020 headerfiles-desc
-rw-rw-r-- 1 momina momina 21K Apr  4 2020 Q1.odt
-rw-rw-r-- 1 momina momina 273K Apr  4 16:43 Q2.odt
drwxr-xr-x 2 momina momina 4.0K Apr  4 2020 temp
lrwxrwxrwx 1 momina momina  4 Apr  4 2020 temp-sft -> temp
-rw-r--r-- 1 momina adm    61 Apr  4 2020 txt1
momina@death-eater:~/Documents/OS-LAB/assign01$ _
```

fgrep:

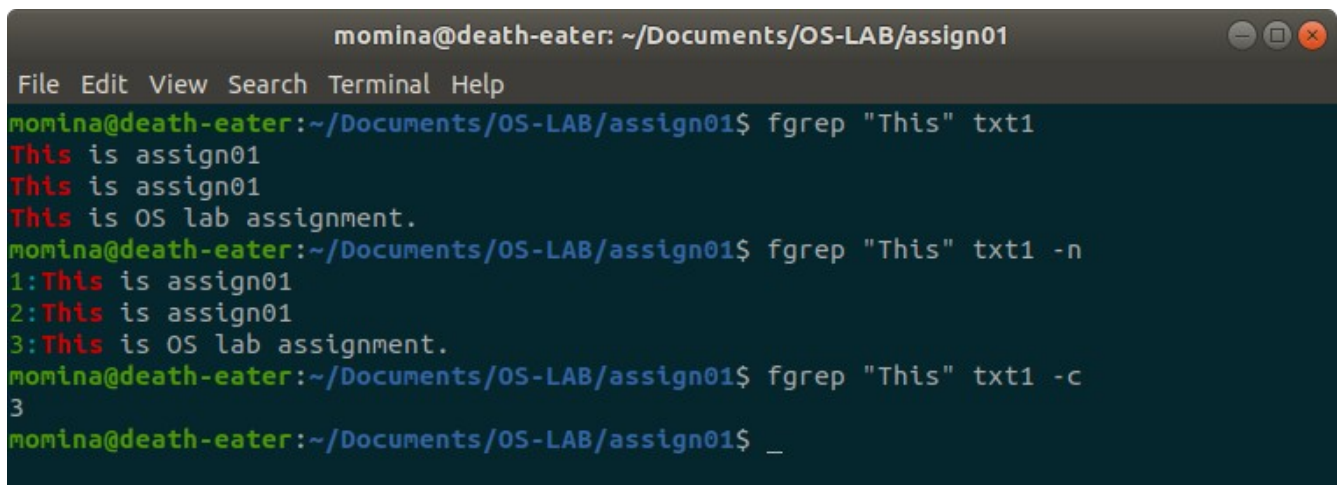
This command is used to search within a file. Like grep narrows down our search on terminal, fgrep narrows down search within a file.

Format: fgrep "word" [filename]

example: fgrep "This" txt1 --- It prints the lines containing "This" on terminal

fgrep "This" txt -n --- It prints the lines containing "This" on terminal along with their line numbers exactly like in file.

fgrep "This" txt1 -c --- It only prints the count of occurrences of "This" on terminal.

A screenshot of a terminal window titled 'momina@death-eater: ~/Documents/OS-LAB/assign01'. The terminal shows three commands and their outputs. The first command is 'fgrep "This" txt1', which outputs three lines: 'This is assign01', 'This is assign01', and 'This is OS lab assignment.'. The second command is 'fgrep "This" txt1 -n', which outputs the same three lines but with line numbers: '1:This is assign01', '2:This is assign01', and '3:This is OS lab assignment.'. The third command is 'fgrep "This" txt1 -c', which outputs the number '3'. The prompt 'momina@death-eater: ~/Documents/OS-LAB/assign01\$' is visible at the end of each line.

```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ fgrep "This" txt1
This is assign01
This is assign01
This is OS lab assignment.
momina@death-eater:~/Documents/OS-LAB/assign01$ fgrep "This" txt1 -n
1:This is assign01
2:This is assign01
3:This is OS lab assignment.
momina@death-eater:~/Documents/OS-LAB/assign01$ fgrep "This" txt1 -c
3
momina@death-eater:~/Documents/OS-LAB/assign01$ _
```

fs la:

This command is used to query filesystem and set permissions.

Format: fs argument

example: fs la /assign01 --- it shows permissions given to user on assign01 directory

```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Tabs Help
momina@death-eater: ~/Documents/OS-... x momina@death-eater: ~/Documents x
FS(1) AFS Command Reference FS(1)
NAME
    fs - Introduction to the fs command suite
DESCRIPTION
    The commands in the fs command suite constitute the main administrative
    interface to the Cache Manager on an AFS client machine, which is
    responsible for fetching AFS data from file server machines on behalf
    of applications running on the client machine.

    There are several categories of commands in the fs command suite:

    • Commands to set and report how the Cache Manager interacts with
      server machines: fs checkservers, fs getcellstatus, fs getcrypt, fs
      getserverprefs, fs getverify, fs listcells, fs newcell, fs
      setcbaddr, fs setcell, fs setcrypt, fs setserverprefs, fs
      setverify, fs sysname, fs uuid, and fs wscell.

    • Commands to administer access control lists (ACLs): fs cleanacl, fs
      copyacl, fs getcalleraccess, fs listacl, and fs setacl.

    • Commands to administer server machines, volumes or partitions that
Manual page fs(1) line 1 (press h for help or q to quit)
```

aptitude:

This command shows the list of packages that are installed, not installed, virtual and tasks as well. When you select some option then you see different packages and when you select a package you see all its information.

Format: aptitude


```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
Actions Undo Package Resolver Search Options Views Help
C-T: Menu ?: Help q: Quit u: Update g: Preview/Download/Install/Remove Pkgs
aptitude 0.8.10 @ death-ea
--- Installed Packages (1834)
--- Not Installed Packages (94015)
--- Virtual Packages (12889)
--- Tasks (39128)

These packages are currently installed on your computer.
This group contains 1834 packages.
```

shutdown:

This command schedules shutdown and you can cancel it if in case you change your mind.

Format: shutdown

example: shutdown -c --- it cancels the scheduled shutdown

```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ shutdown
Shutdown scheduled for Sat 2020-04-04 21:16:59 PKT, use 'shutdown -c' to cancel.
momina@death-eater:~/Documents/OS-LAB/assign01$ shutdown -c
momina@death-eater:~/Documents/OS-LAB/assign01$ _
```

grep:

This command is used to search. It narrows down search on terminal.

Format: ls | grep [name] --- pipe symbol feeds the output of *ls* to *grep* and prints the output

example: ls | grep txt1 --- this command will show file txt1 only if it exists

```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ ls | grep txt1
txt1
momina@death-eater:~/Documents/OS-LAB/assign01$ ls | grep firefox
momina@death-eater:~/Documents/OS-LAB/assign01$ _
```

diff:

This command compares files line by line. There are different options as well for different properties. If 2 lines are identical in both files then they will not be printed or terminal. < arrow means the line is from file1 and > means that the line is from file2.

Format: diff [filename1] [filename2]

example: diff txt1 txt2 -q --- tells if the files differ or not

diff txt1 txt2 --- shows the contents of file that are different and not identical in both

```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ cat < txt1
What is new today?
This is text file 1.
text file 1 has something.
Today is Saturday.
Tomorrow is Sunday.
momina@death-eater:~/Documents/OS-LAB/assign01$ cat < txt2
This is text file 2.
text file 2 has something.
Today is Saturday.
Tomorrow is Sunday.
momina@death-eater:~/Documents/OS-LAB/assign01$ diff txt1 txt2
1,3c1,2
< What is new today?
< This is text file 1.
< text file 1 has something.
---
> This is text file 2.
> text file 2 has something.
momina@death-eater:~/Documents/OS-LAB/assign01$ diff txt1 txt2 -q
Files txt1 and txt2 differ
momina@death-eater:~/Documents/OS-LAB/assign01$ _
```

vi:

This command opens either an untitled new file or existing file in vim editor which runs only on terminal. You can edit that file on terminal, write to it or omit something from it.

Format: vi [filename]

example: `vi txt1 ---` opens txt1 on terminal

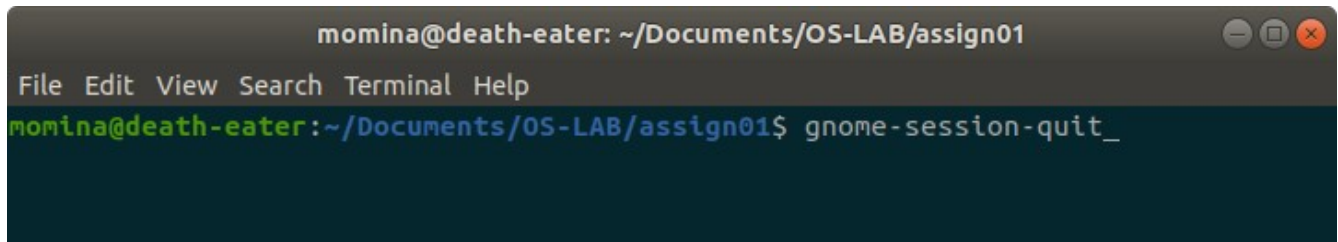
[illegible]

logout or gnome-session-quit:

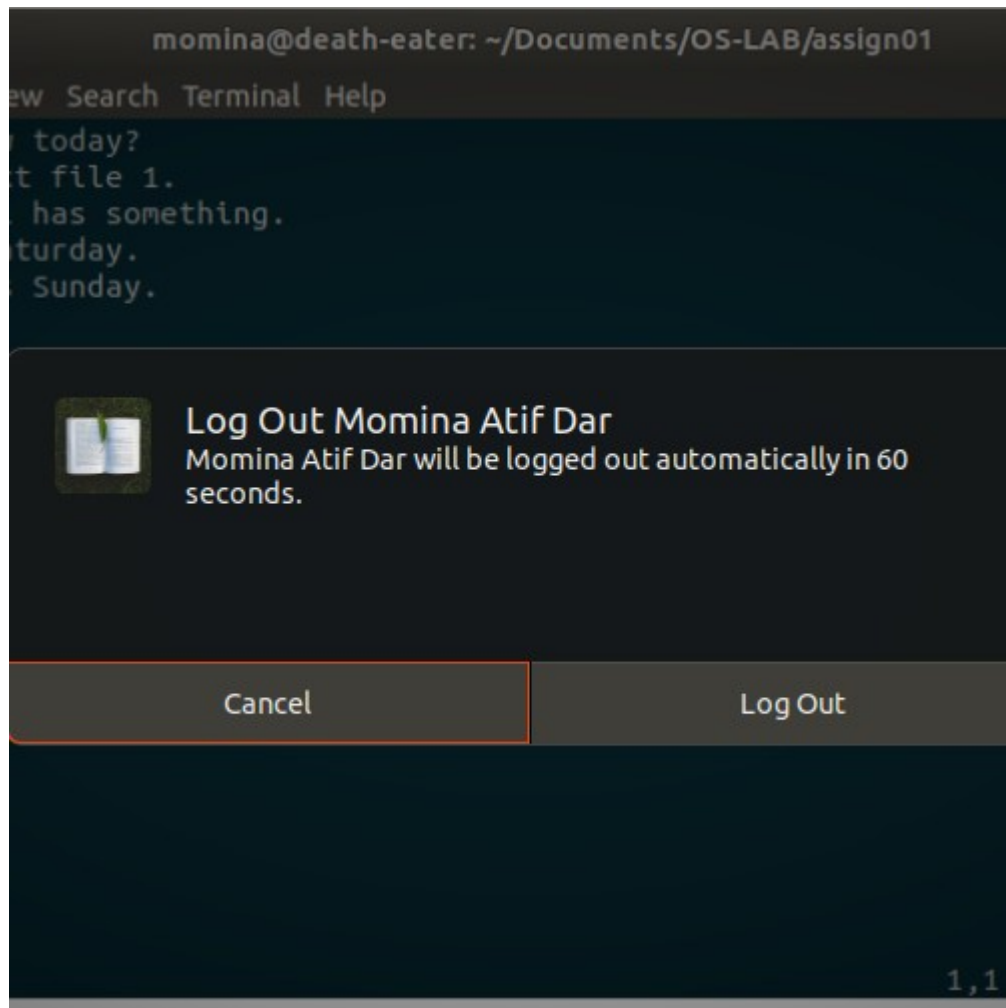
'logout' doesn't work for logging out on my system but gnome-session-quit does. When I execute this command prompt comes up asking me to logout or cancel.

Format: `gnome-session-quit` --- will show prompt of logout

`gnome-session-quit --no-prompt` will not show any prompt but will log you out automatically



```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ gnome-session-quit_
```



unalias:

This command discards the alias you have created before.

Format: `unalias [alias name]`

example: `unalias ls` --- beforehand I had made `ls` as `ls -lh` with alias, after execution of this command it has again become `ls`.

```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ alias ls="ls -lh"
momina@death-eater:~/Documents/OS-LAB/assign01$ ls
total 988K
-rw-r--r-- 1 momina momina    0 Apr  4 17:17 headerfiles-desc
-rw-rw-r-- 1 momina momina  21K Apr  4 19:00 Q1.odt
-rw-rw-r-- 1 momina momina 950K Apr  5 00:44 Q2.odt
drwxr-xr-x 2 momina momina  4.0K Apr  4 19:44 temp
lrwxrwxrwx 1 momina momina    4 Apr  4 19:45 temp-sft -> temp
-rw-r--r-- 1 momina adm     105 Apr  5 00:40 txt1
-rw-r--r-- 1 momina momina   87 Apr  4 22:37 txt2
momina@death-eater:~/Documents/OS-LAB/assign01$ unalias ls
momina@death-eater:~/Documents/OS-LAB/assign01$ ls
headerfiles-desc Q1.odt Q2.odt temp temp-sft txt1 txt2
momina@death-eater:~/Documents/OS-LAB/assign01$
```

spell:

This command outputs the spelling mistakes in files on terminal. If there's no mistake it outputs nothing on terminal.

Format: `spell [filename]` --- it outputs spelling mistakes in file

example: `spell txt1 -n` --- it outputs spelling mistakes in file along with the line number it's at

```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ cat < txt1
What is new today?
This is text file 1.
text file 1 has something.
Today is Saturday.
Tomorrow is Sundy.
momina@death-eater:~/Documents/OS-LAB/assign01$ spell txt1
Sundy
momina@death-eater:~/Documents/OS-LAB/assign01$ spell txt1 -n
5: Sundy
momina@death-eater:~/Documents/OS-LAB/assign01$ _
```

control z:

This command stops a process going on in terminal. For example vim editor is opened and you press `Ctrl+Z`, it will stop it.

Format: Ctrl+Z

example: 1. vi – 2. Ctrl+Z --- 1 opens Vim editor on your terminal, 2 stops it.

```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ vi
[1]+  Stopped                  vi
momina@death-eater:~/Documents/OS-LAB/assign01$ man ls
[2]+  Stopped                  man ls
momina@death-eater:~/Documents/OS-LAB/assign01$ man ls
[3]+  Stopped                  man ls
momina@death-eater:~/Documents/OS-LAB/assign01$ man ls
[4]+  Stopped                  man ls
```

dirname:

This command tells about the directory of searched item. When something is in current working directory it outputs ‘.’.

Format: dirname [name]

example: dirname OS-LAB --- it will output ‘.’ as OS-LAB is in the current working directory

dirname OS-LAB/assign01/txt1 --- it outputs the directory path where txt1 file is

```
momina@death-eater: ~/Documents
File Edit View Search Terminal Help
momina@death-eater:~/Documents$ dirname OS-LAB
.
momina@death-eater:~/Documents$ dirname OS-LAB/assign01/
OS-LAB
momina@death-eater:~/Documents$ dirname OS-LAB/assign01/txt1
OS-LAB/assign01
momina@death-eater:~/Documents$ _
```

sleep:

This command puts kernel to sleep. You mention seconds(s), minutes(m) or hours(h) with it.

Format: sleep 10s --- it will put kernel to sleep for 10 seconds

```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ sleep 1m
momina@death-eater:~/Documents/OS-LAB/assign01$ sleep 10s
_
```

file:

This command determines type of the file.

Format: file [filename]

example: file txt1 --- it will output the type of txt1

```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ file txt1
txt1: ASCII text
momina@death-eater:~/Documents/OS-LAB/assign01$ file headerfiles-desc
headerfiles-desc: empty
momina@death-eater:~/Documents/OS-LAB/assign01$ cat < txt1
What is new today?
This is text file 1.
text file 1 has something.
Today is Saturday.
Tomorrow is Sundy.
momina@death-eater:~/Documents/OS-LAB/assign01$ cat < headerfiles-desc
momina@death-eater:~/Documents/OS-LAB/assign01$ _
```

comm:

This command compares two sorted files. If both are sorted then it outputs both files' contents in ascending order based on their ASCII value.

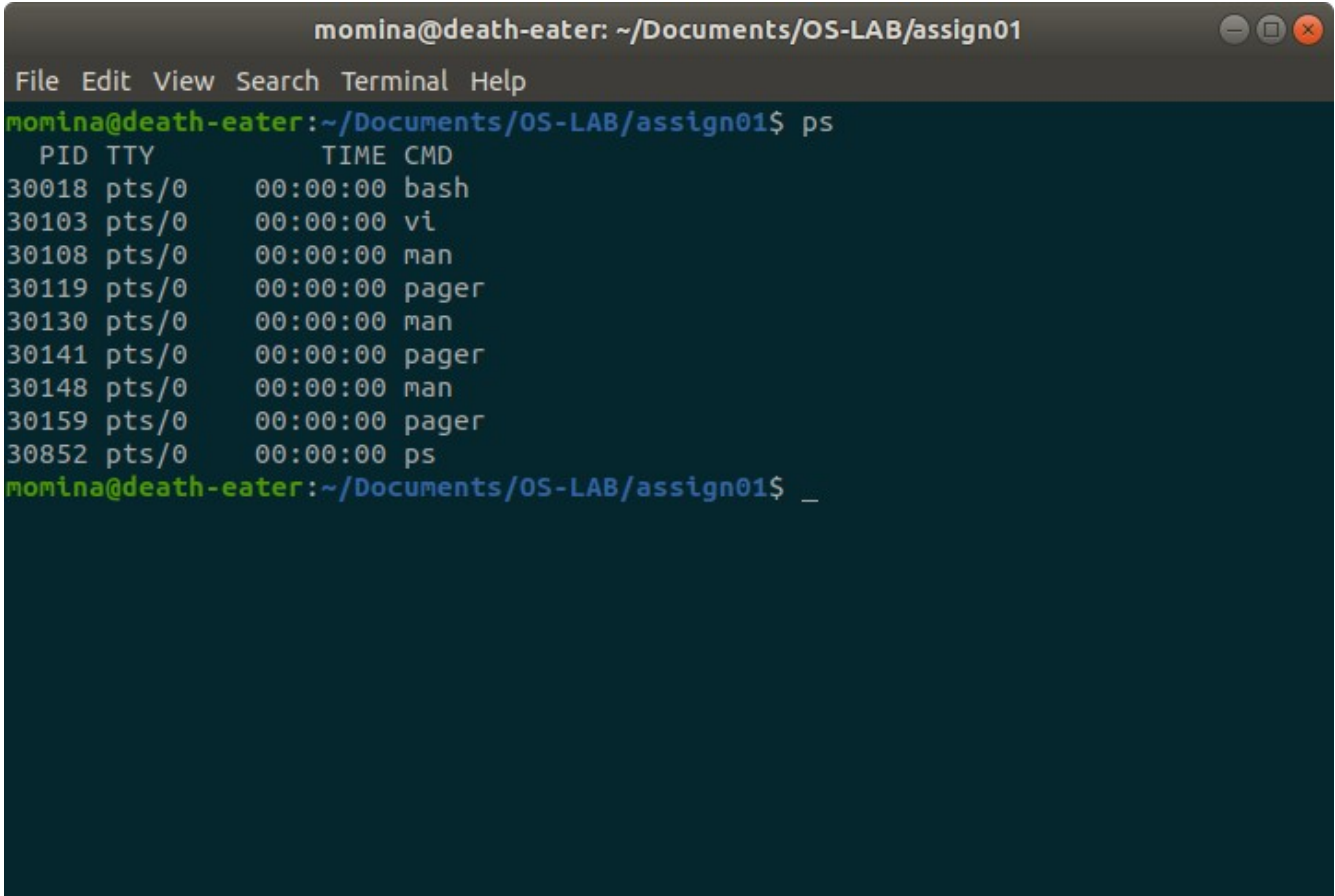
Format: comm [filename1] [filename2]

example: comm txt3 txt4 --- it outputs contents of both files in ascending order if they are sorted.

ps:

This command shows the list of current running processes.

Format: ps

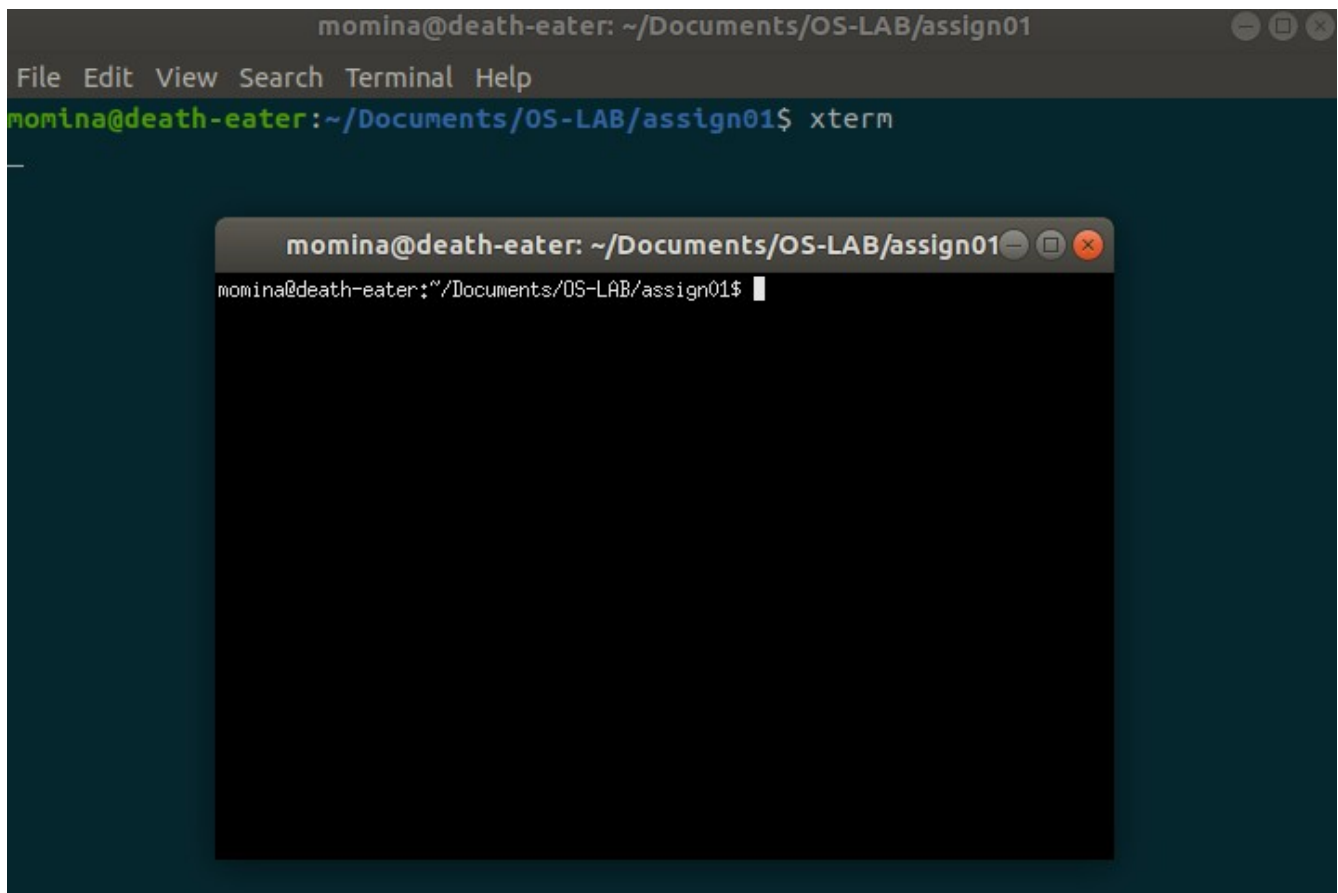
A terminal window titled 'momina@death-eater: ~/Documents/OS-LAB/assign01' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows the command 'ps' being executed, resulting in a table of running processes. The table has four columns: PID, TTY, TIME, and CMD. The processes listed are: bash (PID 30018), vi (PID 30103), man (PID 30108), pager (PID 30119), man (PID 30130), pager (PID 30141), man (PID 30148), pager (PID 30159), and ps (PID 30852). The prompt 'momina@death-eater:~/Documents/OS-LAB/assign01\$ _' is visible at the bottom.

```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ ps
  PID TTY          TIME CMD
 30018 pts/0    00:00:00 bash
 30103 pts/0    00:00:00 vi
 30108 pts/0    00:00:00 man
 30119 pts/0    00:00:00 pager
 30130 pts/0    00:00:00 man
 30141 pts/0    00:00:00 pager
 30148 pts/0    00:00:00 man
 30159 pts/0    00:00:00 pager
 30852 pts/0    00:00:00 ps
momina@death-eater:~/Documents/OS-LAB/assign01$ _
```

xterm:

This command opens a terminal emulator. That terminal is solely command based, mouse doesn't work in it. The same directory is opened in emulator as that of your terminal.

Format: xterm



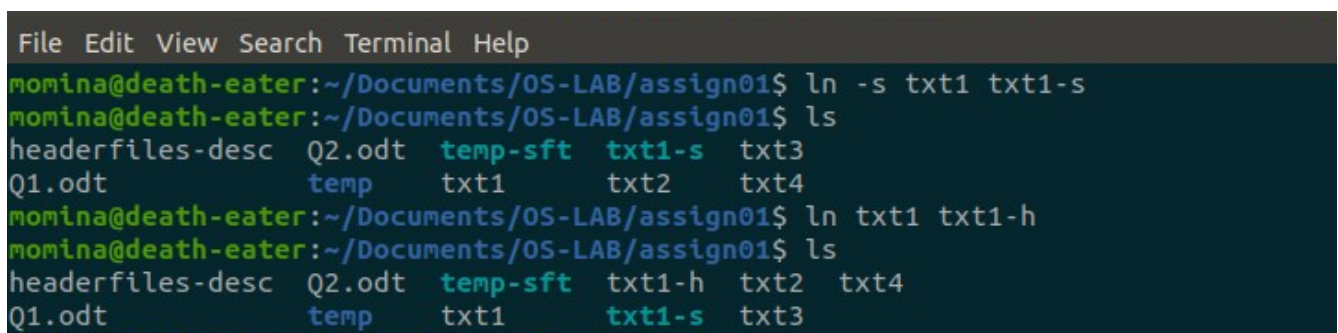
ln:

This command is used to form soft or hard links in the same working directory. Soft links are less useful once we remove the original file whereas hard links stay even after original file is deleted.

Format: `ln [link name] [file/directory name]`

example: `ln -s txt1 txt1-s` --- it creates soft link of txt1 file with the name txt1-s

`ln txt1 txt1-h` --- it creates hard link of txt1 file with the name txt1-h

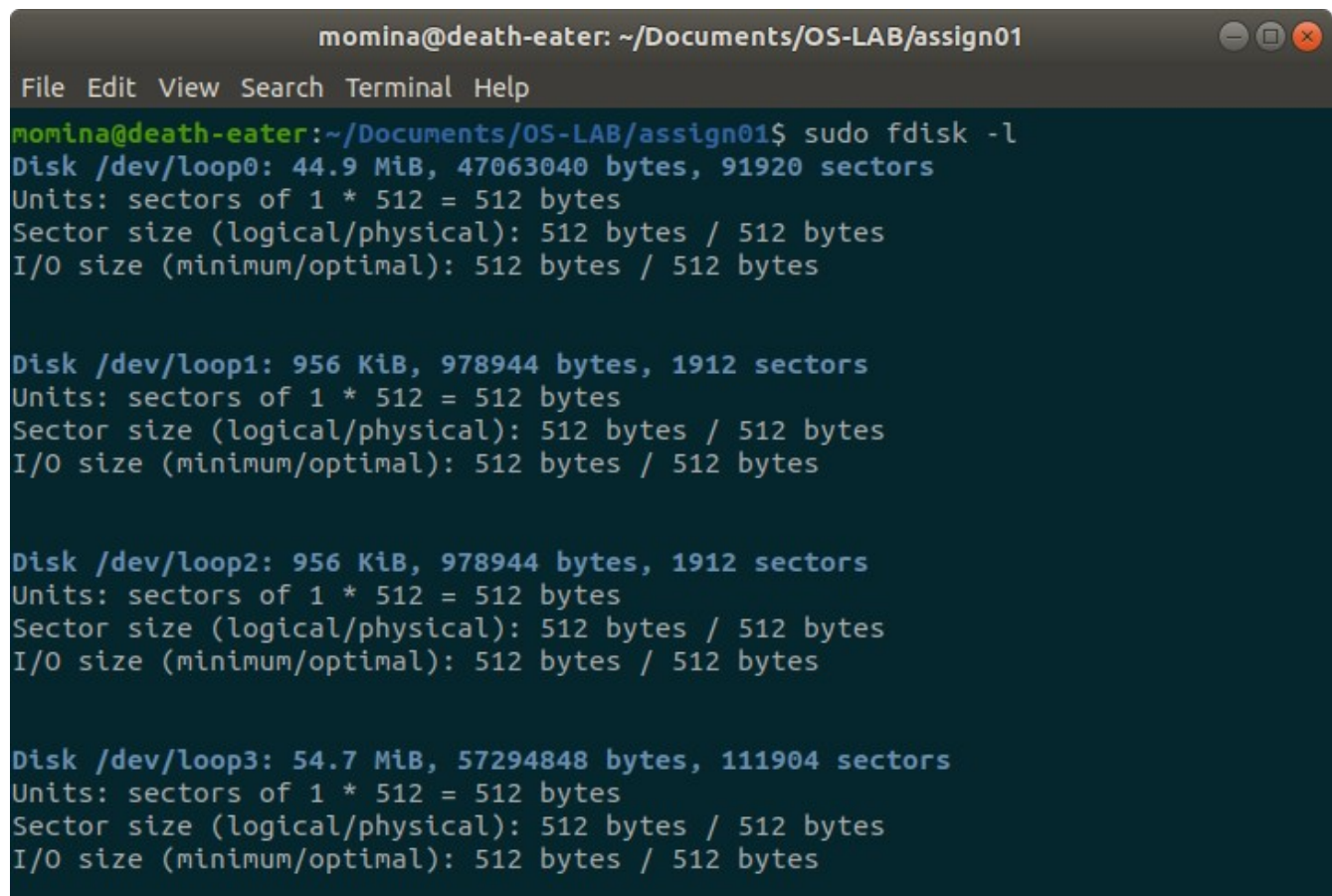


fdisk:

This command manipulates disk partition table. it outputs all the partition tables for specified devices, if no specified then it outputs /proc/partitions.

Format: fdisk

example: fdisk -l --- it outputs partition tables from /proc/partitions

A terminal window titled 'momina@death-eater: ~/Documents/OS-LAB/assign01' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows the command 'sudo fdisk -l' and its output for four loop devices. The output for each device includes its size in MiB, total bytes, sectors, units (sectors of 1 * 512 = 512 bytes), sector size (logical/physical: 512 bytes / 512 bytes), and I/O size (minimum/optimal: 512 bytes / 512 bytes).

```
momina@death-eater:~/Documents/OS-LAB/assign01$ sudo fdisk -l
Disk /dev/loop0: 44.9 MiB, 47063040 bytes, 91920 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/loop1: 956 KiB, 978944 bytes, 1912 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/loop2: 956 KiB, 978944 bytes, 1912 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/loop3: 54.7 MiB, 57294848 bytes, 111904 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
```

ifconfig:

This command is used to configure network interfaces.

Format: ifconfig --- it outputs interfaces on terminal

ifconfig -s --- it outputs interfaces in a short list

ifconfig -a --- it outputs interfaces including the ones which are down

```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ ifconfig -s
Iface      MTU      RX-OK RX-ERR RX-DRP RX-OVR      TX-OK TX-ERR TX-DRP TX-OVR Flg
lo         65536    61604      0      0 0         61604      0      0      0 LRU
wlp0s20f   1500    670705      0      0 0        529809      0      0      0 BMRU
momina@death-eater:~/Documents/OS-LAB/assign01$ ifconfig -a
lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
    inet 127.0.0.1  netmask 255.0.0.0
    inet6 ::1  prefixlen 128  scopeid 0x10<host>
    loop txqueuelen 1000  (Local Loopback)
    RX packets 61618  bytes 6287099 (6.2 MB)
    RX errors 0  dropped 0  overruns 0  frame 0
    TX packets 61618  bytes 6287099 (6.2 MB)
    TX errors 0  dropped 0  overruns 0  carrier 0  collisions 0

wlp0s20f3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
    inet 192.168.10.5  netmask 255.255.255.0  broadcast 192.168.10.255
    inet6 fe80::f1f8:528b:b6b5:b89e  prefixlen 64  scopeid 0x20<link>
    ether d0:c6:37:f3:07:96  txqueuelen 1000  (Ethernet)
    RX packets 670724  bytes 791191212 (791.1 MB)
    RX errors 0  dropped 0  overruns 0  frame 0
    TX packets 529862  bytes 72135942 (72.1 MB)
    TX errors 0  dropped 0  overruns 0  carrier 0  collisions 0

momina@death-eater:~/Documents/OS-LAB/assign01$ _
```

users:

This command displays the list of users.

Format: users

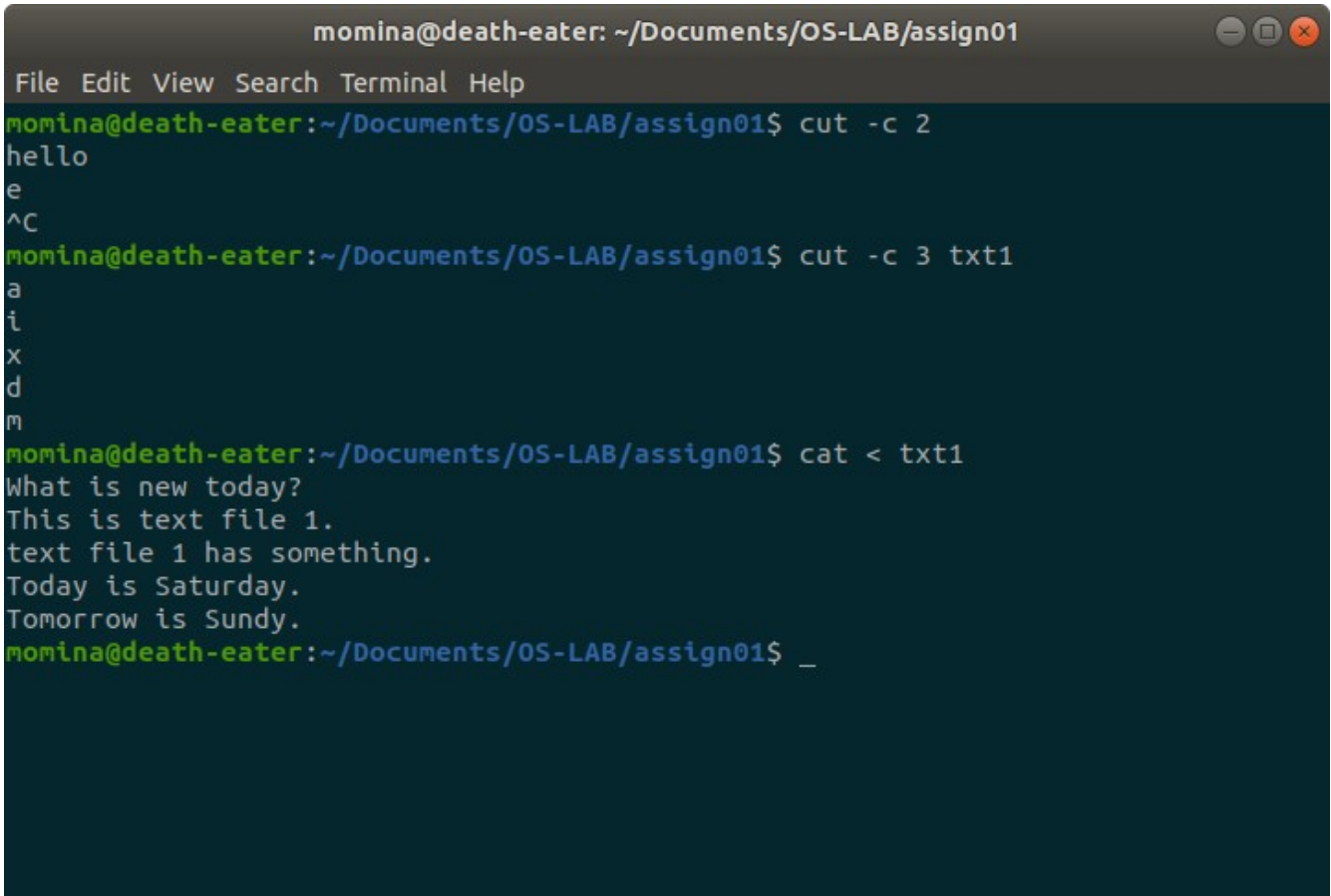
```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ users
momina
momina@death-eater:~/Documents/OS-LAB/assign01$ _
```

cut:

This command removes sections from each line of file. It works on terminal as well i.e. if you write something on terminal you can *cut* from it as well.

Format: *cut* [option] [number of bytes/characters] [filename]

example: `cut -c 3 txt1 ---` it will output characters at index 3 from txt1 file on terminal.

A terminal window titled 'momina@death-eater: ~/Documents/OS-LAB/assign01'. The window has a menu bar with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. The terminal shows the following commands and output:

```
momina@death-eater:~/Documents/OS-LAB/assign01$ cut -c 2
hello
e
^C
momina@death-eater:~/Documents/OS-LAB/assign01$ cut -c 3 txt1
a
i
x
d
m
momina@death-eater:~/Documents/OS-LAB/assign01$ cat < txt1
What is new today?
This is text file 1.
text file 1 has something.
Today is Saturday.
Tomorrow is Sundy.
momina@death-eater:~/Documents/OS-LAB/assign01$ _
```

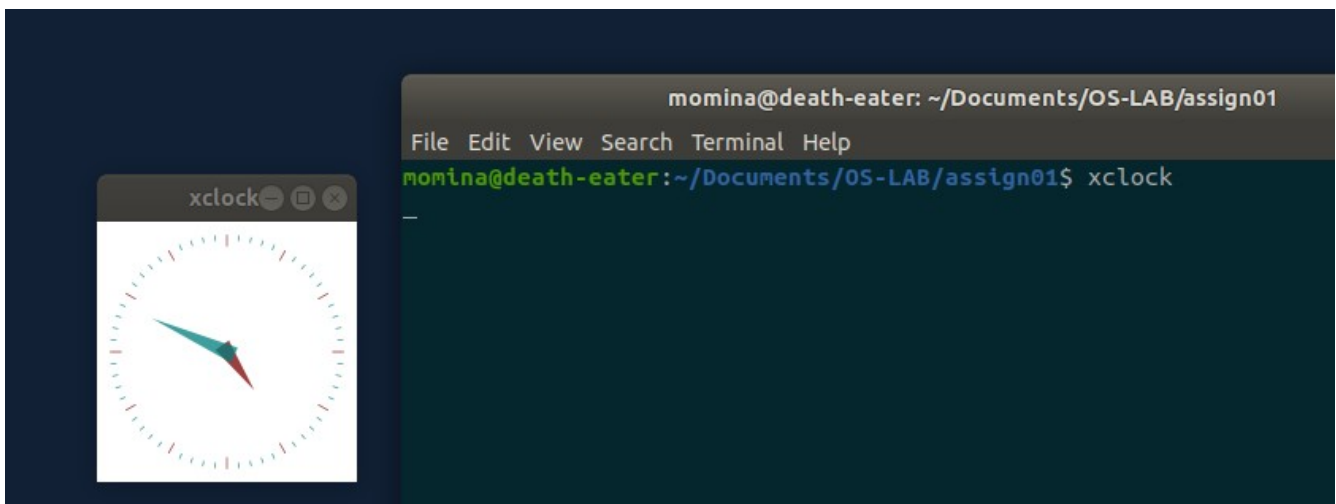
xclock:

This command opens an analog or digital clock widget based on the option given.

Format: `xclock [option]`

example: `xclock ---` it will open a widget of analog clock

`xclock -digital ---` it will open a digital clock.

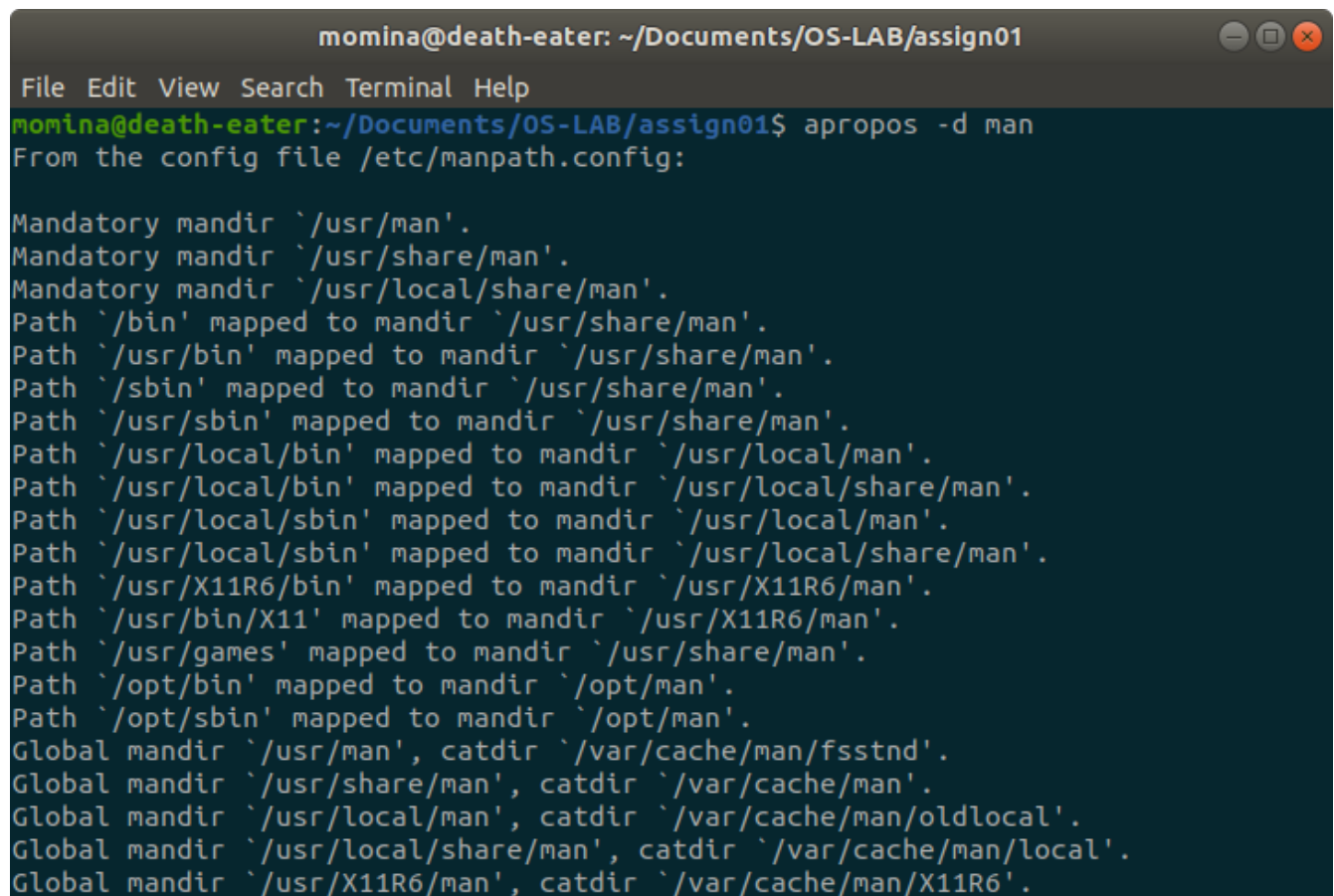


Apropos:

This command searches manuals, their names and description.

Format: apropos [option] [argument]

example: apropos -d man --- it will output debugging information of all the manuals.



killall:

This command kills processes if name specified, otherwise it kills all processes.

Format: killall

example: killall firefox --- it will kill the process of firefox

```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ top | grep firefox
3581 momina    20    0 2945436 249632 122888 S   0.7  1.5   0:11.44 firefox
_
```

```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ killall firefox
momina@death-eater:~/Documents/OS-LAB/assign01$ top | grep firefox
_
```

umount:

This command unmounts file systems.

Format: umount [option]

example: umount -V --- it will display version of umount

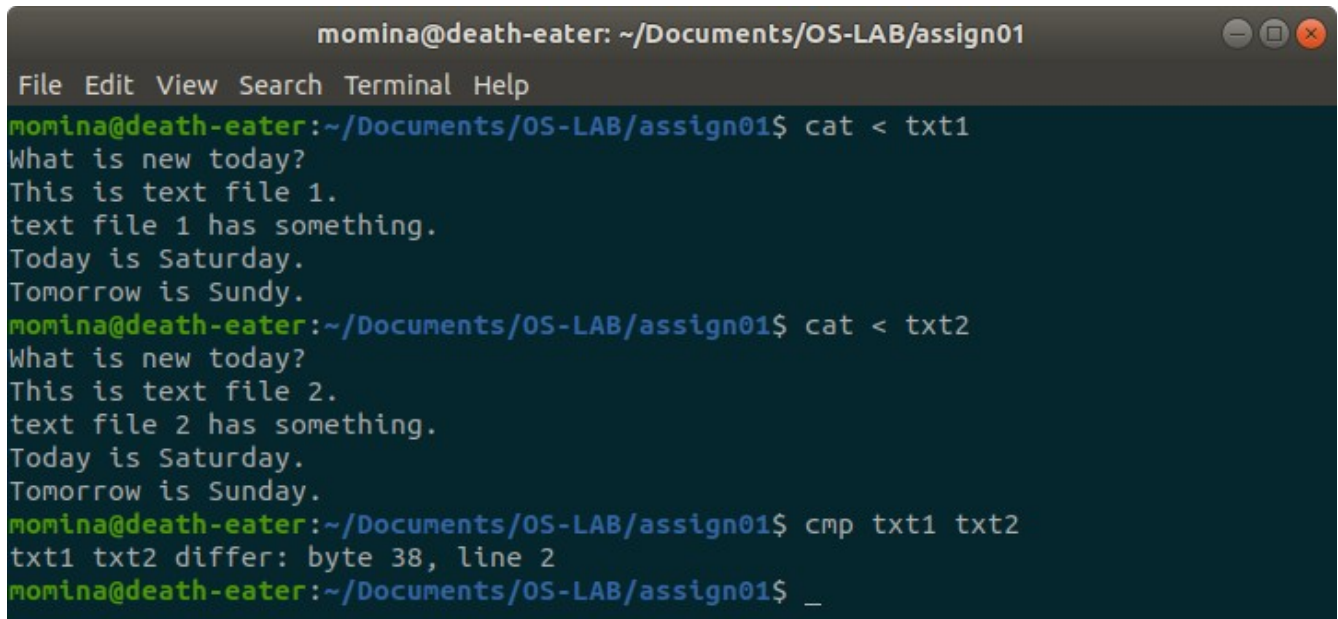
```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ umount -V
umount from util-linux 2.31.1 (libmount 2.31.1: selinux, btrfs, assert, debug)
momina@death-eater:~/Documents/OS-LAB/assign01$ _
```

cmp:

This command will compare two files byte by byte. It will display the line and byte number where difference occurs for the first time.

Format: `cmp [filename1] [filename2]`

example: `cmp txt1 txt2 ---` it will display the line and byte number of the first different line.

A terminal window titled 'momina@death-eater: ~/Documents/OS-LAB/assign01' with a menu bar (File, Edit, View, Search, Terminal, Help). The user enters 'cat < txt1' and the content of 'txt1' is displayed: 'What is new today?', 'This is text file 1.', 'text file 1 has something.', 'Today is Saturday.', 'Tomorrow is Sundy.'. Then the user enters 'cat < txt2' and the content of 'txt2' is displayed: 'What is new today?', 'This is text file 2.', 'text file 2 has something.', 'Today is Saturday.', 'Tomorrow is Sunday.'. Finally, the user enters 'cmp txt1 txt2' and the output is 'txt1 txt2 differ: byte 38, line 2'.

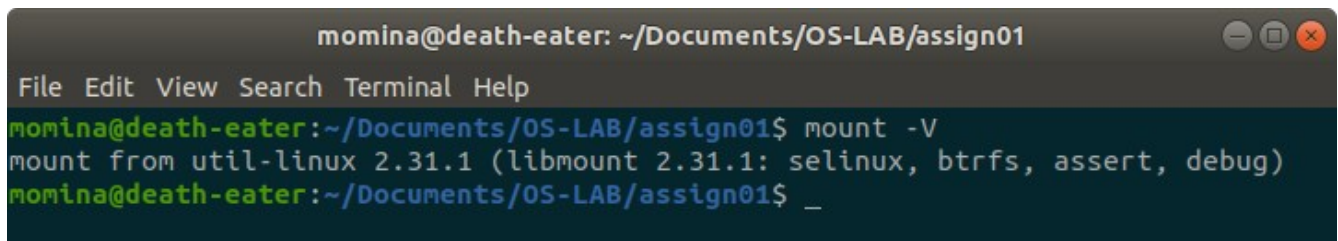
```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ cat < txt1
What is new today?
This is text file 1.
text file 1 has something.
Today is Saturday.
Tomorrow is Sundy.
momina@death-eater:~/Documents/OS-LAB/assign01$ cat < txt2
What is new today?
This is text file 2.
text file 2 has something.
Today is Saturday.
Tomorrow is Sunday.
momina@death-eater:~/Documents/OS-LAB/assign01$ cmp txt1 txt2
txt1 txt2 differ: byte 38, line 2
momina@death-eater:~/Documents/OS-LAB/assign01$ _
```

mount:

This command is used to mount a file system.

Format: `mount [option] dir`

example: `mount -V ---` it will display the version of mount.

A terminal window titled 'momina@death-eater: ~/Documents/OS-LAB/assign01' with a menu bar (File, Edit, View, Search, Terminal, Help). The user enters 'mount -V' and the output is 'mount from util-linux 2.31.1 (libmount 2.31.1: selinux, btrfs, assert, debug)'.

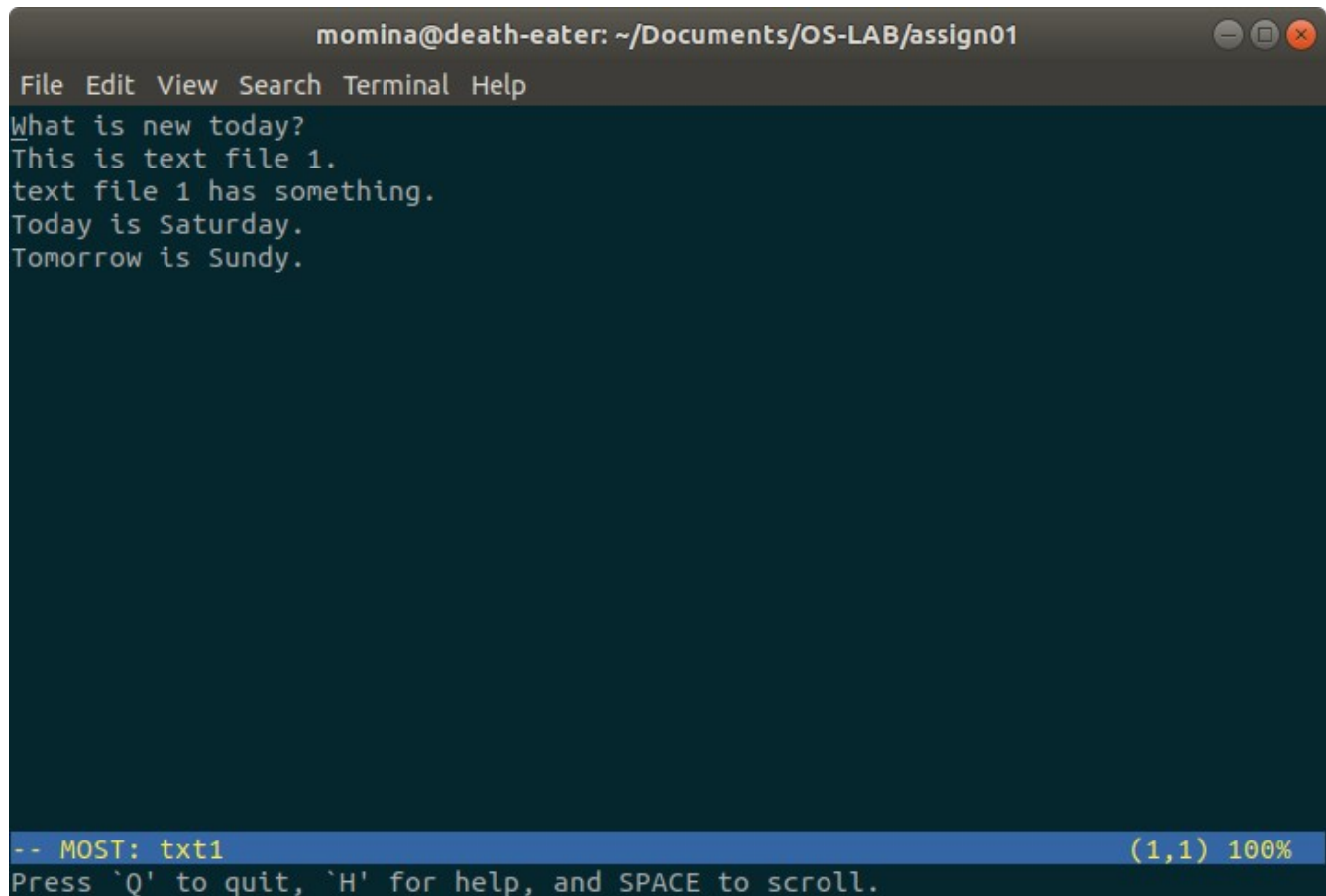
```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ mount -V
mount from util-linux 2.31.1 (libmount 2.31.1: selinux, btrfs, assert, debug)
momina@death-eater:~/Documents/OS-LAB/assign01$ _
```

Most:

This command is used to scroll through a text file. It's a bit like `cat` command but it opens file in terminal and you can scroll through it with Spacebar.

Format: `most [filename]`

example: `most txt1` --- it will open txt1 on terminal to browse

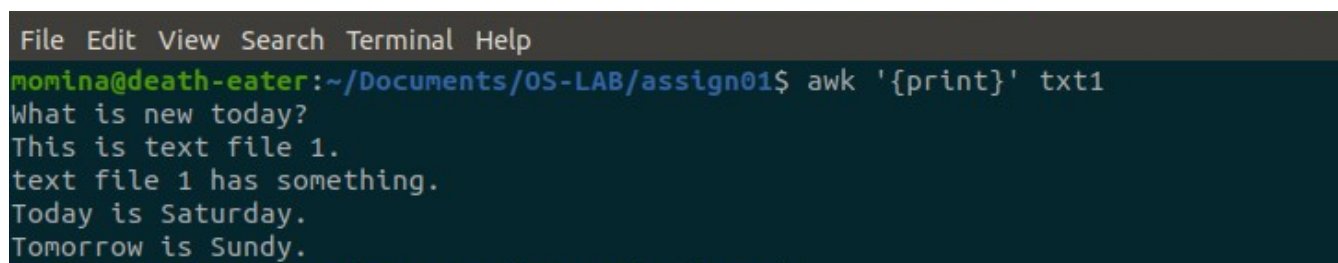
A screenshot of a terminal window titled 'momina@death-eater: ~/Documents/OS-LAB/assign01'. The window has a menu bar with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. The terminal content shows the output of the 'most' command on a file named 'txt1'. The output is: 'What is new today?', 'This is text file 1.', 'text file 1 has something.', 'Today is Saturday.', and 'Tomorrow is Sundy.'. At the bottom, a status bar indicates '-- MOST: txt1' and '(1,1) 100%'. Below the status bar, it says 'Press `Q` to quit, `H` for help, and SPACE to scroll.'

awk:

This command is used for processing and analyzing text files especially files with columns and data but can work with simple text files as well.

Format: `awk [options] '{selection criteria}' [filename]`

example: `awk '{print}' txt1` --- it displays all the contents of txt1 file on terminal

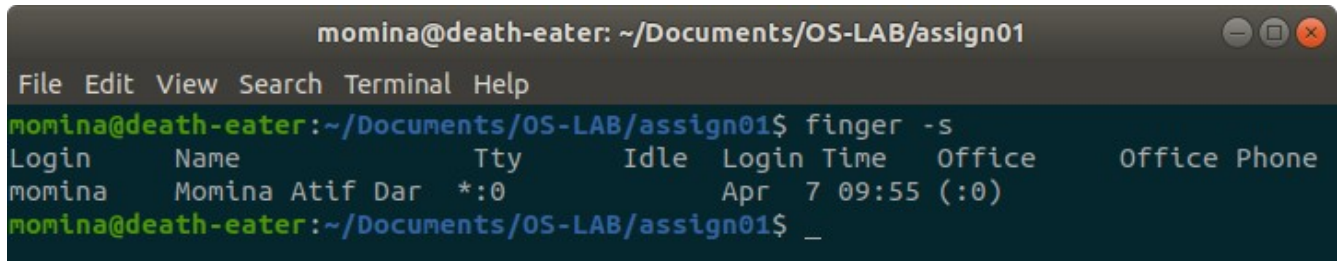
A screenshot of a terminal window showing the command 'awk '{print}' txt1' being executed. The terminal output is identical to the previous screenshot: 'What is new today?', 'This is text file 1.', 'text file 1 has something.', 'Today is Saturday.', and 'Tomorrow is Sundy.'. The prompt shows the user is in the directory '~/Documents/OS-LAB/assign01'.

finger:

This command shows information about users.

Format: `finger [option]`

example: `finger -s ---` it will display the information of all users including their login name, real name, terminal name, idle time, login time and office phone.

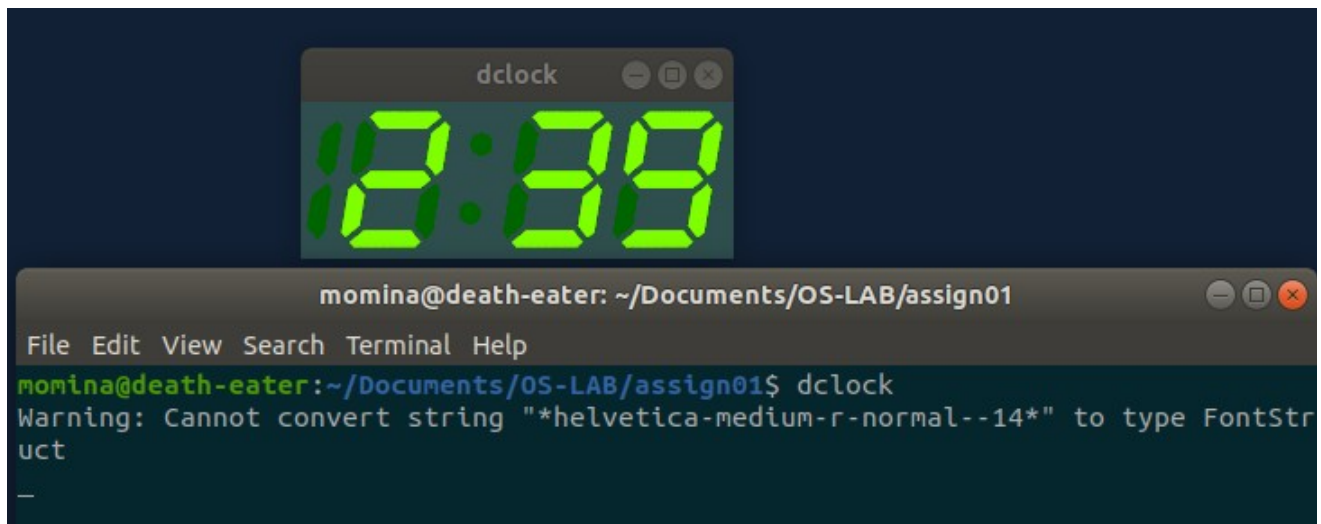


```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ finger -s
Login      Name      Tty      Idle      Login Time  Office      Office Phone
momina     Momina Atif Dar  *:0      Apr  7 09:55 (:0)
```

dclock:

This command opens a digital clock widget.

Format: `dclock [option]`



bg:

This command places a job in background.

Format: `bg ---` it moves the last stopped job to background and the job starts running

example:

sleep 100 (Ctrl+Z) --- job of sleep 100 starts and then stops
bg --- last stopped job is moved to background i.e. sleep 100

sleep 20 (Ctrl+Z)

sleep 30 (Ctrl+Z)

bg %2 --- it moves the 2nd job to background and it runs

```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ jobs
momina@death-eater:~/Documents/OS-LAB/assign01$ sleep 50
^Z
[1]+  Stopped                  sleep 50
momina@death-eater:~/Documents/OS-LAB/assign01$ jobs
[1]+  Stopped                  sleep 50
momina@death-eater:~/Documents/OS-LAB/assign01$ bg
[1]+ sleep 50 &
momina@death-eater:~/Documents/OS-LAB/assign01$ jobs
[1]+  Running                  sleep 50 &
momina@death-eater:~/Documents/OS-LAB/assign01$ sleep 20
^Z[1]  Done                    sleep 50

[2]+  Stopped                  sleep 20
momina@death-eater:~/Documents/OS-LAB/assign01$ sleep 30
^Z
[3]+  Stopped                  sleep 30
momina@death-eater:~/Documents/OS-LAB/assign01$ jobs
[2]-  Stopped                  sleep 20
[3]+  Stopped                  sleep 30
momina@death-eater:~/Documents/OS-LAB/assign01$ bg %2
[2]- sleep 20 &
momina@death-eater:~/Documents/OS-LAB/assign01$ jobs
[2]-  Running                  sleep 20 &
[3]+  Stopped                  sleep 30
momina@death-eater:~/Documents/OS-LAB/assign01$ _
```

ping:

This command sends echo requests to network hosts and is a utility to check whether a network is available.

Format: ping [option]

example: ping -c 3 google.com --- to check if google.com is up and limit the packets sent to 3, -c is for count of packets sent

```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ ping -c 3 google.com
PING google.com (172.217.19.174) 56(84) bytes of data.
64 bytes from google.com (172.217.19.174): icmp_seq=1 ttl=55 time=68.9 ms
64 bytes from google.com (172.217.19.174): icmp_seq=2 ttl=55 time=67.9 ms
64 bytes from google.com (172.217.19.174): icmp_seq=3 ttl=55 time=66.6 ms

--- google.com ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2002ms
rtt min/avg/max/mdev = 66.691/67.861/68.914/0.959 ms
momina@death-eater:~/Documents/OS-LAB/assign01$ _
```

expand:

This command when given a filename changes the tabs to spaces and produces this result on terminal.

Format: `expand [option] [filename]`

example: `expand ---` it will take input from terminal and change tabs (if any) to spaces

`expand txt4.txt ---` it will change the tabs in txt4 file to spaces and display it on terminal

```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ expand txt4
    what
hello .
momina@death-eater:~/Documents/OS-LAB/assign01$ _
```

pgrep:

This command is used to search for processes by the name of user that started them or other attributes and when found their PIDs are displayed.

Format: `pgrep [option]`

example: `pgrep -u momina ---` it will display PIDs of processes who are started by user momina.

```
momina@death-eater: ~/Documents/OS-LAB/assign01
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ pgrep -u momina
1458
1459
1472
1476
1478
1484
1487
1582
1585
1590
1600
1605
1607
1623
1633
1653
1657
```

[]:

This command is used as a check/test to check if file exists or not and based on options given some permissions are granted as well.

Format: [option filename]

example: [-r ./addition] && hello --- first it will check whether ./addition exists, if yes then -r will give it read permission. Then second part is executed i.e. *hello* is displayed.

[-r ./add] && echo hello --- no output as ./add doesn't exist so *hello* won't be displayed

```
File Edit View Search Terminal Help
momina@death-eater:~/Documents/OS-LAB/assign01$ [ -r ./addition ] && echo hello
hello
momina@death-eater:~/Documents/OS-LAB/assign01$ [ -r ./add ] && echo hello
momina@death-eater:~/Documents/OS-LAB/assign01$ _
```

execvp: