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Professor Vatsa CYSE 270

4/23/2023

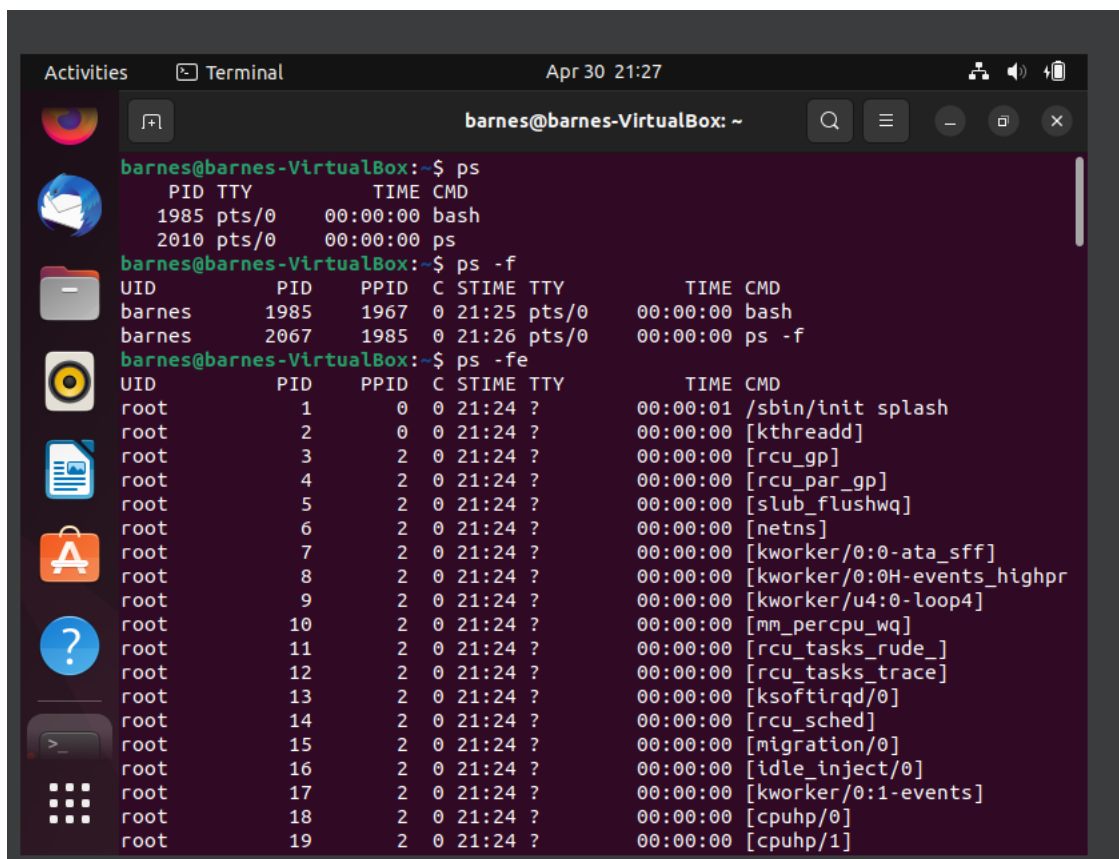
Process Control: Lab 13 System Admin

Task A: Managing System Processes

Step 1. Open the terminal in your VM.

Step 2. List the processes that are running in the current shell.

Step 3. List all processes that are running on this system.



The screenshot shows a terminal window titled "barnes@barnes-VirtualBox: ~" with a search bar and window controls. The terminal output is as follows:

```
barnes@barnes-VirtualBox:~$ ps
  PID TTY          TIME CMD
 1985 pts/0    00:00:00 bash
 2010 pts/0    00:00:00 ps

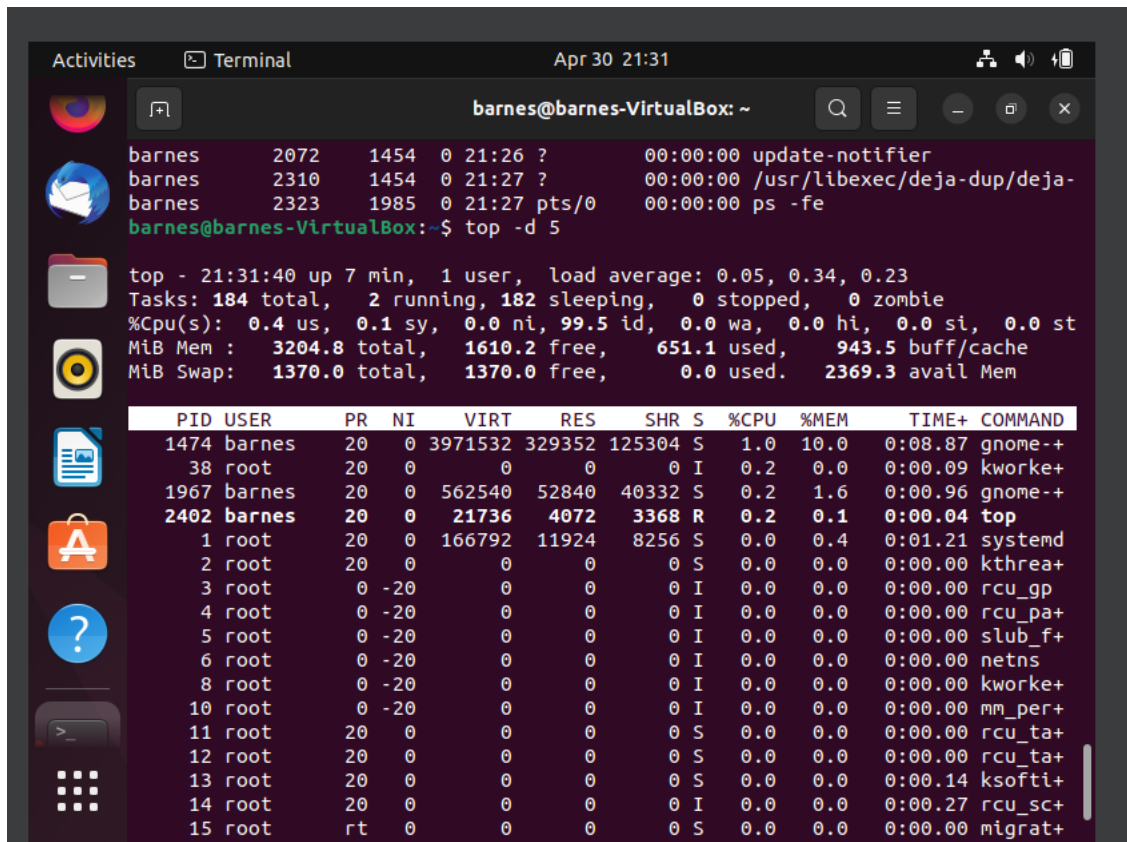
barnes@barnes-VirtualBox:~$ ps -f
  UID      PID    PPID  C STIME TTY          TIME CMD
  barnes    1985    1967  0  21:25 pts/0    00:00:00 bash
  barnes    2067    1985  0  21:26 pts/0    00:00:00 ps -f

barnes@barnes-VirtualBox:~$ ps -fe
  UID      PID    PPID  C STIME TTY          TIME CMD
   root         1         0  0  21:24 ?        00:00:01 /sbin/init splash
   root         2         0  0  21:24 ?        00:00:00 [kthreadd]
   root         3         2  0  21:24 ?        00:00:00 [rcu_gp]
   root         4         2  0  21:24 ?        00:00:00 [rcu_par_gp]
   root         5         2  0  21:24 ?        00:00:00 [slub_flushwq]
   root         6         2  0  21:24 ?        00:00:00 [netns]
   root         7         2  0  21:24 ?        00:00:00 [kworker/0:0-ata_sff]
   root         8         2  0  21:24 ?        00:00:00 [kworker/0:0H-events_highpr]
   root         9         2  0  21:24 ?        00:00:00 [kworker/u4:0-loop4]
   root        10         2  0  21:24 ?        00:00:00 [mm_percpu_wq]
   root        11         2  0  21:24 ?        00:00:00 [rcu_tasks_rude_]
   root        12         2  0  21:24 ?        00:00:00 [rcu_tasks_trace]
   root        13         2  0  21:24 ?        00:00:00 [ksoftirqd/0]
   root        14         2  0  21:24 ?        00:00:00 [rcu_sched]
   root        15         2  0  21:24 ?        00:00:00 [migration/0]
   root        16         2  0  21:24 ?        00:00:00 [idle_inject/0]
   root        17         2  0  21:24 ?        00:00:00 [kworker/0:1-events]
   root        18         2  0  21:24 ?        00:00:00 [cpuhp/0]
   root        19         2  0  21:24 ?        00:00:00 [cpuhp/1]
```

Step 4: Display all processes that are running by using the top command. (Keep this command running for the next few steps.)

Step 5: While in the top command, display the help screen.

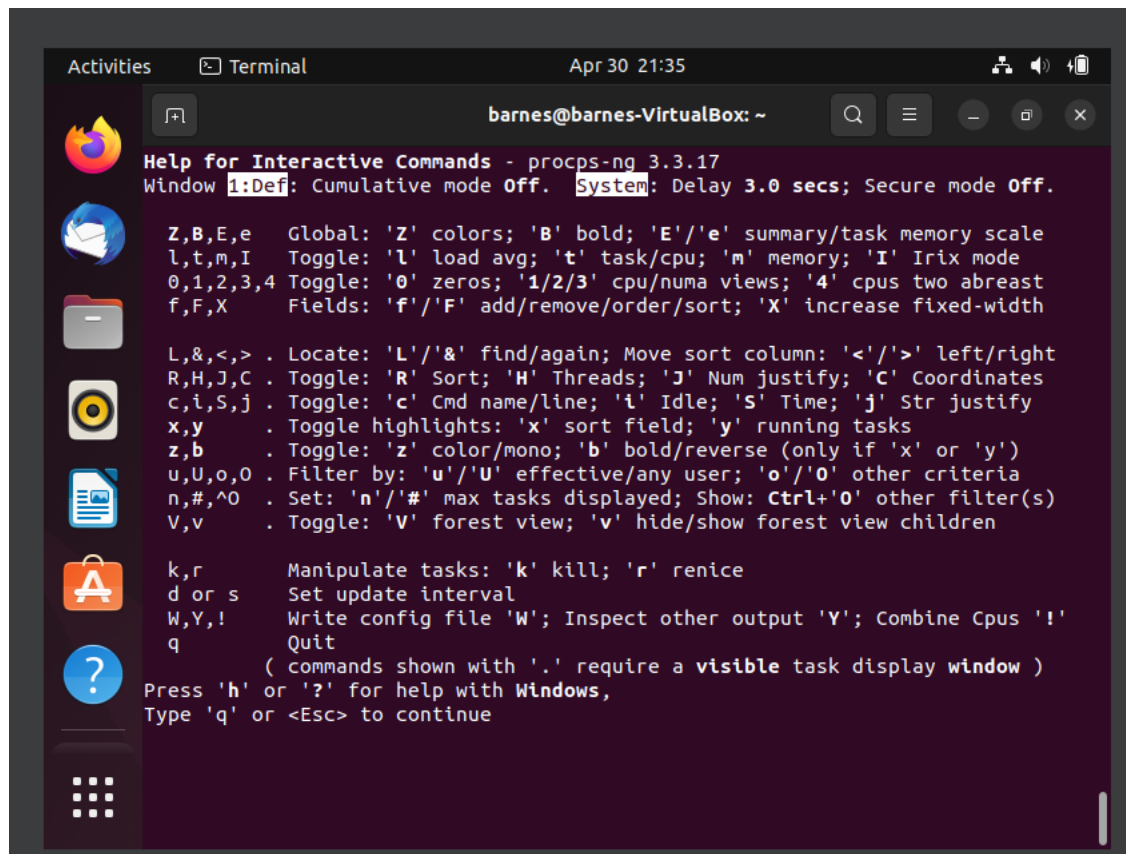
Step 6: Quit the top command.



```
Activities Terminal Apr 30 21:31
barnes@barnes-VirtualBox: ~
barnes 2072 1454 0 21:26 ? 00:00:00 update-notifier
barnes 2310 1454 0 21:27 ? 00:00:00 /usr/libexec/deja-dup/deja-
barnes 2323 1985 0 21:27 pts/0 00:00:00 ps -fe
barnes@barnes-VirtualBox:~$ top -d 5

top - 21:31:40 up 7 min, 1 user, load average: 0.05, 0.34, 0.23
Tasks: 184 total, 2 running, 182 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.4 us, 0.1 sy, 0.0 ni, 99.5 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 3204.8 total, 1610.2 free, 651.1 used, 943.5 buff/cache
MiB Swap: 1370.0 total, 1370.0 free, 0.0 used. 2369.3 avail Mem

  PID USER      PR  NI   VIRT   RES   SHR  S  %CPU  %MEM    TIME+  COMMAND
 1474 barnes    20   0 3971532 329352 125304 S   1.0  10.0   0:08.87 gnome-+
   38 root        20   0     0     0     0  I   0.2   0.0   0:00.09 kworke+
 1967 barnes    20   0 562540 52840 40332 S   0.2   1.6   0:00.96 gnome-+
 2402 barnes    20   0 21736 4072 3368 R   0.2   0.1   0:00.04 top
    1 root        20   0 166792 11924 8256 S   0.0   0.4   0:01.21 systemd
    2 root        20   0     0     0     0  S   0.0   0.0   0:00.00 kthrea+
    3 root         0 -20     0     0     0  I   0.0   0.0   0:00.00 rcu_gp
    4 root         0 -20     0     0     0  I   0.0   0.0   0:00.00 rcu_pa+
    5 root         0 -20     0     0     0  I   0.0   0.0   0:00.00 slub_f+
    6 root         0 -20     0     0     0  I   0.0   0.0   0:00.00 netns
    8 root         0 -20     0     0     0  I   0.0   0.0   0:00.00 kworke+
   10 root         0 -20     0     0     0  I   0.0   0.0   0:00.00 mm_per+
   11 root        20   0     0     0     0  S   0.0   0.0   0:00.00 rcu_ta+
   12 root        20   0     0     0     0  S   0.0   0.0   0:00.00 rcu_ta+
   13 root        20   0     0     0     0  S   0.0   0.0   0:00.14 ksoftt+
   14 root        20   0     0     0     0  I   0.0   0.0   0:00.27 rcu_sc+
   15 root        rt    0     0     0     0  S   0.0   0.0   0:00.00 migrat+
```



```
Activities  Terminal  Apr 30 21:35
barnes@barnes-VirtualBox: ~
Help for Interactive Commands - procps-ng 3.3.17
Window 1:Def: Cumulative mode Off. System: Delay 3.0 secs; Secure mode Off.

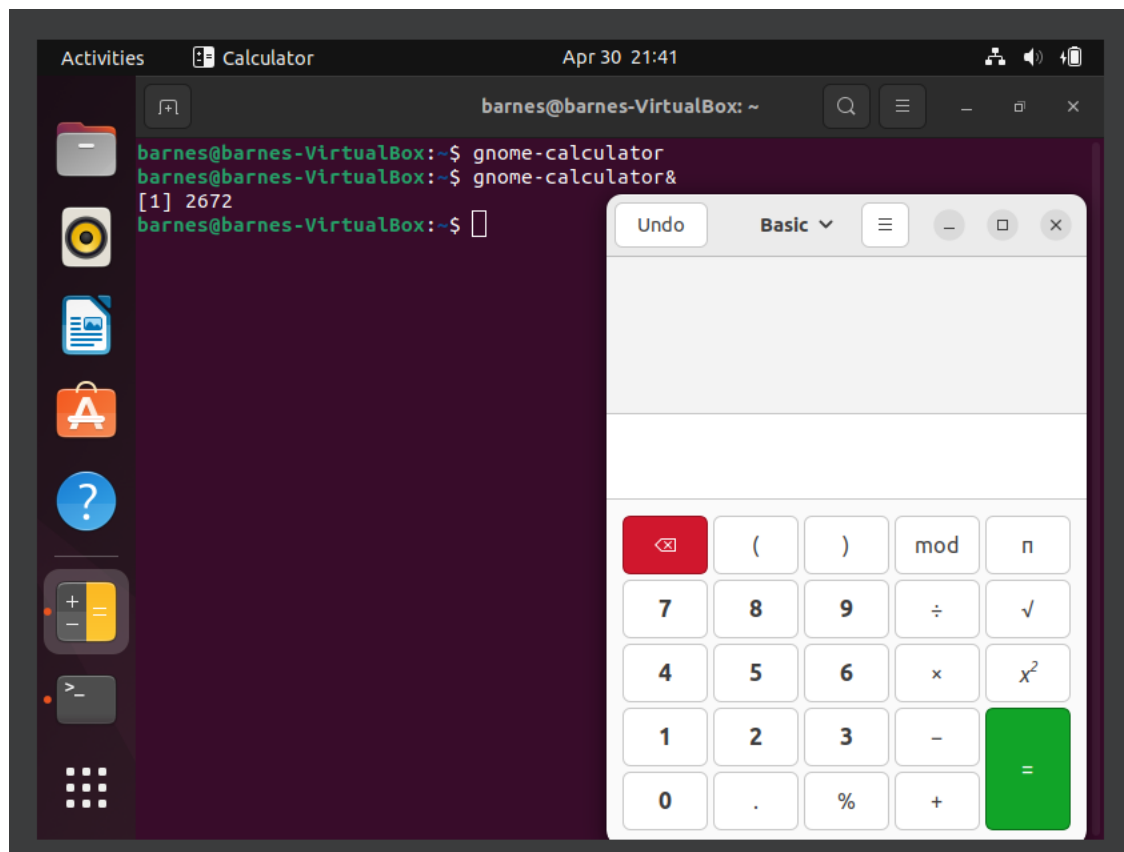
Z,B,E,e  Global: 'Z' colors; 'B' bold; 'E'/'e' summary/task memory scale
l,t,m,I  Toggle: 'l' load avg; 't' task/cpu; 'm' memory; 'I' Irix mode
0,1,2,3,4 Toggle: '0' zeros; '1/2/3' cpu/numa views; '4' cpus two abreast
f,F,X    Fields: 'f'/'F' add/remove/order/sort; 'X' increase fixed-width

L,&,<,> . Locate: 'L'/'&' find/again; Move sort column: '<'/'>' left/right
R,H,J,C . Toggle: 'R' Sort; 'H' Threads; 'J' Num justify; 'C' Coordinates
c,i,S,j . Toggle: 'c' Cmd name/line; 'i' Idle; 'S' Time; 'j' Str justify
x,y     . Toggle highlights: 'x' sort field; 'y' running tasks
z,b     . Toggle: 'z' color/mono; 'b' bold/reverse (only if 'x' or 'y')
u,U,o,o . Filter by: 'u'/'U' effective/any user; 'o'/'O' other criteria
n,#,^O . Set: 'n'/'#' max tasks displayed; Show: Ctrl+O other filter(s)
V,v     . Toggle: 'V' forest view; 'v' hide/show forest view children

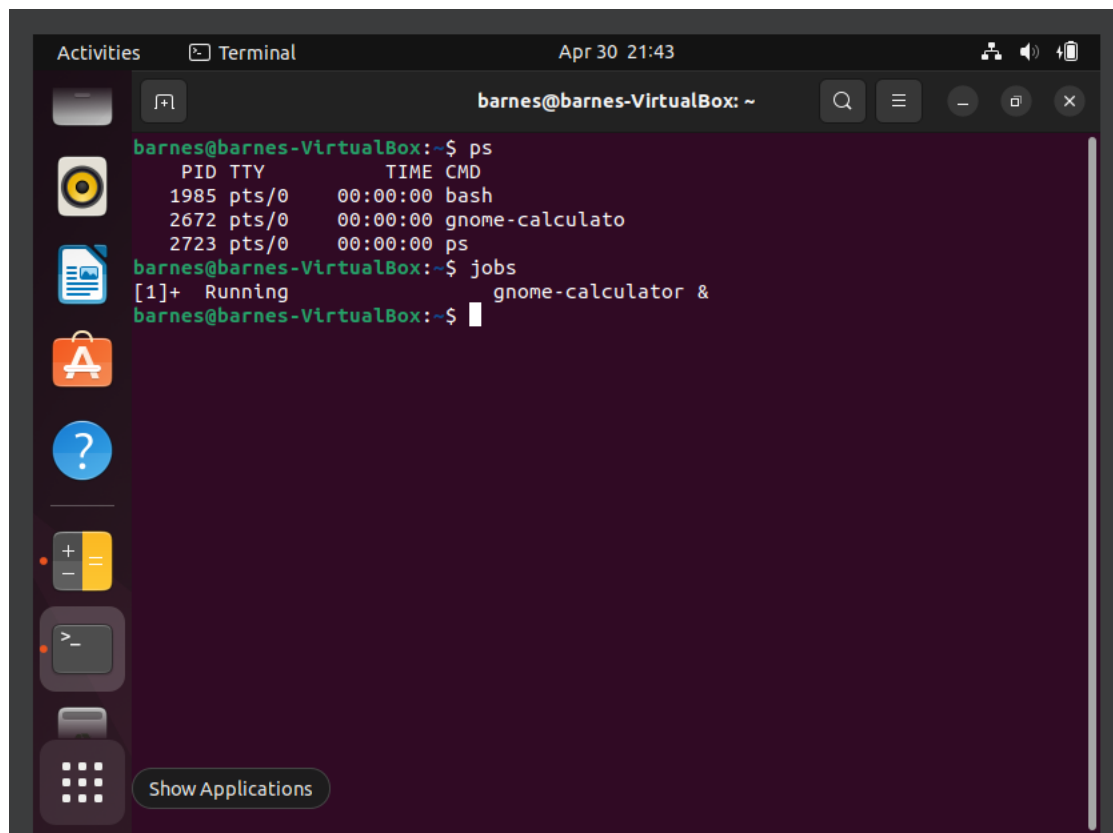
k,r     Manipulate tasks: 'k' kill; 'r' renice
d or s  Set update interval
W,Y,!   Write config file 'W'; Inspect other output 'Y'; Combine Cpus '!'
q       Quit
        ( commands shown with '.' require a visible task display window )
Press 'h' or '?' for help with Windows,
Type 'q' or <Esc> to continue
```

Command q to quit top command.

Step 7: Execute the gnome-calculator program in the background.



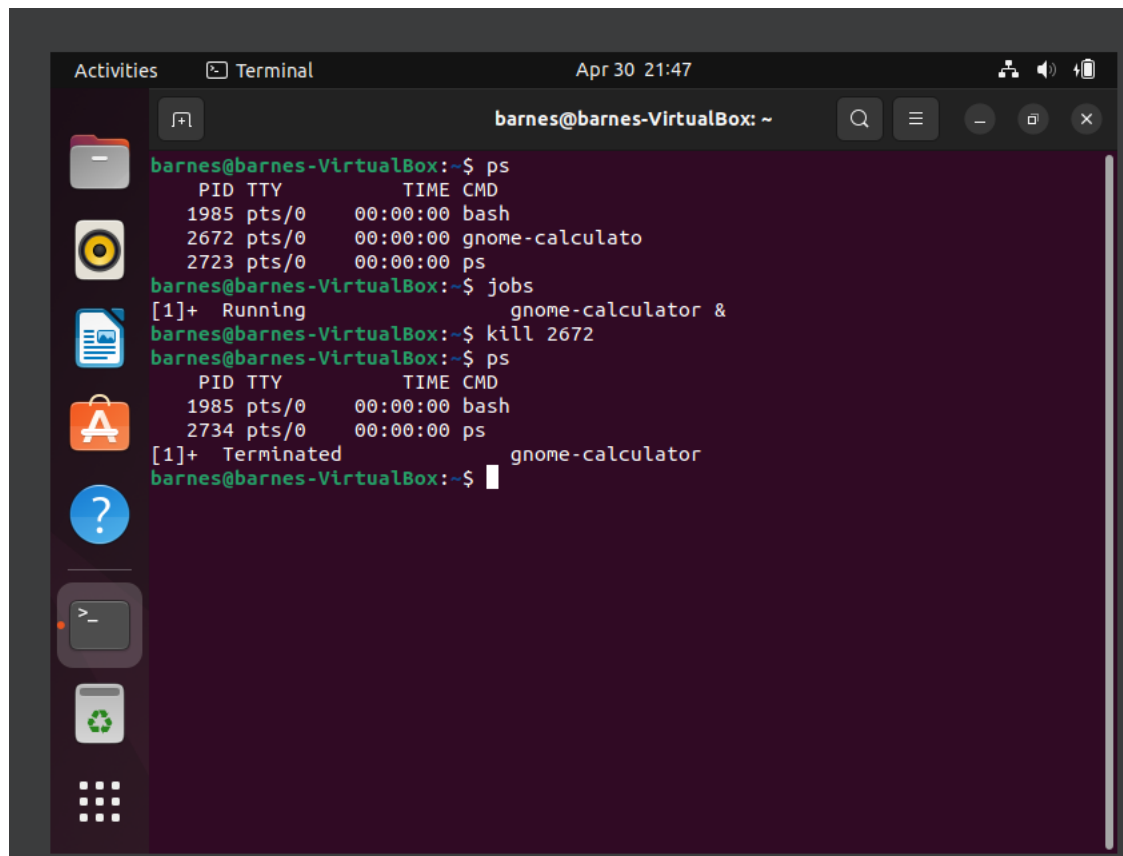
Step 8: In the current shell, list all running jobs.

A terminal window titled 'barnes@barnes-VirtualBox: ~' with a search icon, menu icon, and window control buttons. The terminal shows the output of the 'ps' command, which lists three processes: 'bash' (PID 1985), 'gnome-calculato' (PID 2672), and 'ps' (PID 2723). Below this, the 'jobs' command is executed, showing '[1]+ Running gnome-calculator &'. The terminal has a dark purple background and a light green prompt. On the left side of the terminal window, there is a vertical dock with icons for Activities, Terminal, and various applications like a calculator, a document, and a terminal. At the bottom of the dock is a 'Show Applications' button.

```
barnes@barnes-VirtualBox: ~  
barnes@barnes-VirtualBox:~$ ps  
  PID TTY          TIME CMD  
 1985 pts/0    00:00:00 bash  
 2672 pts/0    00:00:00 gnome-calculato  
 2723 pts/0    00:00:00 ps  
barnes@barnes-VirtualBox:~$ jobs  
[1]+  Running                  gnome-calculator &  
barnes@barnes-VirtualBox:~$
```

step-9: Use the killall command to stop (kill) all instances of the gnome-calculator program.

Step 10. In the current shell, use the ps command to list all running processes.

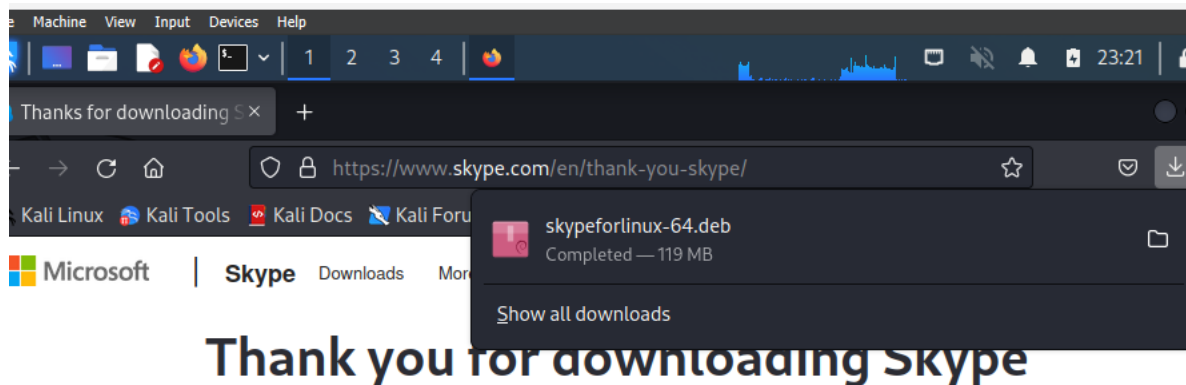


A terminal window titled 'barnes@barnes-VirtualBox: ~' showing the following commands and output:

```
barnes@barnes-VirtualBox:~$ ps
  PID TTY          TIME CMD
 1985 pts/0    00:00:00 bash
 2672 pts/0    00:00:00 gnome-calculato
 2723 pts/0    00:00:00 ps
barnes@barnes-VirtualBox:~$ jobs
[1]+  Running                  gnome-calculator &
barnes@barnes-VirtualBox:~$ kill 2672
barnes@barnes-VirtualBox:~$ ps
  PID TTY          TIME CMD
 1985 pts/0    00:00:00 bash
 2734 pts/0    00:00:00 ps
[1]+  Terminated              gnome-calculator
barnes@barnes-VirtualBox:~$
```

Task B: Package Installation

Step 1. Download the installation package (deb file) for skype in Linux and install it properly.



```
branden@bbarn024: ~/Downloads
File Actions Edit View Help
(branden@bbarn024)-[~]
$ pwd
/home/branden
(branden@bbarn024)-[~]
$ ls
bash2.sh  bbarn.hash  directory.sh  Downloads  midas.sh  Pictures  rockyou.txt  {test_dir}
bash.sh   Desktop     Documents     lab9.sh    Music     Public    Templates    Videos
(branden@bbarn024)-[~]
$ ls downloads
ls: cannot access 'downloads': No such file or directory
(branden@bbarn024)-[~]
$ ls Downloads
skypeforlinux-64.deb
(branden@bbarn024)-[~]
$ cd Downloads
(branden@bbarn024)-[~/Downloads]
$ sudo dpkg -i skypeforlinux-64.deb
sudo: unable to resolve host bbarn024: Name or service not known
[sudo] password for branden:
Selecting previously unselected package skypeforlinux.
(Reading database ... 393460 files and directories currently installed.)
Preparing to unpack skypeforlinux-64.deb ...
Unpacking skypeforlinux (8.97.0.204) ...
```

Step 2. Create a backup file for the sources.list named source.list.bk in your Linux system. Display the contents in both files, and make sure they are identical.

```
(branden@bbarn024)-[~/Downloads]
$ cp /etc/apt/sources.list sources.list.bk
(branden@bbarn024)-[~/Downloads]
$ ls
skypeforlinux-64.deb  sources.list.bk
```

Step 3. Delete everything in the source.list file. Now try to download the package “joe” by using apt get install command. What error do you see?

```
(branden@bbarn024)-[~/Downloads]
$ sudo rm /etc/apt/sources.list
sudo: unable to resolve host bbarn024: Name or service not known
(branden@bbarn024)-[~/Downloads]
$ sudo apt install joe
sudo: unable to resolve host bbarn024: Name or service not known
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
E: Unable to locate package joe
(branden@bbarn024)-[~/Downloads]
$
```

Step 4. Recover the sources.list from the backup file, then try to download the “joe” file again. You should be able to install joe this time.

```
(branden@bbarn024)-[~/Downloads]
$ sudo cp sources.list.bk /etc/apt/sources.list
sudo: unable to resolve host bbarn024: Name or service not known

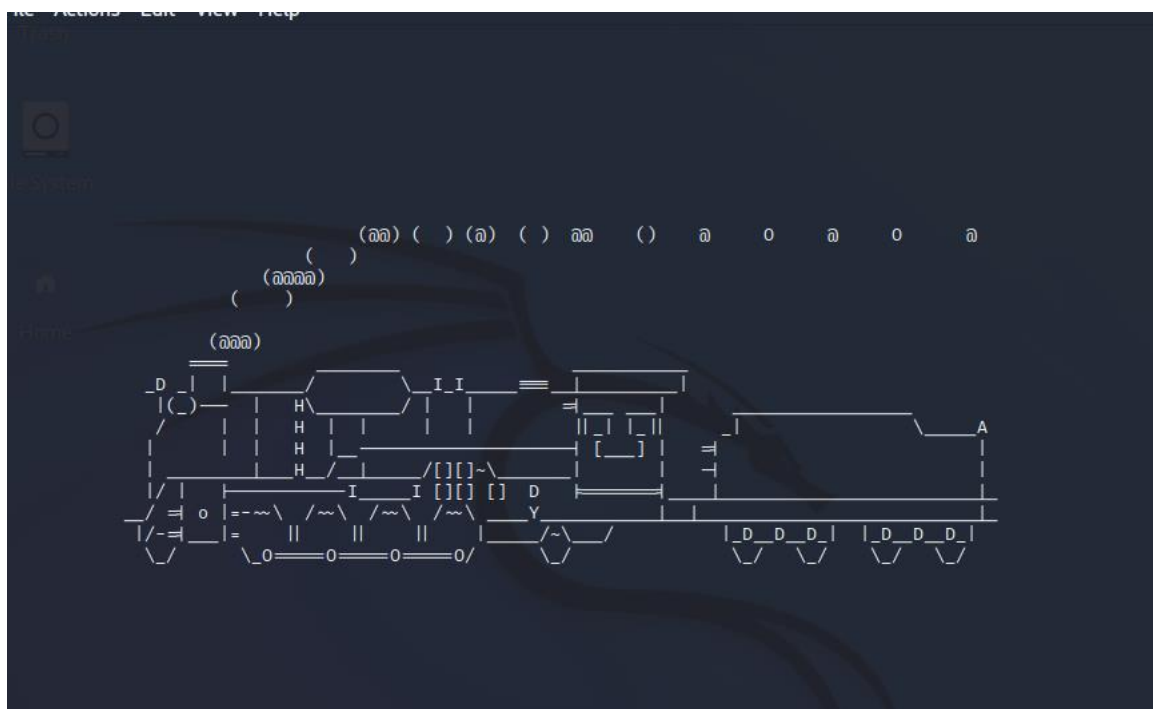
(branden@bbarn024)-[~/Downloads]
$
```

```
(branden@bbarn024)-[~/Downloads]
$ sudo apt install joe
sudo: unable to resolve host bbarn024: Name or service not known
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  joe
0 upgraded, 1 newly installed, 0 to remove and 1265 not upgraded.
Need to get 530 kB of archives.
```

Step 5. Install and play the “sl” command.

```
(branden@bbarn024)-[~/Downloads]
$ sudo apt install sl
sudo: unable to resolve host bbarn024: Name or service not known
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  sl
0 upgraded, 1 newly installed, 0 to remove and 1265 not upgraded.
Need to get 13.2 kB of archives.
After this operation, 61.4 kB of additional disk space will be used.
Get:1 http://http.kali.org/kali kali-rolling/main amd64 sl amd64 5.02-1+b1
Fetched 13.2 kB in 0s (38.7 kB/s)
Selecting previously unselected package sl.
(Reading database ... 393460 files and directories currently installed.)
Preparing to unpack .../sl_5.02-1+b1_amd64.deb ...
Unpacking sl (5.02-1+b1) ...
Setting up sl (5.02-1+b1) ...
Processing triggers for man-db (2.11.0-1+b1) ...

(branden@bbarn024)-[~/Downloads]
$
```

Step 6. Install and play the “cowsay” command.

```
(branden@bbarn024)-[~/Downloads]
$ sudo apt install cowsay
sudo: unable to resolve host bbarn024: Name or service not known
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Suggested packages:
  filters cowsay-off
The following NEW packages will be installed:
  cowsay
0 upgraded, 1 newly installed, 0 to remove and 1265 not upgraded.
Need to get 21.4 kB of archives.
After this operation, 94.2 kB of additional disk space will be used.
Get:1 http://http.kali.org/kali kali-rolling/main amd64 cowsay all 3.03+dfsg2-8 [21.4 kB]
Fetched 21.4 kB in 0s (56.0 kB/s)
Selecting previously unselected package cowsay.
(Reading database ... 393484 files and directories currently installed.)
Preparing to unpack .../cowsay_3.03+dfsg2-8_all.deb ...
Unpacking cowsay (3.03+dfsg2-8) ...
Setting up cowsay (3.03+dfsg2-8) ...
Processing triggers for man-db (2.11.0-1+b1) ...

(branden@bbarn024)-[~/Downloads]
$
```

```
(branden@bbarn024)-[~/Downloads]
$ cowsay hey
< hey >
  \      ^__^
   \      (oo)\_______
      (_____)w      \
         ||----w |
         ||     ||
```

Step 7. Install and play the “cmatrix” command.

```
(branden@bbarn024)-[~/Downloads]
$ sudo apt install cmatrix
sudo: unable to resolve host bbarn024: Name or service not known
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Suggested packages:
  cmatrix-xfont
The following NEW packages will be installed:
  cmatrix
0 upgraded, 1 newly installed, 0 to remove and 1265 not upgraded.
Need to get 17.5 kB of archives.
After this operation, 53.2 kB of additional disk space will be used.
Get:1 http://mirrors.jevincanders.net/kali kali-rolling/main amd64 cmatrix amd64 2.0-3 [17.5 kB]
Fetched 17.5 kB in 0s (50.6 kB/s)
Selecting previously unselected package cmatrix.
(Reading database ... 393545 files and directories currently installed.)
Preparing to unpack .../cmatrix_2.0-3_amd64.deb ...
Unpacking cmatrix (2.0-3) ...
Setting up cmatrix (2.0-3) ...
Processing triggers for mailcap (3.70+nmu1) ...
Processing triggers for kali-menu (2022.4.1) ...
Processing triggers for desktop-file-utils (0.26-1) ...
Processing triggers for man-db (2.11.0-1+b1) ...

(branden@bbarn024)-[~/Downloads]
```

```
D [ D % J 6 ( 2 x ! ! J r % ) / 1 , ] = a g E
3 y S ( 5 6 q > ( R r k ! ! J C ? % L X # y Q ^
' > N 8 c ' C " q > ( O _ j S t S e Y t 5 E o c n S
9 f # 6 = " X J _ p a w 3 . M w 2 H O ; T c f ' S
H n q i d 5 K 9 V h , 1 . C Q $ $ q b h $ $ b S '
y K C d 5 K 9 V h , 1 . C Q $ $ q b h $ $ b S '
- J + ' F Z ( \ 6 0 U 3 ) / q I M a y > H - H Y +
R j ) ' p ( - E O ' U ' 6 / ) / @ H I M a y > H -
* 1 v 7 G # = h a ! ' 9 / z H / b g i S e V g #
Q Q S h 5 K 9 V h , 1 . C Q $ $ q b h $ $ b S '
Q 3 c z : J T s Y / . ? _ ( 4 s - ' J -
2 l n A D Q y 3 L R . < x 6 K y % H v -
6 , K " " y E < F 8 u [ t ? N 9 5 % H v -
b ] " y q y \ w C ; x X ^ n T i 6 .
d ! ( 7 q y \ I 5 R f s K S V L ! +
k 1 y ] A x P [ ? j % ; r 6 V g i 6 .
M C c q A " > x I 5 R f s K S V L ! +
t t k X " > x I 5 R f s K S V L ! +
T ; F u p N ( - h - p F < - i :
L < A > O K 9 J ! K . 5 9 C [ @ b ^ $ Z 3
O ^ i 8 ! 0 N A J ! K . 5 9 C [ @ b ^ $ Z 3
L k _ h N * [ D B B = . T at [ @ b ^ $ Z 3
F q v M @ E > l 3 . T at [ @ b ^ $ Z 3
V G y j @ B g : t 6 N k . [ p V !
u [ p V ! s o 0 9 % J 6 ? v u V L 9
Q : % T C p p N 1 w X 0 R U L e 0 _ W 0
% S b N 1 6 . + ! / % Y x K 3
A N 1 w X 0 R U L e 0 _ W 0 [ W
6 x L > = n ( % , S % % W 0 / C
a m f x " p r 0 0 8 j C V R 9 o
T i _ l o % @ J / ) v 6 Y , V
= s J $ C ] 3 2 ( = J ( # 4 W ' F
L 7 / < " H < 0 q C a 5 e w I i 1
< J X # Y - ? V F d d a G @ A t # s < q V
```

