PRACTICAL 4

Kill process by name

Kill a process based on the process name

Kill a single process at a time with thegiven process ID

```
krupa_bawane@LAPTOP-AI4VE3LU:~$ ps aux
USER         PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root           1  0.0  0.1  21652 12800 ?        Ss   14:31   0:00 /usr/lib/systemd/systemd --system --deserialize=25
root           2  0.0  0.0   3120  1920 ?        Sl   14:31   0:00 /init
root           7  0.0  0.0   3136  1796 ?        Sl   14:31   0:00 plan9 --control-socket 7 --log-level 4 --server-fd 8 --pipe-fd 10 --log-truncate
root          53  0.0  0.1  66748 15504 ?        S<s  14:31   0:00 /usr/lib/systemd/systemd-journald
root         102  0.0  0.0  25136  5760 ?        Ss   14:31   0:00 /usr/lib/systemd/systemd-udevd
systemd+     112  0.0  0.1  21452 12544 ?        Ss   14:31   0:00 /usr/lib/systemd/systemd-resolved
systemd+     113  0.0  0.0  91020  7680 ?        Ssl  14:31   0:00 /usr/lib/systemd/systemd-timesyncd
root         169  0.0  0.0   4236  2432 ?        Ss   14:31   0:00 /usr/sbin/cron -f -P
message+     170  0.0  0.0   9660  4864 ?        Ss   14:31   0:00 @dbus-daemon --system --address=systemd: --nofork --nopidfile --systemd-activation --sysl
root         183  0.0  0.1  17964  8320 ?        Ss   14:31   0:00 /usr/lib/systemd/systemd-logind
root         185  0.0  0.1 1755840 12416 ?       Ssl  14:31   0:00 /usr/libexec/wsl-pro-service -vv
syslog       204  0.0  0.0 222508  5504 ?        Ssl  14:31   0:00 /usr/sbin/rsyslogd -n -iNONE
root         206  0.0  0.0   3160  1920 hvc0     Ss+  14:31   0:00 /sbin/agetty -o -p -- \u --noclear --keep-baud - 115200,38400,9600 vt220
root         209  0.0  0.0   3116  1792 tty1     Ss+  14:31   0:00 /sbin/agetty -o -p -- \u --noclear - linux
root         224  0.0  0.2 107008 21888 ?        Ssl  14:31   0:00 /usr/bin/python3 /usr/share/unattended-upgrades/unattended-upgrade-shutdown --wait-for-si
root         307  0.0  0.0   6692  4224 pts/1    Ss   14:31   0:00 /bin/login -f
krupa_b+     352  0.0  0.1  20308 11008 ?        Ss   14:31   0:00 /usr/lib/systemd/systemd --user
krupa_b+     354  0.0  0.0  21152  3516 ?        S    14:31   0:00 (sd-pam)
krupa_b+     411  0.0  0.0   6072  4992 pts/1    S+   14:31   0:00 -bash
root         503  0.0  0.0   3128   904 ?        Ss   14:35   0:00 /init
root         504  0.0  0.0   3144  1164 ?        S    14:35   0:00 /init
krupa_b+     505  0.0  0.0   6072  5248 pts/0    Ss+  14:35   0:00 -bash
polkitd      941  0.0  0.0 308160  7552 ?        Ssl  14:52   0:00 /usr/lib/polkit-1/polkitd --no-debug
root        2720  0.0  0.0   3128   904 ?        Ss   15:16   0:00 /init
root        2721  0.0  0.0   3144  1292 ?        S    15:16   0:00 /init
krupa_b+    2724  0.0  0.0   6072  5248 pts/2    Ss   15:16   0:00 -bash
krupa_b+    2753  0.0  0.0   8280  4224 pts/2    R+   15:19   0:00 ps aux
krupa_bawane@LAPTOP-AI4VE3LU:~$ ps aux | grep firefox
krupa_b+    2759  0.0  0.0   4088  2048 pts/2    S+   15:20   0:00 grep --color=auto firefox
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill 2759
-bash: kill: (2759) - No such process
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill PID
-bash: kill: PID: arguments must be process or job IDs
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill 2724
krupa_bawane@LAPTOP-AI4VE3LU:~$ pkill firefox
krupa_bawane@LAPTOP-AI4VE3LU:~$ |
```

Orphan Process:

```
  GNU nano 7.2                                    orphan.c
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <sys/types.h>
int main(){
pid_t pid = fork();
if(pid>0){
printf("Parent existing...\n");
exit(0);
}
else if(pid==0){
sleep(5);
printf("Child is now an Orphan Process. PID:%d\n",getpid());
}
return 0;
}



                                          [ Read 17 lines ]
^G Help        ^O Write Out   ^W Where Is    ^K Cut         ^T Execute     ^C Location    M-U Undo       M-A Set Mark   M-] To Bracket
^X Exit        ^R Read File   ^\ Replace     ^U Paste       ^J Justify     ^/ Go To Line  M-E Redo       M-6 Copy       ^Q Where Was
```

```
root           1  0.0  0.1   21652 12800 ?        Ss   14:31   0:00 /usr/lib/systemd/systemd --system --deserialize=25
root           2  0.0  0.0    3120  1920 ?        Sl   14:31   0:00 /init
root           7  0.0  0.0    3136  1796 ?        Sl   14:31   0:00 plan9 --control-socket 7 --log-level 4 --server-fd 8 --pipe-fd 10 --log-truncate
root          53  0.0  0.1   66748 15504 ?        S<s  14:31   0:00 /usr/lib/systemd/systemd-journald
root         102  0.0  0.0   25136  5760 ?        Ss   14:31   0:00 /usr/lib/systemd/systemd-udevd
systemd+     112  0.0  0.1   21452 12544 ?        Ss   14:31   0:00 /usr/lib/systemd/systemd-resolved
systemd+     113  0.0  0.0   91020  7680 ?        Ssl  14:31   0:00 /usr/lib/systemd/systemd-timesyncd
root         169  0.0  0.0    4236  2432 ?        Ss   14:31   0:00 /usr/sbin/cron -f -P
message+     170  0.0  0.0    9660  4864 ?        Ss   14:31   0:00 @dbus-daemon --system --address=systemd: --nofork --nopidfile --systemd-activation --sysl
root         183  0.0  0.1   17964  8320 ?        Ss   14:31   0:00 /usr/lib/systemd/systemd-logind
root         185  0.0  0.1 1755840 12416 ?        Ssl  14:31   0:00 /usr/libexec/wsl-pro-service -vv
syslog       204  0.0  0.0  222508  5504 ?        Ssl  14:31   0:00 /usr/sbin/rsyslogd -n -iNONE
root         206  0.0  0.0    3160  1920 hvc0     Ss+  14:31   0:00 /sbin/agetty -o -p -- \u --noclear --keep-baud - 115200,38400,9600 vt220
root         209  0.0  0.0    3116  1792 tty1     Ss+  14:31   0:00 /sbin/agetty -o -p -- \u --noclear - linux
root         224  0.0  0.2  107008 21888 ?        Ssl  14:31   0:00 /usr/bin/python3 /usr/share/unattended-upgrades/unattended-upgrade-shutdown --wait-for-si
root         307  0.0  0.0    6692  4224 pts/1    Ss   14:31   0:00 /bin/login -f
krupa_b+     352  0.0  0.1   20308 11008 ?        Ss   14:31   0:00 /usr/lib/systemd/systemd --user
krupa_b+     354  0.0  0.0   21152  3516 ?        S    14:31   0:00 (sd-pam)
krupa_b+     411  0.0  0.0    6072  4992 pts/1    S+   14:31   0:00 -bash
root         503  0.0  0.0    3128   904 ?        Ss   14:35   0:00 /init
root         504  0.0  0.0    3144  1164 ?        S    14:35   0:00 /init
krupa_b+     505  0.0  0.0    6072  5248 pts/0    Ss+  14:35   0:00 -bash
polkitd      941  0.0  0.0  308160  7552 ?        Ssl  14:52   0:00 /usr/lib/polkit-1/polkitd --no-debug
root        2720  0.0  0.0    3128   904 ?        Ss   15:16   0:00 /init
root        2721  0.0  0.0    3144  1292 ?        S    15:16   0:00 /init
krupa_b+    2724  0.0  0.0    6072  5248 pts/2    Ss   15:16   0:00 -bash
krupa_b+    2753  0.0  0.0    8280  4224 pts/2    R+   15:19   0:00 ps aux
krupa_bawane@LAPTOP-AI4VE3LU:~$ ps aux | grep firefox
krupa_b+    2759  0.0  0.0    4088  2048 pts/2    S+   15:20   0:00 grep --color=auto firefox
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill 2759
-bash: kill: (2759) - No such process
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill PID
-bash: kill: PID: arguments must be process or job IDs
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill 2724
krupa_bawane@LAPTOP-AI4VE3LU:~$ pkill firefox
krupa_bawane@LAPTOP-AI4VE3LU:~$ nano orphan.c
krupa_bawane@LAPTOP-AI4VE3LU:~$ gcc orphan.c -o orphan
krupa_bawane@LAPTOP-AI4VE3LU:~$ ./orphan
Parent existing...
krupa_bawane@LAPTOP-AI4VE3LU:~$ Child is now an Orphan Process. PID:2775
```

Zombie Process:

```
  GNU nano 7.2                                    zombie.c
#include <stdio.h>
#include <unistd.h>
#include <stdlib.h>
int main(){
int pid = fork();
if(pid>0){
printf("Parent sleeping... Look for Zombie now!\n");
sleep(30);
}
else{
printf("Child dying...\n");
exit(0);
}
return 0;
}




                                       [ Read 15 lines ]
^G Help      ^O Write Out  ^W Where Is   ^K Cut       ^T Execute   ^C Location   M-U Undo    M-A Set Mark   M-] To Bracket
^X Exit      ^R Read File  ^\ Replace    ^U Paste     ^J Justify   ^/ Go To Line M-E Redo    M-6 Copy       ^Q Where Was
```

```
root         169  0.0  0.0    4236   2432 ?        Ss   14:31   0:00 /usr/sbin/cron -f -P
message+     170  0.0  0.0    9660   4864 ?        Ss   14:31   0:00 @dbus-daemon --system --address=systemd: --nofork --nopidfile --systemd-activation --sysl
root         183  0.0  0.1   17964   8320 ?        Ss   14:31   0:00 /usr/lib/systemd/systemd-logind
root         185  0.0  0.1 1755840  12416 ?        Ssl  14:31   0:00 /usr/libexec/wsl-pro-service -vv
syslog       204  0.0  0.0  222508   5504 ?        Ssl  14:31   0:00 /usr/sbin/rsyslogd -n -iNONE
root         206  0.0  0.0    3160   1920 hvc0     Ss+  14:31   0:00 /sbin/agetty -o -p -- \u --noclear --keep-baud - 115200,38400,9600 vt220
root         209  0.0  0.0    3116   1792 tty1     Ss+  14:31   0:00 /sbin/agetty -o -p -- \u --noclear - linux
root         224  0.0  0.2  107008  21888 ?        Ssl  14:31   0:00 /usr/bin/python3 /usr/share/unattended-upgrades/unattended-upgrade-shutdown --wait-for-si
root         307  0.0  0.0    6692   4224 pts/1    Ss   14:31   0:00 /bin/login -f
krupa_b+     352  0.0  0.1   20308  11008 ?        Ss   14:31   0:00 /usr/lib/systemd/systemd --user
krupa_b+     354  0.0  0.0   21152   3516 ?        S    14:31   0:00 (sd-pam)
krupa_b+     411  0.0  0.0    6072   4992 pts/1    S+   14:31   0:00 -bash
root         503  0.0  0.0    3128    904 ?        Ss   14:35   0:00 /init
root         504  0.0  0.0    3144   1164 ?        S    14:35   0:00 /init
krupa_b+     505  0.0  0.0    6072   5248 pts/0    Ss+  14:35   0:00 -bash
polkitd      941  0.0  0.0  308160   7552 ?        Ssl  14:52   0:00 /usr/lib/polkit-1/polkitd --no-debug
root        2720  0.0  0.0    3128    904 ?        Ss   15:16   0:00 /init
root        2721  0.0  0.0    3144   1292 ?        S    15:16   0:00 /init
krupa_b+    2724  0.0  0.0    6072   5248 pts/2    Ss   15:16   0:00 -bash
krupa_b+    2753  0.0  0.0    8280   4224 pts/2    R+   15:19   0:00 ps aux
krupa_bawane@LAPTOP-AI4VE3LU:~$ ps aux | grep firefox
krupa_b+    2759  0.0  0.0    4088   2048 pts/2    S+   15:20   0:00 grep --color=auto firefox
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill 2759
-bash: kill: (2759) - No such process
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill PID
-bash: kill: PID: arguments must be process or job IDs
krupa_bawane@LAPTOP-AI4VE3LU:~$ kill 2724
krupa_bawane@LAPTOP-AI4VE3LU:~$ pkill firefox
krupa_bawane@LAPTOP-AI4VE3LU:~$ nano orphan.c
krupa_bawane@LAPTOP-AI4VE3LU:~$ gcc orphan.c -o orphan
krupa_bawane@LAPTOP-AI4VE3LU:~$ ./orphan
Parent existing...
krupa_bawane@LAPTOP-AI4VE3LU:~$ Child is now an Orphan Process. PID:2775

krupa_bawane@LAPTOP-AI4VE3LU:~$ nano zombie.c
krupa_bawane@LAPTOP-AI4VE3LU:~$ nano zombie.c
krupa_bawane@LAPTOP-AI4VE3LU:~$ gcc zombie.c -o zombie
krupa_bawane@LAPTOP-AI4VE3LU:~$ ./zombie &
[1] 2792
krupa_bawane@LAPTOP-AI4VE3LU:~$ Child process existing...
```
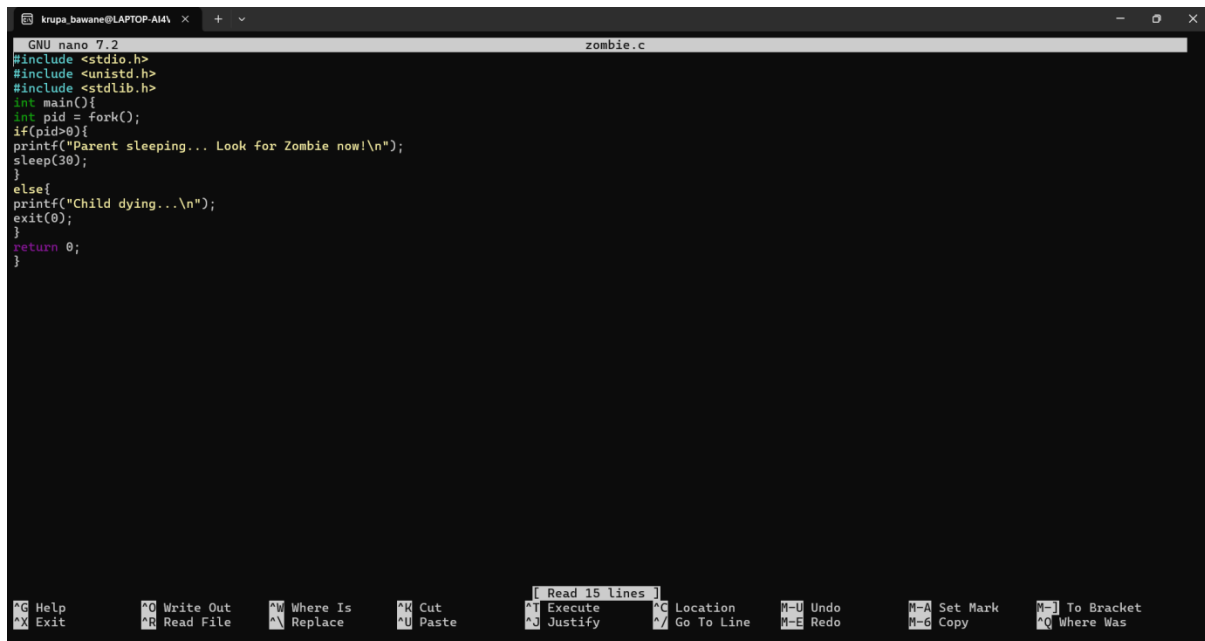
```
[1]+  Done                    ./zombie
krupa_bawane@LAPTOP-AI4VE3LU:~$ ps - | grep Z
error: garbage option

Usage:
 ps [options]

 Try 'ps --help <simple|list|output|threads|misc|all>'
  or 'ps --help <s|l|o|t|m|a>'
 for additional help text.

For more details see ps(1).
krupa_bawane@LAPTOP-AI4VE3LU:~$ nano zombie.c
krupa_bawane@LAPTOP-AI4VE3LU:~$ gcc zombie.c -o zombie
krupa_bawane@LAPTOP-AI4VE3LU:~$ ./zombie &
[1] 2809
krupa_bawane@LAPTOP-AI4VE3LU:~$ Parent sleeping... Look for Zombie now!
Child dying...
ps - | grep Z
error: garbage option

Usage:
 ps [options]

 Try 'ps --help <simple|list|output|threads|misc|all>'
  or 'ps --help <s|l|o|t|m|a>'
 for additional help text.

For more details see ps(1).
krupa_bawane@LAPTOP-AI4VE3LU:~$ ps -el | grep Z
F S   UID     PID    PPID  C PRI  NI ADDR SZ WCHAN  TTY          TIME CMD
[1]+  Done                    ./zombie
krupa_bawane@LAPTOP-AI4VE3LU:~$ ./zombie &
[1] 2821
krupa_bawane@LAPTOP-AI4VE3LU:~$ Parent sleeping... Look for Zombie now!
Child dying...
ps -el | grep Z
F S   UID     PID    PPID  C PRI  NI ADDR SZ WCHAN  TTY          TIME CMD
1 Z  1000    2822    2821  0  80   0 -     0 -      pts/2    00:00:00 zombie
krupa_bawane@LAPTOP-AI4VE3LU:~$
```
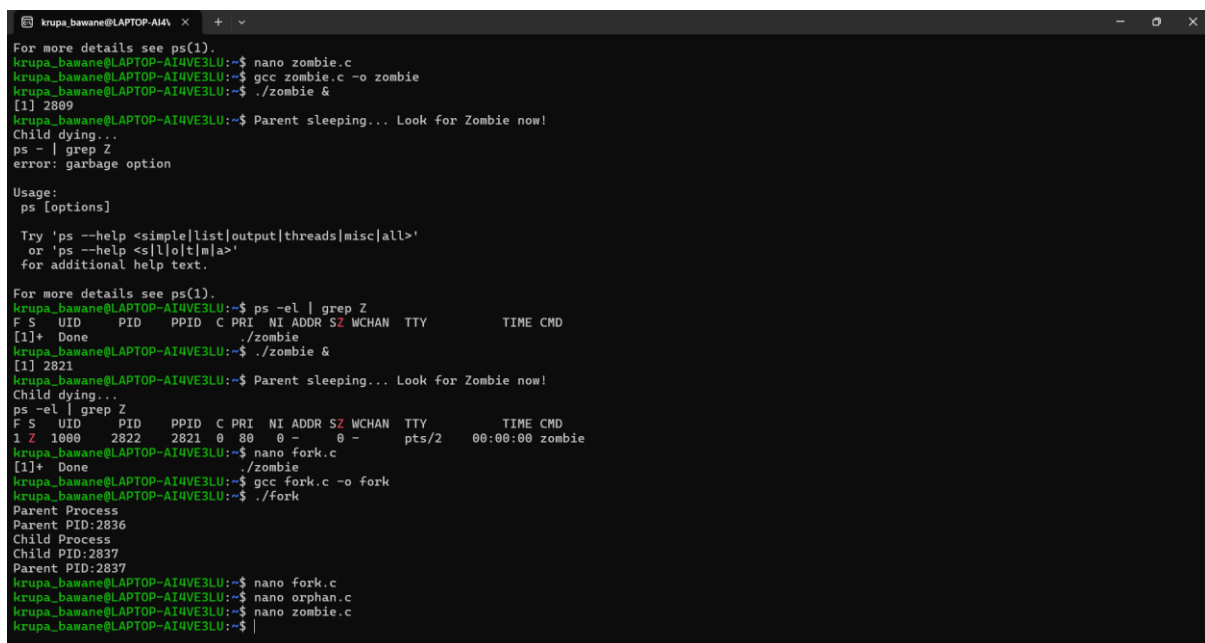
Using fork() system:
Child Process creation
Parent process creation
PPID AND PID


```c
#include <stdio.h>
#include <unistd.h>
#include <stdlib.h>
int main(){
int pid = fork();
if(pid>0){
printf("Parent sleeping... Look for Zombie now!\n");
sleep(30);
}
else{
printf("Child dying...\n");
exit(0);
}
return 0;
}
```



```
For more details see ps(1).
krupa_bawane@LAPTOP-AI4VE3LU:~$ nano zombie.c
krupa_bawane@LAPTOP-AI4VE3LU:~$ gcc zombie.c -o zombie
krupa_bawane@LAPTOP-AI4VE3LU:~$ ./zombie &
[1] 2809
krupa_bawane@LAPTOP-AI4VE3LU:~$ Parent sleeping... Look for Zombie now!
Child dying...
ps - | grep Z
error: garbage option

Usage:
 ps [options]

 Try 'ps --help <simple|list|output|threads|misc|all>'
  or 'ps --help <s|l|o|t|m|a>'
 for additional help text.

For more details see ps(1).
krupa_bawane@LAPTOP-AI4VE3LU:~$ ps -el | grep Z
F S   UID    PID   PPID C PRI  NI ADDR SZ WCHAN  TTY          TIME CMD
[1]+  Done                    ./zombie
krupa_bawane@LAPTOP-AI4VE3LU:~$ ./zombie &
[1] 2821
krupa_bawane@LAPTOP-AI4VE3LU:~$ Parent sleeping... Look for Zombie now!
Child dying...
ps -el | grep Z
F S   UID    PID   PPID C PRI  NI ADDR SZ WCHAN  TTY          TIME CMD
1 Z  1000   2822   2821 0 80   0 -     0 -      pts/2    00:00:00 zombie
krupa_bawane@LAPTOP-AI4VE3LU:~$ nano fork.c
[1]+  Done                    ./zombie
krupa_bawane@LAPTOP-AI4VE3LU:~$ gcc fork.c -o fork
krupa_bawane@LAPTOP-AI4VE3LU:~$ ./fork
Parent Process
Parent PID:2836
Child Process
Child PID:2837
Parent PID:2837
krupa_bawane@LAPTOP-AI4VE3LU:~$ nano fork.c
krupa_bawane@LAPTOP-AI4VE3LU:~$ nano orphan.c
krupa_bawane@LAPTOP-AI4VE3LU:~$ nano zombie.c
krupa_bawane@LAPTOP-AI4VE3LU:~$
```