Operációs rendszerek BSc

3. Gyakorlat

2021-02-24

Készítette:

Munkácsi Levente

Mérnökinformatikus BSs

L1FRRZ

Miskolc, 2021

1. feladat: 3A/4/a,b,c

2. feladat: 3B/1

```
                              user@Debian: ~                          ×

 File  Edit  View  Search  Terminal  Help

top - 16:55:18 up 3 min,  3 users,  load average: 0.34, 0.68, 0.34
Tasks: 188 total,   1 running, 187 sleeping,   0 stopped,   0 zombie
%Cpu(s):  0.0 us,  0.0 sy,  0.0 ni,100.0 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
KiB Mem :  4050508 total,  2586744 free,   612608 used,   851156 buff/cache
KiB Swap:  2097148 total,  2097148 free,        0 used.  3184292 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU %MEM     TIME+ COMMAND
 3711 root      20   0   44904   3788   3172 R   0.3  0.1   0:00.12 top
    1 root      20   0  204772   7076   5276 S   0.0  0.2   0:01.28 systemd
    2 root      20   0       0      0      0 S   0.0  0.0   0:00.00 kthreadd
    3 root      20   0       0      0      0 S   0.0  0.0   0:00.51 ksoftirqd/0
    4 root      20   0       0      0      0 S   0.0  0.0   0:00.00 kworker/0:0
    5 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 kworker/0:+
    6 root      20   0       0      0      0 S   0.0  0.0   0:00.00 kworker/u8+
    7 root      20   0       0      0      0 S   0.0  0.0   0:00.27 rcu_sched
    8 root      20   0       0      0      0 S   0.0  0.0   0:00.00 rcu_bh
    9 root      rt   0       0      0      0 S   0.0  0.0   0:00.00 migration/0
   10 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 lru-add-dr+
   11 root      rt   0       0      0      0 S   0.0  0.0   0:00.00 watchdog/0
   12 root      20   0       0      0      0 S   0.0  0.0   0:00.00 cpuhp/0
   13 root      20   0       0      0      0 S   0.0  0.0   0:00.00 cpuhp/1
   14 root      rt   0       0      0      0 S   0.0  0.0   0:00.00 watchdog/1
   15 root      rt   0       0      0      0 S   0.0  0.0   0:00.00 migration/1
   16 root      20   0       0      0      0 S   0.0  0.0   0:00.00 ksoftirqd/1
```

top parancs valós időben mutatja a processeket

```
                              user@Debian: ~                          ×

 File  Edit  View  Search  Terminal  Help

root@Debian:~# vmstat
procs -----------memory---------- ---swap-- -----io---- -system-- ------cpu-----
 r  b   swpd   free   buff  cache   si   so    bi    bo   in   cs us sy id wa st
 1  0      0 2610916  61652 794772    0    0   238   227  204  278  4  1 88  7
 0
root@Debian:~# vmstat -a
procs -----------memory---------- ---swap-- -----io---- -system-- ------cpu-----
 r  b   swpd   free  inact active   si   so    bi    bo   in   cs us sy id wa st
 1  0      0 2610792 386844 901960    0    0   235   225  202  275  4  1 89  6
 0
root@Debian:~# vmstat -m
Cache                      Num   Total   Size  Pages
fuse_request                 0       0    400     10
fuse_inode                   1       9    832      9
ext4_groupinfo_1k           31      60    136     30
ext4_groupinfo_4k           47      56    144     28
ext4_inode_cache         15924   15939   1080      3
ext4_allocation_context      0       0    128     32
ext4_io_end                  0       0     64     64
ext4_extent_status       11276   11385     40     99
jbd2_journal_head            7      72    112     36
jbd2_revoke_table_s          2     240     16    240
jbd2_revoke_record_s         0       0     32    124
fscrypt_info                 0       0     24    163
```

vmstat [-a -m] : rendszer aktivitásról, a hardverről és a rendszerről nyújt információkat.

```
                           user@Debian: ~                          ×

File   Edit   View   Search   Terminal   Help

root@Debian:~# w
 17:04:55 up 13 min,  3 users,  load average: 0.00, 0.09, 0.16
USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
user     tty2     /dev/tty2        16:54   13:30   7.98s  0.02s /usr/lib/gnome-
root@Debian:~# w user
 17:05:05 up 13 min,  3 users,  load average: 0.00, 0.08, 0.16
USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
user     tty2     /dev/tty2        16:54   13:40   8.07s  0.02s /usr/lib/gnome-
root@Debian:~# w xyz
 17:05:12 up 13 min,  3 users,  load average: 0.00, 0.08, 0.16
USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
root@Debian:~# who
user     tty2         2021-02-27 16:54 (/dev/tty2)
root@Debian:~# whoami
root
root@Debian:~# uname
Linux
root@Debian:~# ps
 PID TTY          TIME CMD
3699 pts/0    00:00:00 su
3705 pts/0    00:00:00 bash
3981 pts/0    00:00:00 ps
```

```
                           user@Debian: ~                          ×

File   Edit   View   Search   Terminal   Help

root@Debian:~# ps -A
 PID TTY          TIME CMD
    1 ?        00:00:01 systemd
    2 ?        00:00:00 kthreadd
    3 ?        00:00:00 ksoftirqd/0
    5 ?        00:00:00 kworker/0:0H
    7 ?        00:00:00 rcu_sched
    8 ?        00:00:00 rcu_bh
    9 ?        00:00:00 migration/0
   10 ?        00:00:00 lru-add-drain
   11 ?        00:00:00 watchdog/0
   12 ?        00:00:00 cpuhp/0
   13 ?        00:00:00 cpuhp/1
   14 ?        00:00:00 watchdog/1
   15 ?        00:00:00 migration/1
   16 ?        00:00:00 ksoftirqd/1
   18 ?        00:00:00 kworker/1:0H
   19 ?        00:00:00 cpuhp/2
   20 ?        00:00:00 watchdog/2
   21 ?        00:00:00 migration/2
   22 ?        00:00:00 ksoftirqd/2
   24 ?        00:00:00 kworker/2:0H
   25 ?        00:00:00 cpuhp/3
   26 ?        00:00:00 watchdog/3
```

```
user@Debian: ~                                                    ×

File   Edit   View   Search   Terminal   Help

root@Debian:~# ps -Al
F S   UID    PID   PPID   C PRI   NI ADDR SZ WCHAN   TTY           TIME CMD
4 S     0      1      0   0  80    0 - 51193 SyS_ep  ?         00:00:01 systemd
1 S     0      2      0   0  80    0 -     0 -       ?         00:00:00 kthreadd
1 S     0      3      2   0  80    0 -     0 -       ?         00:00:00 ksoftirqd/0
1 S     0      5      2   0  60  -20 -     0 -       ?         00:00:00 kworker/0:0H
1 S     0      7      2   0  80    0 -     0 -       ?         00:00:00 rcu_sched
1 S     0      8      2   0  80    0 -     0 -       ?         00:00:00 rcu_bh
1 S     0      9      2   0 -40    - -     0 -       ?         00:00:00 migration/0
1 S     0     10      2   0  60  -20 -     0 -       ?         00:00:00 lru-add-drain
5 S     0     11      2   0 -40    - -     0 -       ?         00:00:00 watchdog/0
1 S     0     12      2   0  80    0 -     0 -       ?         00:00:00 cpuhp/0
1 S     0     13      2   0  80    0 -     0 -       ?         00:00:00 cpuhp/1
5 S     0     14      2   0 -40    - -     0 -       ?         00:00:00 watchdog/1
1 S     0     15      2   0 -40    - -     0 -       ?         00:00:00 migration/1
1 S     0     16      2   0  80    0 -     0 -       ?         00:00:00 ksoftirqd/1
1 S     0     18      2   0  60  -20 -     0 -       ?         00:00:00 kworker/1:0H
1 S     0     19      2   0  80    0 -     0 -       ?         00:00:00 cpuhp/2
5 S     0     20      2   0 -40    - -     0 -       ?         00:00:00 watchdog/2
1 S     0     21      2   0 -40    - -     0 -       ?         00:00:00 migration/2
1 S     0     22      2   0  80    0 -     0 -       ?         00:00:00 ksoftirqd/2
1 S     0     24      2   0  60  -20 -     0 -       ?         00:00:00 kworker/2:0H
1 S     0     25      2   0  80    0 -     0 -       ?         00:00:00 cpuhp/3
5 S     0     26      2   0 -40    - -     0 -       ?         00:00:00 watchdog/3
```

```
user@Debian: ~                                                    ×

File   Edit   View   Search   Terminal   Help

root@Debian:~# ps -AlF
F S UID        PID   PPID   C PRI   NI ADDR SZ WCHAN    RSS PSR STIME TTY
TIME CMD
4 S root         1      0   0  80    0 - 51193 SyS_ep  7076   0 16:51 ?           00:0
0:01 /sbin/init
1 S root         2      0   0  80    0 -     0 -          0   3 16:51 ?           00:0
0:00 [kthreadd]
1 S root         3      2   0  80    0 -     0 -          0   0 16:51 ?           00:0
0:00 [ksoftirqd/0]
1 S root         5      2   0  60  -20 -     0 -          0   0 16:51 ?           00:0
0:00 [kworker/0:0H]
1 S root         7      2   0  80    0 -     0 rcu_gp     0   1 16:51 ?           00:0
0:00 [rcu_sched]
1 S root         8      2   0  80    0 -     0 -          0   0 16:51 ?           00:0
0:00 [rcu_bh]
1 S root         9      2   0 -40    - -     0 -          0   0 16:51 ?           00:0
0:00 [migration/0]
1 S root        10      2   0  60  -20 -     0 -          0   0 16:51 ?           00:0
0:00 [lru-add-drain]
5 S root        11      2   0 -40    - -     0 -          0   0 16:51 ?           00:0
0:00 [watchdog/0]
1 S root        12      2   0  80    0 -     0 -          0   0 16:51 ?           00:0
0:00 [cpuhp/0]
1 S root        13      2   0  80    0 -     0 -          0   1 16:51 ?           00:0
```

```
user@Debian: ~                                    ✕

File  Edit  View  Search  Terminal  Help

root@Debian:~# ps -AlFH
F S UID        PID  PPID  C PRI  NI ADDR SZ WCHAN     RSS PSR STIME TTY
TIME CMD
1 S root         2     0  0  80   0 -      0 -           0   3 16:51 ?        00:0
0:00 [kthreadd]
1 S root         3     2  0  80   0 -      0 -           0   0 16:51 ?        00:0
0:00   [ksoftirqd/0]
1 S root         5     2  0  60 -20 -      0 -           0   0 16:51 ?        00:0
0:00   [kworker/0:0H]
1 S root         7     2  0  80   0 -      0 rcu_gp      0   2 16:51 ?        00:0
0:00   [rcu_sched]
1 S root         8     2  0  80   0 -      0 -           0   0 16:51 ?        00:0
0:00   [rcu_bh]
1 S root         9     2  0 -40   - -      0 -           0   0 16:51 ?        00:0
0:00   [migration/0]
1 S root        10     2  0  60 -20 -      0 -           0   0 16:51 ?        00:0
0:00   [lru-add-drain]
5 S root        11     2  0 -40   - -      0 -           0   0 16:51 ?        00:0
0:00   [watchdog/0]
1 S root        12     2  0  80   0 -      0 -           0   0 16:51 ?        00:0
0:00   [cpuhp/0]
1 S root        13     2  0  80   0 -      0 -           0   1 16:51 ?        00:0
0:00   [cpuhp/1]
```

```
user@Debian: ~                                    ✕

File  Edit  View  Search  Terminal  Help

root@Debian:~# ps -auxf | sort -nr -k 3 | head -5
user      3400  0.4  4.3 2119340 178108 tty2    Sl+  16:54   0:08              \_
 /usr/bin/gnome-shell
user      3551  0.2  0.8 582768 34744 ?         Ssl  16:54   0:03  \_ /usr/lib/gn
ome-terminal/gnome-terminal-server
Debian-+   839  0.2  3.2 2038704 133280 tty1    Sl+  16:51   0:05  |            \_
 /usr/bin/gnome-shell
user      3459  0.1  2.4 932652 97912 tty2      Sl+  16:54   0:01              \_
 /usr/bin/gnome-software --gapplication-service
root      1006  0.1  0.3 400948 15660 ?         Ssl  16:51   0:02 /usr/lib/packag
ekit/packagekitd
root@Debian:~# █
```

```
root@Debian:~# free
              total        used        free      shared  buff/cache   available
Mem:        4050508      584492     2605556       20748      860460     3214680
Swap:       2097148           0     2097148
root@Debian:~# iostat
-su: iostat: command not found
root@Debian:~# sar
-su: sar: command not found
root@Debian:~# mpstat
-su: mpstat: command not found
root@Debian:~# pmap

Usage:
 pmap [options] PID [PID ...]

Options:
 -x, --extended               show details
 -X                           show even more details
          WARNING: format changes according to /proc/PID/smaps
 -XX                          show everything the kernel provides
 -c, --read-rc                read the default rc
 -C, --read-rc-from=<file>    read the rc from file
 -n, --create-rc              create new default rc
 -N, --create-rc-to=<file>    create new rc to file
```
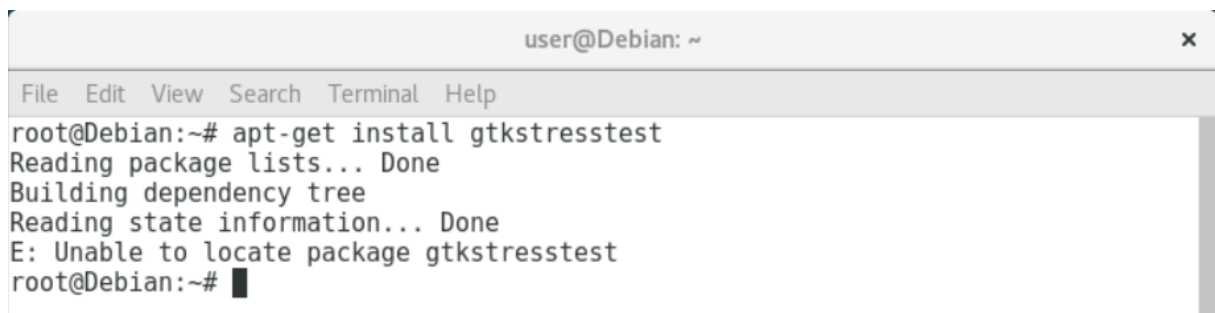
Free: szabad memória és swap terület

pmap: process memória használatát jelzi


```
root@Debian:~# pmap 1
1:    /sbin/init
000055934889d000     948K r-x-- systemd
000055934898a000     148K r---- systemd
00005593489af000       4K rw--- systemd
0000559349b20000    1168K rw---   [ anon ]
00007f54a4000000     164K rw---   [ anon ]
00007f54a4029000   65372K -----   [ anon ]
00007f54ac000000     164K rw---   [ anon ]
00007f54ac029000   65372K -----   [ anon ]
00007f54b2181000       4K -----   [ anon ]
00007f54b2182000    8192K rw---   [ anon ]
00007f54b2982000       4K -----   [ anon ]
00007f54b2983000    8192K rw---   [ anon ]
00007f54b3183000      16K r-x-- libuuid.so.1.3.0
00007f54b3187000    2044K ----- libuuid.so.1.3.0
00007f54b3386000       4K r---- libuuid.so.1.3.0
00007f54b3387000       4K rw--- libuuid.so.1.3.0
00007f54b338b000      16K r-x-- libattr.so.1.1.0
00007f54b338f000    2044K ----- libattr.so.1.1.0
00007f54b358e000       4K r---- libattr.so.1.1.0
00007f54b358f000       4K rw--- libattr.so.1.1.0
00007f54b3593000      76K r-x-- libgpg-error.so.0.21.0
00007f54b35a6000    2044K ----- libgpg-error.so.0.21.0
```

3. feladat: 3B/2

```
user@Debian: ~                                          ✕

File   Edit   View   Search   Terminal   Help

root@Debian:~# apt-get install gtkstresstest
Reading package lists... Done
Building dependency tree
Reading state information... Done
E: Unable to locate package gtkstresstest
root@Debian:~# █
```