

Operációs rendszerek Bsc

4. Gyak.

2022. 02. 28.

Készítette:

Pogonyi Ábel Kürt Bsc

Programtervező informatika

TR6FKP

Miskolc, 2022

a)

```

File Actions Edit View Help
top - 10:15:11 up 12 min, 1 user, load average: 0.03, 0.08, 0.07
Tasks: 145 total, 1 running, 144 sleeping, 0 stopped, 0 zombie
ncpu(s): 1.2 us, 0.7 sy, 0.0 ni, 98.0 id, 0.0 wa, 0.0 hi, 0.2 si, 0.0 st
MIB Mem : 1382.8 total, 1383.9 free, 455.0 used, 443.8 buff/cache
MIB Swap: 975.0 total, 975.0 free, 0.0 used, 1371.8 avail Mem

PID USER PR NI VIRT RES SHR S RCPU %MEM TIME+ COMMAND
551 root 20 0 040964 139344 48268 S 0.7 0.7 0:05.73 Xorg
1176 kali 20 0 979420 48736 65688 S 0.7 0 0:05.22 iftop
853 kali 20 0 152932 2848 2368 S 0.3 0.1 0:00.72 VBoxClient
1383 kali 20 0 18256 3952 1308 R 0.3 0.2 0:00.61 top
1 root 20 0 98344 10360 7824 S 0.0 0.5 0:01.61 systemd
2 root 20 0 0 0 0 S 0.5 0.0 0:00.00 kthreadd
3 root 0 -20 0 0 0 I 1 0.0 0.0 0:00.00 rcu_gp
4 root 0 -20 0 0 0 I 1 0.0 0.0 0:00.00 rcu_park_gp
6 root 0 -20 0 0 0 I 1 0.0 0.0 0:00.00 kworker/8:0H-events_highpri
9 root 0 -20 0 0 0 I 1 0.0 0.0 0:00.00 mm_percpu_wq
18 root 20 0 0 0 0 S 0.5 0.0 0:00.00 rcu_tasks_rude
11 root 20 0 0 0 0 S 0.5 0.0 0:00.00 rcu_tasks_trace
12 root 20 0 0 0 0 S 0.5 0.0 0:00.02 ksftirq/0
13 root 20 0 0 0 0 I 1 0.0 0.0 0:00.04 rcu_sched
14 root rt 0 0 0 S 0.5 0.0 0:00.00 migration/0
15 root 20 0 0 0 0 S 0.5 0.0 0:00.00 cpuphp/0
16 root 20 0 0 0 0 I 1 0.0 0.0 0:00.00 cpuphp/1
17 root rt 0 0 0 S 0.5 0.0 0:00.26 migration/1
18 root 20 0 0 0 0 S 0.5 0.0 0:00.01 ksftirq/1
20 root 0 -20 0 0 0 I 1 0.0 0.0 0:00.00 kworker/1:0H-events_highpri
22 root 20 0 0 0 0 I 1 0.0 0.0 0:00.02 kworker/u4:1-xta-rsv-conversion
23 root 20 0 0 0 0 S 0.5 0.0 0:00.00 kdermpfs
24 root 0 -20 0 0 0 I 1 0.0 0.0 0:00.00 netns
25 root 20 0 0 0 0 S 0.5 0.0 0:00.00 kauidtd
26 root 20 0 0 0 0 S 0.5 0.0 0:00.00 khangtaskd
27 root 20 0 0 0 0 S 0.5 0.0 0:00.00 oom_reaper
28 root 0 -20 0 0 0 I 1 0.0 0.0 0:00.00 writeback
29 root 20 0 0 0 0 S 0.5 0.0 0:00.01 kcompactd
30 root 25 5 0 0 0 S 0.5 0.0 0:00.00 ksmd
31 root 39 19 0 0 0 S 0.5 0.0 0:00.12 khugepaged
49 root 0 -20 0 0 0 I 1 0.0 0.0 0:00.00 kintegrityd
58 root 0 -20 0 0 0 I 1 0.0 0.0 0:00.00 kblckd
51 root 0 -20 0 0 0 I 1 0.0 0.0 0:00.00 blkcg_punt_bio
52 root 0 -20 0 0 0 I 1 0.0 0.0 0:00.00 edac-poller
53 root 0 -20 0 0 0 I 1 0.0 0.0 0:00.00 devfreq_wq
55 root 0 -20 0 0 0 I 1 0.0 0.0 0:00.07 kworker/0:1H-kblockd
57 root 20 0 0 0 0 S 0.5 0.0 0:00.00 kswapd0
58 root 0 -20 0 0 0 I 1 0.0 0.0 0:00.00 kthreadd
59 root 0 -20 0 0 0 I 1 0.0 0.0 0:00.00 acpi_thermal_pm
68 root 20 -20 0 0 0 I 1 0.0 0.0 0:00.00 ipvs_addrconf
62 root 20 0 0 0 0 I 1 0.0 0.0 0:00.04 kworker/0:2-events
70 root 0 -20 0 0 0 I 1 0.0 0.0 0:00.00 kstop
73 root 0 -20 0 0 0 I 1 0.0 0.0 0:00.00 zswap-shrink
74 root 0 -20 0 0 0 I 1 0.0 0.0 0:00.00 kworker/0:56
97 root 0 -20 0 0 0 I 1 0.0 0.0 0:00.02 kworker/1:1H-kblockd
114 root 20 0 0 0 0 I 1 0.0 0.0 0:00.12 kworker/1:2-ata_sff

```

b)

```
(kali㉿kali)-[~]
$ 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 1108448 44272 411976     0    0   226   17   150  179  1  1 98  0  0
```

```

(kali㉿kali)-[~]
$ sudo vmstat -m
[sudo] password for kali:
Cache                               Num    Total    Size    Pages
rpc_inode_cache                     23      23      704     23
fuse_request                         52      52     152     26
fuse_inode                           38      38     832     19
ext4_groupinfo_4k                   644     644     144     28
ext4_fc_dentry_update                0        0      80     51
ext4_inode_cache                    6448    6448    1184     13
ext4_system_zone                    102     102      40    102
ext4_io_end                          128     128      64     64
ext4_extents_status                 4488    4488      40    102
jbd2_journal_handle                 146     146      56     73
jbd2_journal_head                   1122    1122     120     34
jbd2_revoke_table_s                 256     256      16    256
jbd2_revoke_record_s                256     256      32    128
scsi_sense_cache                    160     160     128     32
fsverity_info                       0        0     256     16
fscrypt_info                        64      64     128     32
ip6-frag                             0        0     184     22
PINGv6                              0        0    1216     13
RAWv6                               39      39    1216     13
UDIPv6                              0        0    1280     12
tw_sock_TCPv6                       0        0     248     16
request_sock_TCPv6                  0        0     304     13
TCPv6                               0        0    2432     13
mqueue_inode_cache                  17      17     960     17
userfaultfd_ctx_cache               0        0     192     21
dnotify_struct                      0        0      32    128
dio                                  0        0     640     12
pid_namespace                       0        0     144     28
UNIX                                485     528    1024     16
ip4-frag                             0        0     200     20
xfrm_state                          0        0     768     21
PING                                 0        0     960     17
RAW                                  32      32    1024     16
UDP                                  30      30    1088     15
tw_sock_TCP                         0        0     248     16
request_sock_TCP                     0        0     304     13
TCP                                  14      14    2240     14
hugetlbfs_inode_cache               25      25     632     25
dquot                                32      32     256     16
eventpoll_pwq                       560     560      72     56
dax_cache                           21      21     768     21
request_queue                       32      32    2024     16
biovec-max                          96      96    4096      8
biovec-128                          32      32    2048     16

```

```

(kali㉿kali)-[~]
$ 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
0  0      0 1108448 670680 147100     0    0   217   16  148  175  1  1 98  0  0

```

c)

```
(kali㉿kali)-[~]  
$ w  
10:20:48 up 18 min,  1 user,  load average: 0.16, 0.09, 0.07  
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU WHAT  
kali      tty7      :0               10:02    17:58  7.83s  0.28s xfce4-session
```

d)

```
(kali㉿kali)-[~]  
$ who -b  
system boot  2022-02-28 10:02
```

e)

```
(kali㉿kali)-[~]  
$ ps -ax  
  PID TTY          STAT       TIME COMMAND  
    1 ?        Ss         0:01 /sbin/init splash  
    2 ?        S           0:00 [kthreadd]  
    3 ?        I<         0:00 [rcu_gp]  
    4 ?        I<         0:00 [rcu_par_gp]  
    6 ?        I<         0:00 [kworker/0:0H-events_highpri]  
    9 ?        I<         0:00 [mm_percpu_wq]  
   10 ?        S           0:00 [rcu_tasks_rude_]  
   11 ?        S           0:00 [rcu_tasks_trace]  
   12 ?        S           0:00 [ksoftirqd/0]  
   13 ?        I           0:00 [rcu_sched]  
   14 ?        S           0:00 [migration/0]  
   15 ?        S           0:00 [cpuhp/0]  
   16 ?        S           0:00 [cpuhp/1]  
   17 ?        S           0:00 [migration/1]  
   18 ?        S           0:00 [ksoftirqd/1]  
   20 ?        I<         0:00 [kworker/1:0H-events_highpri]  
   23 ?        S           0:00 [kdevtmpfs]  
   24 ?        I<         0:00 [netns]  
   25 ?        S           0:00 [kauditd]  
   26 ?        S           0:00 [khungtaskd]  
   27 ?        S           0:00 [oom_reaper]  
   28 ?        I<         0:00 [writeback]  
   29 ?        S           0:00 [kcompactd0]  
   30 ?        SN          0:00 [ksmd]  
   31 ?        SN          0:00 [khugepaged]  
   49 ?        I<         0:00 [kintegrityd]  
   50 ?        I<         0:00 [kblockd]  
   51 ?        I<         0:00 [blkcg_punt_bio]  
   52 ?        I<         0:00 [edac-poller]  
   53 ?        I<         0:00 [devfreq_wq]  
   55 ?        I<         0:00 [kworker/0:1H-kblockd]  
   57 ?        S           0:00 [kswapd0]  
   58 ?        I<         0:00 [kthrotld]  
   59 ?        I<         0:00 [acpi_thermal_pm]  
   60 ?        I<         0:00 [ipv6_addrconf]  
   62 ?        I           0:00 [kworker/0:2-events]  
   70 ?        I<         0:00 [kstrp]  
   73 ?        I<         0:00 [zswap-shrink]  
   74 ?        I<         0:00 [kworker/u5:0]  
   97 ?        I<         0:00 [kworker/1:1H-kblockd]  
  119 ?        I<         0:00 [ata_sff]  
  120 ?        S           0:00 [scsi_eh_0]  
  121 ?        S           0:00 [scsi_eh_1]  
  122 ?        I<         0:00 [scsi_tmf_0]  
  123 ?        I<         0:00 [scsi_tmf_1]  
  124 ?        S           0:00 [irq/18-vmwgfx]  
  125 ?        I<         0:00 [ttm_swap]  
  126 ?        S           0:00 [card0-crtc0]
```

```
(kali㉿kali)-[~]
$ ps -ALf
```

UID	Desktop	PID	PPID	SEKID	LWP	C	NLWP	STIME	TTY	TRGEXP	TIME	CMD	IP	ADDR
root		1	0		1	0	1	10:02	?		00:00:01	/sbin/init splash		
root	Trash	2	0		2	0	1	10:02	?		00:00:00	[kthreadd]		
root		3	2		3	0	1	10:02	?		00:00:00	[rcu_gp]		
root	Documents	4	2		4	0	1	10:02	?		00:00:00	[rcu_par_gp]		
root		6	2		6	0	1	10:02	?		00:00:00	[kworker/0:0H-events_highpri]		
root	Music	9	2		9	0	1	10:02	?		00:00:00	[mm_percpu_wq]		
root	Pictures	10	2		10	0	1	10:02	?		00:00:00	[rcu_tasks_rude_]		
root		11	2		11	0	1	10:02	?		00:00:00	[rcu_tasks_trace]		
root	Videos	12	2		12	0	1	10:02	?		00:00:00	[ksoftirqd/0]		
root	Download	13	2		13	0	1	10:02	?		00:00:00	[rcu_sched]		
root		14	2		14	0	1	10:02	?		00:00:00	[migration/0]		
root	es	15	2		15	0	1	10:02	?		00:00:00	[cpuhp/0]		
root		16	2		16	0	1	10:02	?		00:00:00	[cpuhp/1]		
root	File System	17	2		17	0	1	10:02	?		00:00:00	[migration/1]		
root		18	2		18	0	1	10:02	?		00:00:00	[ksoftirqd/1]		
root	ork	20	2		20	0	1	10:02	?		00:00:00	[kworker/1:0H-events_highpri]		
root		23	2		23	0	1	10:02	?		00:00:00	[kdevtmpfs]		
root	Browse Network	24	2		24	0	1	10:02	?		00:00:00	[netns]		
root		25	2		25	0	1	10:02	?		00:00:00	[kauditd]		
root		26	2		26	0	1	10:02	?		00:00:00	[khungtaskd]		
root		27	2		27	0	1	10:02	?		00:00:00	[oom_reaper]		
root		28	2		28	0	1	10:02	?		00:00:00	[writeback]		
root		29	2		29	0	1	10:02	?		00:00:00	[kcompactd0]		

```
(kali㉿kali)-[~]
$ ps -ALf
```

UID	Documents	PID	PPID	LWP	C	NLWP	STIME	TTY	TIME	CMD
root		1	0	1	0	1	10:02	?	00:00:01	/sbin/init splash
root	Music	2	0	2	0	1	10:02	?	00:00:00	[kthreadd]
root	Pictures	3	2	3	0	1	10:02	?	00:00:00	[rcu_gp]
root		4	2	4	0	1	10:02	?	00:00:00	[rcu_par_gp]
root	Videos	6	2	6	0	1	10:02	?	00:00:00	[kworker/0:0H-events_highpri]
root	Download	9	2	9	0	1	10:02	?	00:00:00	[mm_percpu_wq]
root		10	2	10	0	1	10:02	?	00:00:00	[rcu_tasks_rude_]
root	es	11	2	11	0	1	10:02	?	00:00:00	[rcu_tasks_trace]
root		12	2	12	0	1	10:02	?	00:00:00	[ksoftirqd/0]
root	File System	13	2	13	0	1	10:02	?	00:00:00	[rcu_sched]
root		14	2	14	0	1	10:02	?	00:00:00	[migration/0]
root	ork	15	2	15	0	1	10:02	?	00:00:00	[cpuhp/0]
root		16	2	16	0	1	10:02	?	00:00:00	[cpuhp/1]
root	Browse Network	17	2	17	0	1	10:02	?	00:00:00	[migration/1]
root		18	2	18	0	1	10:02	?	00:00:00	[ksoftirqd/1]
root		20	2	20	0	1	10:02	?	00:00:00	[kworker/1:0H-events_highpri]
root		23	2	23	0	1	10:02	?	00:00:00	[kdevtmpfs]
root		24	2	24	0	1	10:02	?	00:00:00	[netns]
root		25	2	25	0	1	10:02	?	00:00:00	[kauditd]
root		26	2	26	0	1	10:02	?	00:00:00	[khungtaskd]

```
(kali㉿kali)-[~]
$ ps -ax system
```

PID	TTY	STAT	TIME	COMMAND
1	?	Ss	0:01	/sbin/init splash
2	?	S	0:00	[kthreadd]
3	?	I<	0:00	[rcu_gp]
4	?	I<	0:00	[rcu_par_gp]
6	?	I<	0:00	[kworker/0:0H-events_highpri]
9	?	I<	0:00	[mm_percpu_wq]
10	?	S	0:00	[rcu_tasks_rude_]
11	?	S	0:00	[rcu_tasks_trace]
12	?	S	0:00	[ksoftirqd/0]
13	?	I	0:00	[rcu_sched]
14	?	S	0:00	[migration/0]
15	?	S	0:00	[cpuhp/0]
16	?	S	0:00	[cpuhp/1]
17	?	S	0:00	[migration/1]
18	?	S	0:00	[ksoftirqd/1]

fa:

```
529      529      529 ?      00:00:00      unattended-upgr
531      531      531 ?      00:00:00      lightdm
553      553      553 tty7      00:00:14      Xorg
739      531      531 ?      00:00:00      lightdm
774      774      774 ?      00:00:00      xfce4-session
861      861      861 ?      00:00:00      ssh-agent
900      774      774 ?      00:00:01      xfwm4
923      774      774 ?      00:00:00      xfsettingsd
931      774      774 ?      00:00:00      xfce4-panel
943      774      774 ?      00:00:00      panel-1-whisker
944      774      774 ?      00:00:00      panel-16-systra
945      774      774 ?      00:00:00      panel-17-pulsea
947      774      774 ?      00:00:00      panel-18-notifi
949      774      774 ?      00:00:00      panel-19-power-
950      774      774 ?      00:00:00      panel-21-action
935      774      774 ?      00:00:03      Thunar
940      774      774 ?      00:00:00      xfdesktop
979      774      774 ?      00:00:00      light-locker
992      774      774 ?      00:00:00      xiccd
994      774      774 ?      00:00:00      polkit-gnome-au
997      774      774 ?      00:00:00      xfce4-power-man
1002     774      774 ?      00:00:00      blueman-applet
1008     774      774 ?      00:00:00      agent
1011     774      774 ?      00:00:00      nm-applet
554      554      554 tty1      00:00:00      agetty
565      561      561 ?      00:00:00      VBoxService
688      688      688 ?      00:00:00      rtkit-daemon
```

```
(kali㉿kali)-[~]
$ ps -p 1286 -o comm= 739
lightdm
```

```
(kali㉿kali)-[~]
$ ps -auxf | sort -nr -k 3 | head -5
root    553   1.0  6.6 949064 135344 tty7    Ssl+ 10:02   0:17  \_ /usr/lib/Xorg/Xorg :0 -seat seat0 -auth /var/run/lightdm/root/:0 -nolisten tcp vt7 -novtswitch
kali    1126   1.0  3.9 979572  81148 ?      SL    10:05   0:16  \_ /usr/bin/qterminal
kali    935   0.1  2.4 411428  49448 ?      SL    10:02   0:03      \_ Thunar --daemon
kali    900   0.1  3.9 984572  80920 ?      SL    10:02   0:01      \_ xfwm4
kali    1129   0.1  0.3 10532   6340 pts/0   Ss    10:05   0:02  \_ /usr/bin/zsh
```

f)

```
(kali㉿kali)-[~]
$ free

              total        used        free      shared  buff/cache   available
Mem:           2030340      465728      1105536       13560       459076      1405088
Swap:           998396           0         998396
```

g)

```
(kali㉿kali)-[~]
$ iostat
Linux 5.10.0-kali9-amd64 (kali)      02/28/2022      _x86_64_      (2 CPU)

avg-cpu:  %user   %nice %system %iowait  %steal   %idle
           1.34    0.00    0.49    0.06    0.00   98.11

Device            tps    kB_read/s    kB_wrtn/s    kB_dscd/s    kB_read    kB_wrtn    kB_dscd
sda                6.83       239.33       19.91         0.00     417048     34696         0
sr0                0.01         0.00         0.00         0.00         2         0         0
```

h)

```
(kali㉿kali)-[~]  
$ sar  
Linux 5.10.0-kali9-amd64 (kali)          02/28/2022      _x86_64_      (2 CPU)  
  
10:36:27 AM   LINUX RESTART      (2 CPU)
```

i)

```
(kali㉿kali)-[~]  
$ mpstat  
Linux 5.10.0-kali9-amd64 (kali)          02/28/2022      _x86_64_      (2 CPU)  
  
10:37:03 AM   CPU      %usr   %nice   %sys %iowait  %irq   %soft  %steal  %guest  %gnice   %idle  
10:37:03 AM   all       1.31    0.00    0.32   0.06   0.00   0.15   0.00   0.00   0.00    98.16
```

j)

```
(kali㉿kali)-[~]  
$ pmap 129  
129: [card0-crtc3]  
total      0K
```

2.

1. Kérdezze le a PowerShellVerzió!

```
PS C:\Users\pogon> $PSVersionTable  
  
Name                           Value  
----                           -  
PSVersion                      5.1.19041.1320  
PSEdition                      Desktop  
PSCompatibleVersions           {1.0, 2.0, 3.0, 4.0...}  
BuildVersion                   10.0.19041.1320  
CLRVersion                     4.0.30319.42000  
WSManStackVersion              3.0  
PSRemotingProtocolVersion      2.3  
SerializationVersion           1.1.0.1
```

2. Kérdezze le a mai dátumot?

```
PS C:\Users\pogon> Get-Date  
  
2022. február 28., hétfő 16:45:14
```


3. Kérdezze le a szolgáltatásokat?

```
PS C:\Users\pogon> Get-Service
```

Status	Name	DisplayName
Stopped	AarSvc_58ee0	AarSvc_58ee0
Stopped	AJRouter	AllJoyn-útválasztó szolgáltatás
Stopped	ALG	Alkalmazási réteg átjárószolgáltatása
Stopped	AppIDSvc	Alkalmazásidentitás
Running	Appinfo	Alkalmazásinformációk
Stopped	AppMgmt	Alkalmazásvezérlés
Stopped	AppReadiness	Alkalmazás-előkészítő
Stopped	AppVClient	Microsoft App-V Client
Running	AppXSvc	AppX Deployment Service (AppXSVC)
Stopped	AssignedAccessM...	AssignedAccessManager szolgáltatás
Running	AudioEndpointBu...	Windows-hangvégpontépítő
Running	Audiosrv	Windows audió
Stopped	autotimesvc	Mobilhálózati idő
Stopped	AxInstSV	ActiveX Telepítő (AxInstSV)
Running	AzureAttestService	AzureAttestService

4. Kérdezze le a C:\ meghajtó lévő könyvtárakat ill. fájlokat?

```
PS C:\WINDOWS\system32> Get-ChildItem C:\
```

Directory: C:\

Mode	LastWriteTime	Length	Name
d-----	2021. 08. 26. 13:30		Cakewalk Content
d-----	2022. 02. 16. 23:20		Cakewalk Projects
d-----	2022. 02. 22. 13:41		cmake
d-----	2020. 08. 21. 16:20		DRIVERS
d-----	2021. 05. 30. 19:52		Huion Tablet
d-----	2021. 01. 02. 18:50		Intel
d-----	2022. 02. 21. 12:25		msys64
d-----	2019. 12. 07. 10:14		PerfLogs
d-r----	2022. 02. 28. 13:54		Program Files
d-r----	2022. 02. 21. 12:15		Program Files (x86)
d-----	2021. 12. 07. 11:12		Riot Games
d-----	2020. 10. 07. 22:44		totalcmd
d-r----	2020. 12. 24. 10:32		Users
d-----	2022. 02. 21. 11:38		Windows

5. Kérdezze a parancsok rövidített neveit? (alias)

```
PS C:\WINDOWS\system32> Get-Alias

CommandType      Name                                Version      Source
-----
Alias             % -> ForEach-Object
Alias             ? -> Where-Object
Alias             ac -> Add-Content
Alias             asnp -> Add-PSSnapin
Alias             cat -> Get-Content
Alias             cd -> Set-Location
Alias             CFS -> ConvertFrom-String          3.1.0.0     Microsoft.PowerShell.Utility
Alias             chdir -> Set-Location
Alias             clc -> Clear-Content
Alias             clear -> Clear-Host
Alias             clhy -> Clear-History
```

6. Készítsen egy „processz” nevű Alias, majd futtassa és kérdezze le?!

```
PS C:\WINDOWS\system32> Set-Alias processz

cmdlet Set-Alias at command pipeline position 1
Supply values for the following parameters:
Value: Get-Process
PS C:\WINDOWS\system32> processz

Handles      NPM(K)      PM(K)      WS(K)      CPU(s)      Id      SI ProcessName
-----
416          24        17912      31508        0.23    16556    1 ApplicationFrameHost
267          19         4040       1224         0.31     2380     1 AsusSGPlusBTServer64
248          12         2448       1176         0.17    18692     1 AsusSmartGestureDetector64
346          21         4188       3112         0.25     1404     1 AsusTPCenter
145          10         1600       1876         0.06    20432     1 AsusTPHelper
282          15         2812       1064         0.31    14384     1 AsusTPLoader
611          19        23072      26708      333.95    11612     0 audiodg
405          43         9060       17620         1.36    16884     1 btweb
244          15        23280      56056         0.70     428      1 chrome
243          15        22828      55592         0.56     492      1 chrome
239          15        22192      55616         0.72     900      1 chrome
530          21       165984     190444        25.44     904      1 chrome
717          18        64988      91312         4.19    1132      1 chrome
255          15        23020      55888         0.70    2088      1 chrome
```

7. Listázza ki az adott meghajtón lévő szolgáltatásokat - formázott lista/tábla?

```
PS C:\WINDOWS\system32> Get-Service | fl name, status

Name      : AarSvc_58ee0
Status    : Stopped

Name      : AJRouter
Status    : Stopped

Name      : ALG
Status    : Stopped
```

8. Rendezze sorba név szerint (növekvő/csökkenő) az objektumokat!

```
PS C:\WINDOWS\system32> Get-Service | Sort-Object Name
```

Status	Name	DisplayName
Stopped	AarSvc_58ee0	AarSvc_58ee0
Stopped	AJRouter	AllJoyn-útválasztó szolgáltatás
Stopped	ALG	Alkalmazási réteg átjárószolgáltatása
Stopped	AppIDSvc	Alkalmazásidentitás
Running	Appinfo	Alkalmazásinformációk
Stopped	AppMgmt	Alkalmazásvezérlés
Stopped	AppReadiness	Alkalmazás-előkészítő

9. Kérdezze le azokat a neveket melynek első két betűje wi!

```
PS C:\WINDOWS\system32> Get-Service | Where-Object {$_.name -like "wi*"} | Sort-Object Name
```

Status	Name	DisplayName
Stopped	WiaRpc	Állókép-beviteli események
Running	WinDefend	Microsoft Defender víruskereső szol...
Running	WinHttpAutoProx...	WinHTTP automatikus webproxy-kereső...
Running	Winmgmt	Windows Management Instrumentation
Stopped	WinRM	Rendszerfelügyeleti webszolgáltatások
Stopped	wisvc	Windows Insider szolgáltatás

10. Csoportosítsa állapot szerint az objektumokat!

```
PS C:\WINDOWS\system32> Get-Service | Group-Object status
```

Count	Name	Group
181	Stopped	{AarSvc_58ee0, AJRouter, ALG, AppIDSvc...}
126	Running	{Appinfo, AppXSvc, AudioEndpointBuilder, Audiosrv...}

11. Számolja meg az objektumokat!

```
PS C:\WINDOWS\system32> (Get-Service).count
```

307

12. Számolj meg az objektumok: max, min, avg, sum szerint!

```
PS C:\WINDOWS\system32> Get-Service | Measure-Object
```

Count	: 307
Average	:
Sum	:
Maximum	:
Minimum	:
Property	:

13. Kérdezze le a Windows időt!

```
PS C:\WINDOWS\system32> (get-date).ToString('T')
```

17:05:52

14. Hozzon létre egy szöveg nevű változót, melynek értéke: Miskolc

```
PS C:\WINDOWS\system32> $szöveg = "Miskolc"
```

15. Végezze el a következő műveleteket ((length, ToUpper, Replace, Contains, Split) a \$szöveg változó értékeivel

```
PS C:\WINDOWS\system32> $szöveg.Length
7
PS C:\WINDOWS\system32> $szöveg.ToUpper()
MISKOLC
PS C:\WINDOWS\system32> $szöveg.Replace("ko","koo")
Miskoolc
PS C:\WINDOWS\system32> $szöveg -contains "ma"
False
PS C:\WINDOWS\system32> $szöveg.Split("k")
Mis
olc
```

16.

```
PS C:\WINDOWS\system32> $f = "D:\tr6fkp.txt"
PS C:\WINDOWS\system32> $tartalom = Get-Content $f
PS C:\WINDOWS\system32> $tartalom
Pogonyi Ábel Kálmán
PS C:\WINDOWS\system32> $tartalom.Count
1
PS C:\WINDOWS\system32> Get-Item $f

Directory: D:\

Mode                LastWriteTime         Length Name
----                -
-a-----         2022. 02. 28.         17:17         19 tr6fkp.txt
```