

Operációs rendszerek BSc

4. Gyak.

2022. 03. 01.

Készítette:

Honti Dániel BSc

Programtervező Informatikus

HR6121

Miskolc, 2022

1. feladat – Linux OS-en parancsok futtatása

a,

```
top - 18:26:11 up 4 min, 1 user, load average: 0,25, 0,64, 0,32
Tasks: 172 total, 1 running, 171 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0,3 us, 0,2 sy, 0,0 ni, 99,5 id, 0,0 wa, 0,0 hi, 0,0 si, 0,0 st
MiB Mem : 3272,0 total, 2080,0 free, 661,0 used, 531,1 buff/cache
MiB Swap: 1510,2 total, 1510,2 free, 0,0 used. 2434,9 avail Mem
```

| PID | USER | PR | NI | VIRT | RES | SHR | S | %CPU | %MEM | TIME+ | COMMAND |
|------|--------|-----|-----|---------|--------|--------|---|------|------|---------|----------|
| 1213 | daniel | 20 | 0 | 3763820 | 185348 | 111268 | S | 0,7 | 5,5 | 0:06.50 | cinnamon |
| 7 | root | 20 | 0 | 0 | 0 | 0 | I | 0,3 | 0,0 | 0:00.04 | kworker+ |
| 693 | root | 20 | 0 | 578308 | 76852 | 46252 | S | 0,3 | 2,3 | 0:03.10 | Xorg |
| 1 | root | 20 | 0 | 167504 | 11360 | 8364 | S | 0,0 | 0,3 | 0:02.35 | systemd |
| 2 | root | 20 | 0 | 0 | 0 | 0 | S | 0,0 | 0,0 | 0:00.02 | kthreadd |
| 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_par+ |
| 5 | root | 20 | 0 | 0 | 0 | 0 | I | 0,0 | 0,0 | 0:00.01 | kworker+ |
| 6 | root | 0 | -20 | 0 | 0 | 0 | I | 0,0 | 0,0 | 0:00.00 | kworker+ |
| 8 | root | 0 | -20 | 0 | 0 | 0 | I | 0,0 | 0,0 | 0:00.00 | mm_perc+ |
| 9 | root | 20 | 0 | 0 | 0 | 0 | S | 0,0 | 0,0 | 0:00.06 | ksoftir+ |
| 10 | root | 20 | 0 | 0 | 0 | 0 | I | 0,0 | 0,0 | 0:00.10 | rcu_sch+ |
| 11 | root | rt | 0 | 0 | 0 | 0 | S | 0,0 | 0,0 | 0:00.01 | migrati+ |
| 12 | root | -51 | 0 | 0 | 0 | 0 | S | 0,0 | 0,0 | 0:00.00 | idle_in+ |
| 13 | root | 20 | 0 | 0 | 0 | 0 | I | 0,0 | 0,0 | 0:00.26 | kworker+ |
| 14 | root | 20 | 0 | 0 | 0 | 0 | S | 0,0 | 0,0 | 0:00.00 | cpuhp/0 |
| 15 | root | 20 | 0 | 0 | 0 | 0 | S | 0,0 | 0,0 | 0:00.00 | cpuhp/1 |

b,

```
daniel@daniel-VirtualBox:~$ vmstat
procs -----memory----- --swap-- -----io----- -system-- -----cpu-----
r b swpd free buff cache si so bi bo in cs us sy id wa st
0 0 0 1705520 139848 882124 0 0 256 145 104 260 1 2 97 0 0
daniel@daniel-VirtualBox:~$
```

```
daniel@daniel-VirtualBox:~$ vmstat 3
procs -----memory----- --swap-- -----io----- -system-- -----cpu-----
r b swpd free buff cache si so bi bo in cs us sy id wa st
0 0 0 1719460 139772 881856 0 0 285 161 108 276 1 2 97 0 0
0 0 0 1719452 139772 881856 0 0 0 0 65 134 1 1 99 0 0
0 0 0 1719452 139772 881856 0 0 0 0 64 121 0 1 99 0 0
0 0 0 1719452 139772 881856 0 0 0 0 70 112 0 1 99 0 0
0 0 0 1709372 139772 881984 0 0 0 0 345 623 4 3 93 0 0
```

```
daniel@daniel-VirtualBox:~$ 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 1705520 546756 835016 0 0 264 150 106 267 1 2 97 0 0
```

c,

```
daniel@daniel-VirtualBox:~$ w
18:52:17 up 30 min, 1 user, load average: 0,00, 0,00, 0,05
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU WHAT
daniel    tty7     :0               18:22   30:13  13.48s  0.34s cinnamon-session --session c
```

d,

```
daniel@daniel-VirtualBox:~$ uptime
18:55:49 up 33 min, 1 user, load average: 0,02, 0,02, 0,05
```

e,

```
daniel@daniel-VirtualBox:~$ ps
  PID TTY          TIME CMD
 2174 pts/0    00:00:00 bash
 2254 pts/0    00:00:00 ps
daniel@daniel-VirtualBox:~$ ps -a
  PID TTY          TIME CMD
 2255 pts/0    00:00:00 ps
daniel@daniel-VirtualBox:~$ ps -al
F S  UID        PID      PPID  C PRI  NI ADDR SZ WCHAN  TTY          TIME CMD
0 R 1000        2257      2174  0  80   0 - 3565 -          pts/0    00:00:00 ps
daniel@daniel-VirtualBox:~$ ps -alf
F S  UID        PID      PPID  C PRI  NI ADDR SZ WCHAN  STIME TTY          TIME CMD
0 R daniel      2258      2174  0  80   0 - 3592 -          18:57 pts/0    00:00:00 ps -alf
daniel@daniel-VirtualBox:~$ ps ejH
  PPID    PID    PGID    SID TTY          TPGID STAT   UID    TIME COMMAND
  2166    2174    2174    2174 pts/0        2259 Ss      1000    0:00 bash GJS DEBUG TOPICS=JS ERROR:JS LOG SSH AUTH SO
  2174    2259    2259    2174 pts/0        2259 R+      1000    0:00 ps ejH SHELL=/bin/bash SESSION_MANAGER=local/dani
```

```
daniel@daniel-VirtualBox:~$ ps axZ
LABEL                                PID TTY          STAT TIME COMMAND
unconfined                          1 ?           Ss    0:02 /sbin/init splash
unconfined                          2 ?           S      0:00 [kthreadd]
unconfined                          3 ?           I<     0:00 [rcu_gp]
unconfined                          4 ?           I<     0:00 [rcu_par_gp]
unconfined                          6 ?           I<     0:00 [kworker/0:0H-kblockd]
unconfined                          7 ?           I      0:00 [kworker/u4:0-events_power_efficient]
unconfined                          8 ?           I<     0:00 [mm_percpu_wq]
unconfined                          9 ?           S      0:00 [ksoftirqd/0]
unconfined                         10 ?           I      0:00 [rcu_sched]
unconfined                         11 ?           S      0:00 [migration/0]
unconfined                         12 ?           S      0:00 [idle_inject/0]
unconfined                         14 ?           S      0:00 [cpuhp/0]
unconfined                         15 ?           S      0:00 [cpuhp/1]
unconfined                         16 ?           S      0:00 [idle_inject/1]
unconfined                         17 ?           S      0:00 [migration/1]
unconfined                         18 ?           S      0:00 [ksoftirqd/1]
unconfined                         20 ?           I<     0:00 [kworker/1:0H-kblockd]
unconfined                         21 ?           S      0:00 [kdevtmpfs]
unconfined                         22 ?           I<     0:00 [netns]
unconfined                         23 ?           S      0:00 [rcu_tasks_kthre]
unconfined                         24 ?           S      0:00 [kauditd]
unconfined                         25 ?           S      0:00 [khungtaskd]
unconfined                         26 ?           S      0:00 [oom_reaper]
unconfined                         27 ?           I<     0:00 [writeback]
```

```
daniel@daniel-VirtualBox:~$ ps axZ
LABEL                                PID TTY          STAT TIME COMMAND
unconfined                          1 ?           Ss   0:02 /sbin/init splash
unconfined                          2 ?           S    0:00 [kthreadd]
unconfined                          3 ?           I<   0:00 [rcu_gp]
unconfined                          4 ?           I<   0:00 [rcu_par_gp]
unconfined                          6 ?           I<   0:00 [kworker/0:0H-kblockd]
unconfined                          7 ?           I    0:00 [kworker/u4:0-events_power_efficient]
unconfined                          8 ?           I<   0:00 [mm_percpu_wq]
unconfined                          9 ?           S    0:00 [ksoftirqd/0]
unconfined                         10 ?           I    0:00 [rcu_sched]
unconfined                         11 ?           S    0:00 [migration/0]
unconfined                         12 ?           S    0:00 [idle_inject/0]
unconfined                         14 ?           S    0:00 [cpuhp/0]
unconfined                         15 ?           S    0:00 [cpuhp/1]
unconfined                         16 ?           S    0:00 [idle_inject/1]
unconfined                         17 ?           S    0:00 [migration/1]
unconfined                         18 ?           S    0:00 [ksoftirqd/1]
unconfined                         20 ?           I<   0:00 [kworker/1:0H-kblockd]
unconfined                         21 ?           S    0:00 [kdevtmpfs]
unconfined                         22 ?           I<   0:00 [netns]
unconfined                         23 ?           S    0:00 [rcu_tasks_kthre]
unconfined                         24 ?           S    0:00 [kauditd]
unconfined                         25 ?           S    0:00 [khungtaskd]
unconfined                         26 ?           S    0:00 [oom_reaper]
unconfined                         27 ?           I<   0:00 [writeback]
```

```
daniel@daniel-VirtualBox:~$ pstree
systemd--ModemManager--2*[{ModemManager}]
--NetworkManager--2*[{NetworkManager}]
--accounts-daemon--2*[{accounts-daemon}]
--acpid
--agetty
--avahi-daemon--avahi-daemon
--colord--2*[{colord}]
--cron
--csd-printer--2*[{csd-printer}]
--cups-browsed--2*[{cups-browsed}]
--cupsd
--dbus-daemon
--gnome-keyring-d--3*[{gnome-keyring-d}]
--irqbalance--{irqbalance}
--2*[{kerneloops}]
--lightdm--Xorg--5*[{Xorg}]
--lightdm--cinnamon-session--agent--2*[{agent}]
--applet.py
--blueberry-obex--3*[{blueberry-obex-}]
--cinnamon-killer--3*[{cinnamon-killer}]
--cinnamon-launch--cinnamon--9*[{cinnamon}]
--cinnamon-screen--3*[{cinnamon-screen}]
--csd-ally-keyboa--3*[{csd-ally-keyboa}]
--csd-ally-settin--3*[{csd-ally-settin}]
--csd-automount--3*[{csd-automount}]
--csd-background--3*[{csd-background}]
--csd-clipboard--2*[{csd-clipboard}]
--csd-color--3*[{csd-color}]
--csd-cursor--2*[{csd-cursor}]
--csd-housekeepin--3*[{csd-housekeepin}]
--csd-keyboard--3*[{csd-keyboard}]
--csd-media-keys--3*[{csd-media-keys}]
--csd-mouse--3*[{csd-mouse}]
--csd-orientation--3*[{csd-orientation}]
--csd-power--3*[{csd-power}]
--csd-print-notif--2*[{csd-print-notif}]
--csd-screensaver--2*[{csd-screensaver}]
```

```
daniel@daniel-VirtualBox:~$ ps -auxf | sort -nr -k 3 | head -5 -
daniel 1213 2.2 5.9 3777596 200132 ? Ssl 18:22 0:54 | \ cinnamon --replace
root 693 0.9 2.3 583764 78700 tty7 Ssl+ 18:22 0:22 \_ /usr/lib/xorg/Xorg -core :0 -seat seat0 -auth /var/r
un/lightdm/root/:0 -nolisten tcp vt7 -novtswitch
daniel 2166 0.1 1.2 541052 40404 ? Ssl 18:46 0:01 \_ /usr/libexec/gnome-terminal-server
USER PID %CPU %MEM VSZ RSS TTY STAT START TIME COMMAND
systemd+ 472 0.0 0.1 90552 6392 ? Ssl 18:22 0:00 /lib/systemd/systemd-timesyncd
```

f,

```
daniel@daniel-VirtualBox:~$ free
              total        used        free      shared  buff/cache   available
Mem:           3350568        625000       1697676        19128     1027892     2513584
Swap:          1546440            0       1546440

daniel@daniel-VirtualBox:~$ free -b
              total        used        free      shared  buff/cache   available
Mem:          3430981632      639954944     1738428416     19587072     1052598272     2573955072
Swap:          1583554560            0     1583554560

daniel@daniel-VirtualBox:~$ free -k
              total        used        free      shared  buff/cache   available
Mem:           3350568        624964       1697676        19128     1027928     2513620
Swap:          1546440            0       1546440

daniel@daniel-VirtualBox:~$ free -m
              total        used        free      shared  buff/cache   available
Mem:              3272            610         1657           18          1003          2454
Swap:             1510            0         1510

daniel@daniel-VirtualBox:~$ free -g
              total        used        free      shared  buff/cache   available
Mem:                3                0                1                0                0                2
Swap:                1                0                1

daniel@daniel-VirtualBox:~$ free -t
              total        used        free      shared  buff/cache   available
Mem:           3350568        624704       1697936        19128     1027928     2513880
Swap:          1546440            0       1546440
Total:          4897008        624704       3244376
```

g,

```
daniel@daniel-VirtualBox:~$ iostat
Linux 5.4.0-58-generic (daniel-VirtualBox)      03/06/2022      _x86_64_      (2 CPU)

avg-cpu:  %user   %nice %system %iowait  %steal   %idle
           0,86    0,00    1,28    0,28    0,00   97,58

Device            tps    kB_read/s    kB_wrtn/s    kB_dscd/s    kB_read    kB_wrtn    kB_dscd
sda                14,58        331,87        178,61          0,00      880785      474033         0

daniel@daniel-VirtualBox:~$ iostat -c
Linux 5.4.0-58-generic (daniel-VirtualBox)      03/06/2022      _x86_64_      (2 CPU)

avg-cpu:  %user   %nice %system %iowait  %steal   %idle
           0,86    0,00    1,28    0,28    0,00   97,58

daniel@daniel-VirtualBox:~$ iostat -d
Linux 5.4.0-58-generic (daniel-VirtualBox)      03/06/2022      _x86_64_      (2 CPU)

Device            tps    kB_read/s    kB_wrtn/s    kB_dscd/s    kB_read    kB_wrtn    kB_dscd
sda                14,52        330,35        179,53          0,00      880821      478685         0
```

h,

```
mpstat command not found
daniel@daniel-VirtualBox:~$ mpstat
Linux 5.4.0-58-generic (daniel-VirtualBox)      03/06/2022      _x86_64_      (2 CPU)

07:07:15 PM CPU    %usr   %nice    %sys %iowait    %irq   %soft  %steal  %guest  %gnice   %idle
07:07:15 PM all     0,87    0,00    1,11    0,28    0,00    0,16    0,00    0,00    0,00   97,59
```

2. feladat – Windows OS parancsok

a,

```
PS C:\Users\Honti Dániel> $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 |

b,

```
PS C:\Users\Honti Dániel> date
2022. március 6., vasárnap 19:13:41
```

C,

```
PS C:\Users\Honti Dániel> get-service
```

| Status | Name | DisplayName |
|---------|------------------------|---|
| Running | AarSvc_44508c2d | Agent Activation Runtime_44508c2d |
| Stopped | AJRouter | AllJoyn-útválasztó szolgáltatás |
| Stopped | ALG | Alkalmazási réteg átjárószolgáltatása |
| Stopped | AppIDSvc | Alkalmazásidentitás |
| Running | Appinfo | Alkalmazásinformációk |
| Running | 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 audio |
| Stopped | autotimesvc | Mobilhálózati idő |
| Stopped | AxInstSV | ActiveX Telepítő (AxInstSV) |
| Stopped | BcastDVRUserSer... | Játékvideó-rögzítő és Közvetítés fe... |
| Running | BDESVC | BitLocker meghajtótitkosítási szolg... |
| Running | BFE | Alap szűrőprogram |
| Running | BITS | Háttérben futó intelligens átviteli... |
| Running | BluetoothUserSe... | Felhasználói Bluetooth-támogatási s... |
| Running | BrokerInfrastru... | Háttérfeladatok infrastruktúra-szol... |
| Running | BTAGService | Bluetooth-hangátjáró szolgáltatás |
| Running | BthAvctpSvc | AVCTP-szolgáltatás |
| Running | bthserv | Bluetooth-támogatási szolgáltatás |
| Running | camsvc | Képesség hozzáférés-kezelési szolgál... |
| Running | CaptureService_... | CaptureService_44508c2d |
| Running | cbdhsvc_44508c2d | Vágólap felhasználói szolgáltatás_4... |
| Running | CDPSvc | Csatlakoztatott eszközök platformja... |
| Running | CDPUserService_4450... | Csatlakoztatott eszközök platformja... |
| Stopped | CertPropSvc | Tanúsítvány-terjesztés |
| Running | ClickToRunSvc | Microsoft Office Click-to-Run Service |
| Running | ClipSvc | Ügyfél-licenclelési szolgáltatás (Cl... |

d,

```
PS C:\> Get-ChildItem

Directory: C:\

Mode                LastWriteTime         Length Name
----                -
d-----          2022. 02. 15.         20:41      eclipseworkspace
d-----          2022. 02. 26.         21:51      Egyetemes
d-----          2022. 02. 16.          9:44      Intel
d-----          2022. 03. 06.        16:32      Mindenés
d-----          2019. 12. 07.        10:14      PerfLogs
d-r---          2022. 03. 01.        22:47      Program Files
d-r---          2021. 11. 09.        23:04      Program Files (x86)
d-----          2021. 08. 30.        23:03      Riot Games
d-r---          2021. 08. 26.        22:55      Users
d-----          2022. 02. 13.          7:45      Windows
```

e,

```
PS C:\> 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
Alias             cli -> Clear-Item
Alias             clp -> Clear-ItemProperty
Alias             cls -> Clear-Host
Alias             clv -> Clear-Variable
Alias             cnsn -> Connect-PSSession
Alias             compare -> Compare-Object
Alias             copy -> Copy-Item
Alias             cp -> Copy-Item
Alias             cpi -> Copy-Item
Alias             cpp -> Copy-ItemProperty
Alias             curl -> Invoke-WebRequest
Alias             cvpa -> Convert-Path
Alias             dbp -> Disable-PSBreakpoint
Alias             del -> Remove-Item
Alias             diff -> Compare-Object
Alias             dir -> Get-ChildItem
Alias             dnsn -> Disconnect-PSSession
Alias             ebp -> Enable-PSBreakpoint
Alias             echo -> Write-Output
Alias             epal -> Export-Alias
Alias             epsv -> Export-Csv
Alias             epsn -> Export-PSSession
Alias             erase -> Remove-Item
Alias             etsn -> Enter-PSSession
Alias             exsn -> Exit-PSSession
Alias             fc -> Format-Custom
Alias             fhx -> Format-Hex                  3.1.0.0      Microsoft.PowerShell.Utility
Alias             fl -> Format-List
Alias             foreach -> ForEach-Object
Alias             ft -> Format-Table
Alias             fw -> Format-Wide
Alias             gal -> Get-Alias
Alias             gbp -> Get-PSBreakpoint
Alias             gc -> Get-Content
Alias             gcb -> Get-Clipboard              3.1.0.0      Microsoft.PowerShell.Management
```

f,

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

cmdlet Set-Alias at command pipeline position 1
Supply values for the following parameters:
Value: 1
PS C:\> processz
processz : The term '1' is not recognized as the name of a cmdlet, function, script file, or operable program. Check the
spelling of the name, or if a path was included, verify that the path is correct and try again.
At line:1 char:1
+ processz
+ ~~~~~
+ CategoryInfo          : ObjectNotFound: (1:String) [], CommandNotFoundException
+ FullyQualifiedErrorId : CommandNotFoundException

PS C:\> get-alias processz

CommandType      Name                                Version      Source
-----
Alias             processz -> 1
```


g,

```
PS C:\> Get-Process | Where-Object {$_.mainWindowTitle} | Format-Table Id, Name, mainWindowTitle -AutoSize
```

| Id | Name | MainWindowTitle |
|-------|----------------------|---|
| 12928 | ApplicationFrameHost | Számológép |
| 12728 | Calculator | Számológép |
| 17528 | chrome | Get-Process (Microsoft.PowerShell.Management) - PowerShell Microsoft Docs - Google Chrome |
| 16640 | Discord | invite-link - Discord |
| 2728 | powershell | Windows PowerShell |
| 2616 | steam | Steam |
| 14624 | SystemSettings | Gépház |
| 21988 | Tauri Launcher | Tauri Launcher |
| 21852 | TextInputHost | Microsoft Text Input Application |
| 11948 | VirtualBox | Oracle VM VirtualBox Manager |
| 7512 | VirtualBoxVM | Minty [Running] - Oracle VM VirtualBox |
| 9752 | WINWORD | gyak - Word |
| 2860 | WWAHost | Netflix |

h,

```
PS C:\> Get-ChildItem -Path C:\ wi*
```

Directory: C:\

| Mode | LastWriteTime | Length | Name |
|--------|--------------------|--------|---------|
| d----- | 2022. 02. 13. 7:45 | | Windows |

i,

```
PS C:\> get-alias | measure
```

Count : 159
Average :
Sum :
Maximum :
Minimum :
Property :

j,

```
PS C:\> Set-Alias szoveg_
```

cmdlet Set-Alias at command pipeline position 1
Supply values for the following parameters:
Value: Miskolc

k,

```
PS C:\> New-Item -path "c:\" -name "HR6121.txt" -itemtype "file" -value "Honti Dániel"
New-Item : A következő elérési úthoz való hozzáférés megtagadva: „C:\HR6121.txt”.
At line:1 char:1
+ New-Item -path "c:\" -name "HR6121.txt" -itemtype "file" -value "Hont ...
+ ~~~~~
+ CategoryInfo          : PermissionDenied: (C:\HR6121.txt:String) [New-Item], UnauthorizedAccessException
+ FullyQualifiedErrorId : NewItemUnauthorizedAccessError,Microsoft.PowerShell.Commands.NewItemCommand
```