

# **Operációs Rendszerek BSc.**

## **4. Gyakorlat**

2022.03.06.

### **Készítette:**

Breitenbach Attila

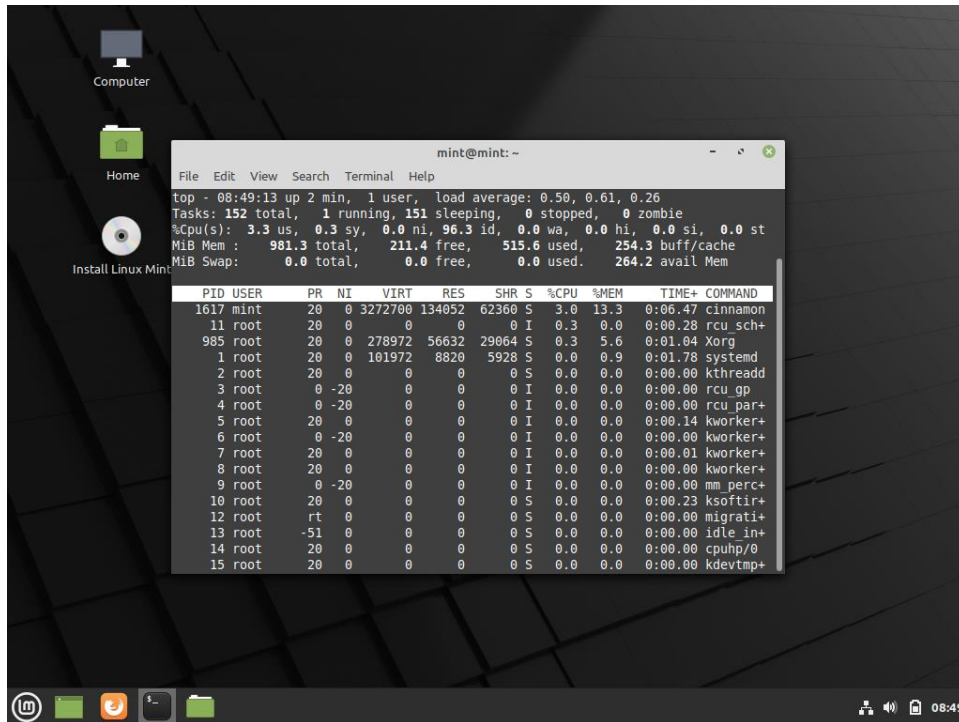
Programtervező  
informatikus

ACUEBO

Miskolc, 2022

## 1.feladat:

### 1.) Futó processzek listája(top paranccsal)

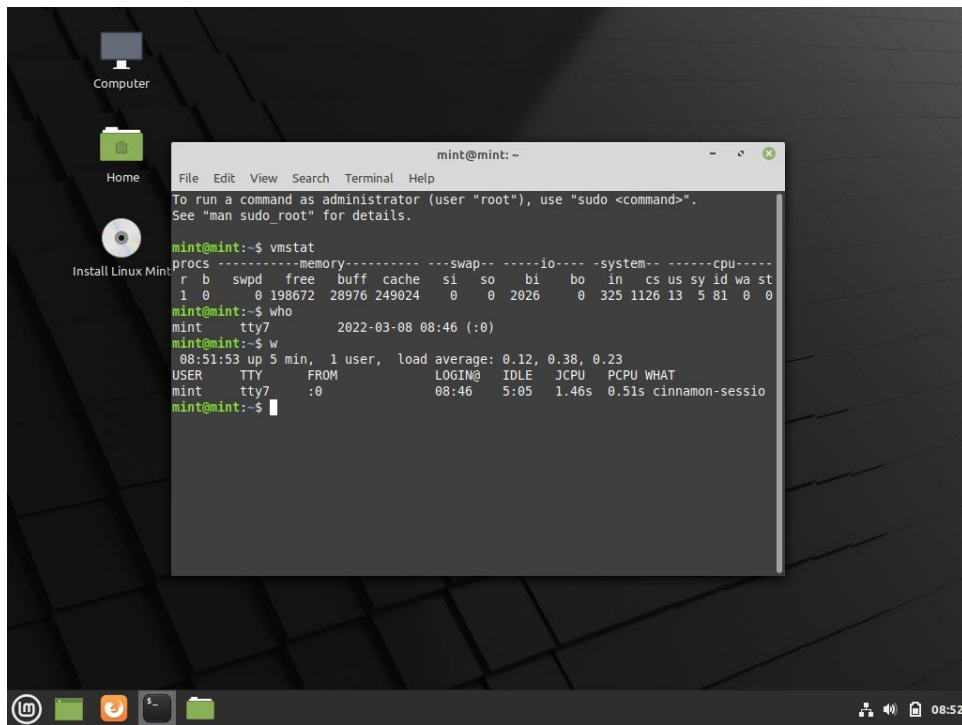


The screenshot shows a Linux Mint desktop environment. A terminal window is open, displaying the output of the 'top' command. The terminal title is 'mint@mint: ~'. The output shows system statistics and a list of running processes.

```
top - 08:49:13 up 2 min, 1 user, load average: 0.50, 0.61, 0.26
Tasks: 152 total, 1 running, 151 sleeping, 0 stopped, 0 zombie
%Cpu(s): 3.3 us, 0.3 sy, 0.0 ni, 96.3 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 981.3 total, 211.4 free, 515.6 used, 254.3 buff/cache
MiB Swap: 0.0 total, 0.0 free, 0.0 used, 264.2 avail Mem
```

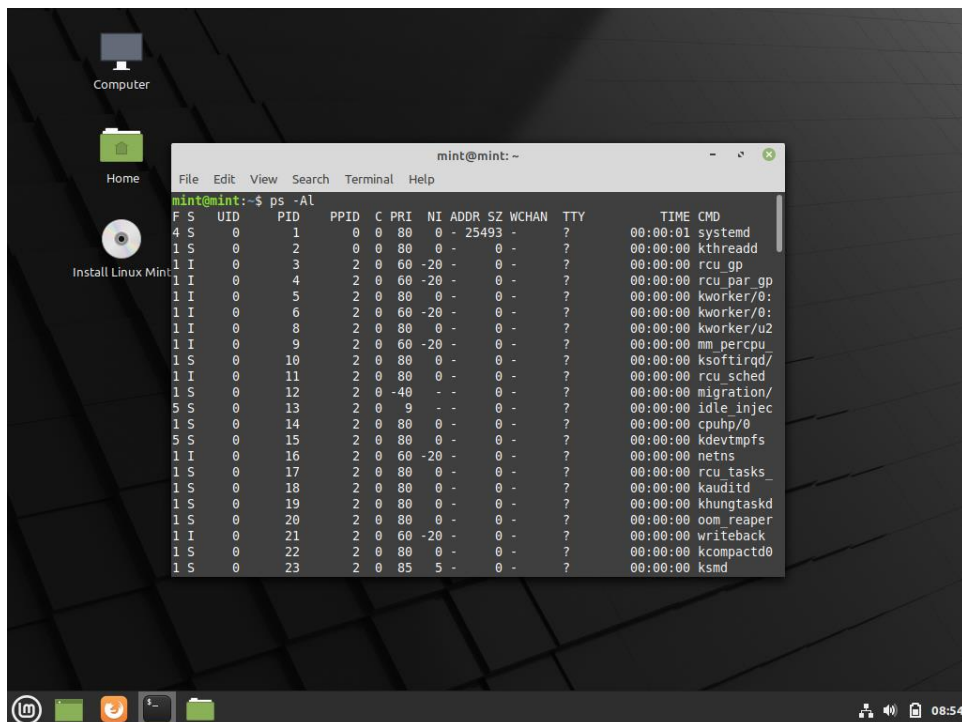
PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1617	mint	20	0	3272700	134052	62360	S	3.0	13.3	0:06.47	cinnamon
11	root	20	0	0	0	0	I	0.3	0.0	0:00.28	rcu_sch+
985	root	20	0	278972	56632	29064	S	0.3	5.6	0:01.04	Xorg
1	root	20	0	101972	8820	5928	S	0.0	0.9	0:01.78	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.00	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	0:00.14	kworker+
6	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker+
7	root	20	0	0	0	0	I	0.0	0.0	0:00.01	kworker+
8	root	20	0	0	0	0	I	0.0	0.0	0:00.00	kworker+
9	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	mm_perc+
10	root	20	0	0	0	0	S	0.0	0.0	0:00.23	ksoftir+
12	root	rt	0	0	0	0	S	0.0	0.0	0:00.00	migrati+
13	root	-51	0	0	0	0	S	0.0	0.0	0:00.00	idle_in+
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	kdevtmp+

2/3/4.) Rendszer aktivitás, hardver információk (pl.memória kihasználtság), rendszerbe való belépés figyelése(ki van bejelentkezve, mióta)

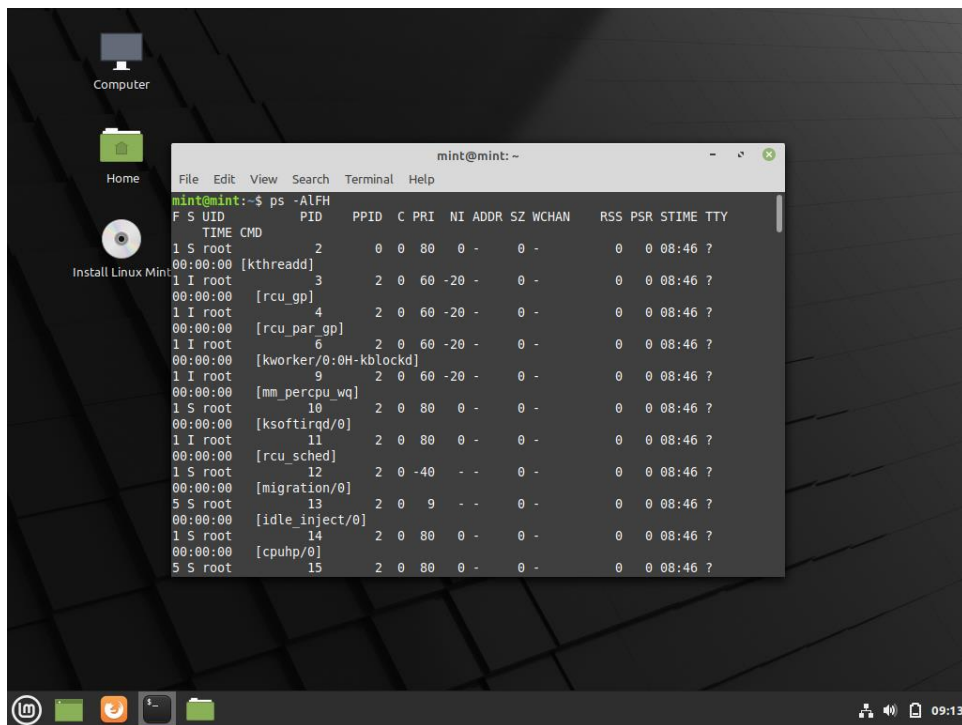


## 5.) Ps parancsok

Összes processz hosszú formátumban



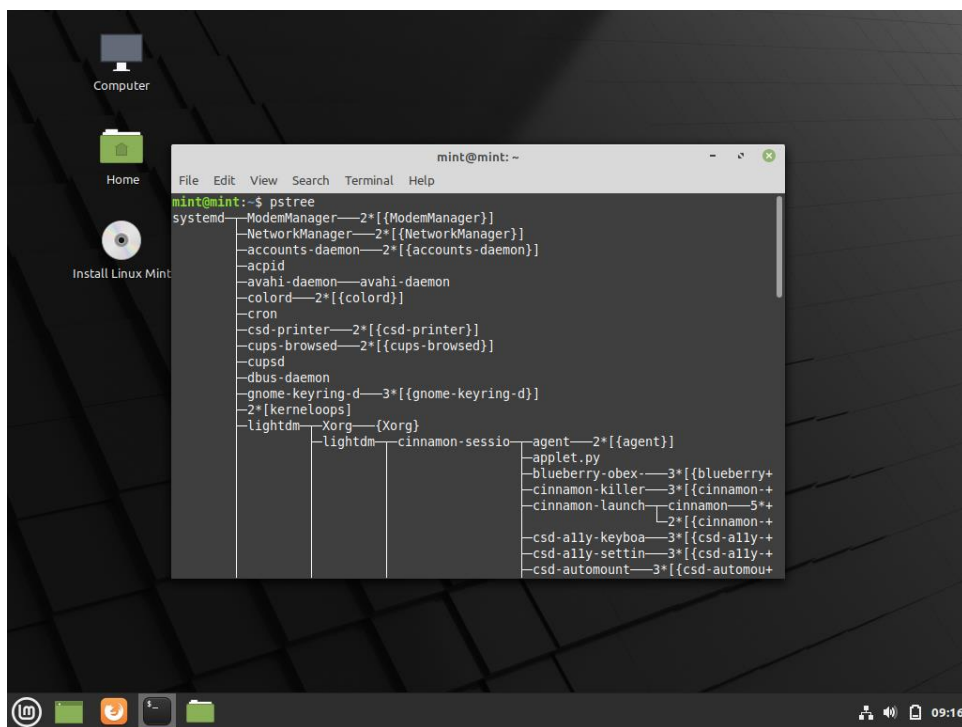
Processzek szákkal



The screenshot shows a Linux Mint desktop environment. A terminal window is open, displaying the output of the command `ps -ALFH`. The output is a table of process information. The desktop background is dark with a grid pattern. On the left, there are icons for 'Computer', 'Home', and 'Install Linux Mint'. The bottom panel shows the Linux Mint logo, a taskbar with icons for a file manager, terminal, and other applications, and a system tray with network, volume, and clock indicators.

F	S	UID	TIME	CMD	PID	PPID	C	PRI	NI	ADDR	SZ	WCHAN	RSS	PSR	STIME	TTY
1	S	root	00:00:00	[kthreadd]	2	0	0	80	0	-	0	-	0	0	08:46	?
1	I	root	00:00:00	[rcu_gp]	3	2	0	60	-20	-	0	-	0	0	08:46	?
1	I	root	00:00:00	[rcu_par_gp]	4	2	0	60	-20	-	0	-	0	0	08:46	?
1	I	root	00:00:00	[kworker/0:0H-kblockd]	6	2	0	60	-20	-	0	-	0	0	08:46	?
1	I	root	00:00:00	[mm_percpu_wq]	9	2	0	60	-20	-	0	-	0	0	08:46	?
1	S	root	00:00:00	[ksoftirqd/0]	10	2	0	80	0	-	0	-	0	0	08:46	?
1	I	root	00:00:00	[rcu_sched]	11	2	0	80	0	-	0	-	0	0	08:46	?
1	S	root	00:00:00	[migration/0]	12	2	0	-40	-	-	0	-	0	0	08:46	?
5	S	root	00:00:00	[idle_inject/0]	13	2	0	9	-	-	0	-	0	0	08:46	?
1	S	root	00:00:00	[cpuhp/0]	14	2	0	80	0	-	0	-	0	0	08:46	?
5	S	root	00:00:00		15	2	0	80	0	-	0	-	0	0	08:46	?

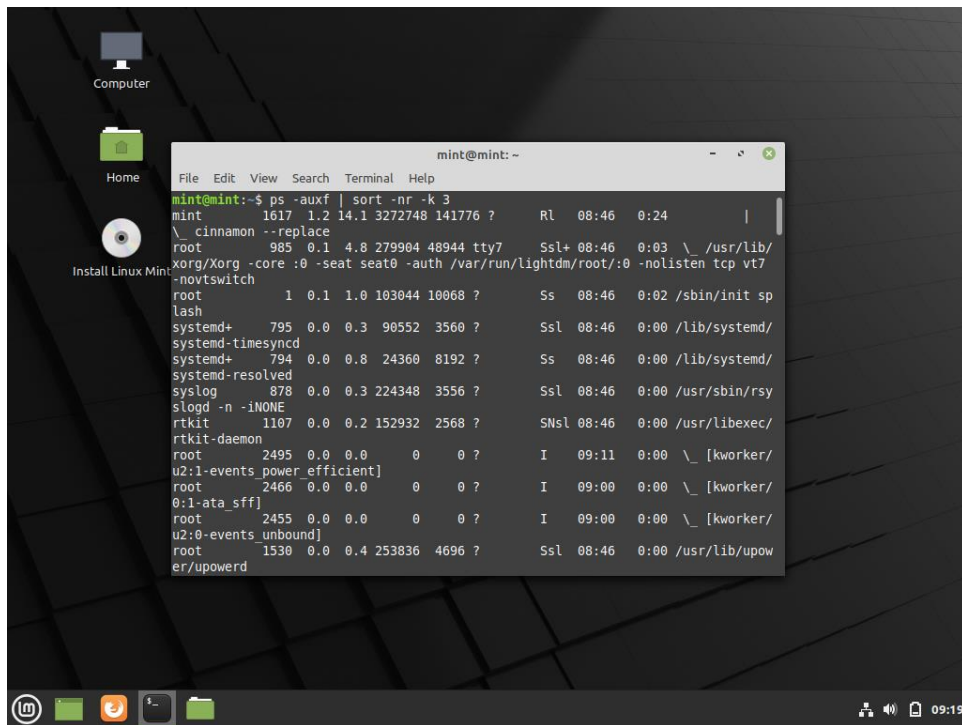
Processzek fa elrendezésben



The screenshot shows a Linux Mint desktop environment. A terminal window is open, displaying the output of the command `pstree`. The output is a tree diagram showing the hierarchy of processes. The desktop background is dark with a grid pattern. On the left, there are icons for 'Computer', 'Home', and 'Install Linux Mint'. The bottom panel shows the Linux Mint logo, a taskbar with icons for a file manager, terminal, and other applications, and a system tray with network, volume, and clock indicators.

```
systemd--ModemManager--2*[{ModemManager}]
      |--NetworkManager--2*[{NetworkManager}]
      |--accounts-daemon--2*[{accounts-daemon}]
      |--acpid
      |--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}]
      |--2*[{kerneloops}]
      |--lightdm--Xorg--{Xorg}
            |--lightdm--cinnamon-session--agent--2*[{agent}]
                  |--applet.py
                  |--blueberry-obex--3*[{blueberry+}]
                  |--cinnamon-killer--3*[{cinnamon+}]
                  |--cinnamon-launch--cinnamon--5*+
                  |--2*[{cinnamon+}]
                  |--csd-ally-keyboa--3*[{csd-ally+}]
                  |--csd-ally-settin--3*[{csd-ally+}]
                  |--csd-automount--3*[{csd-automou+}]
```

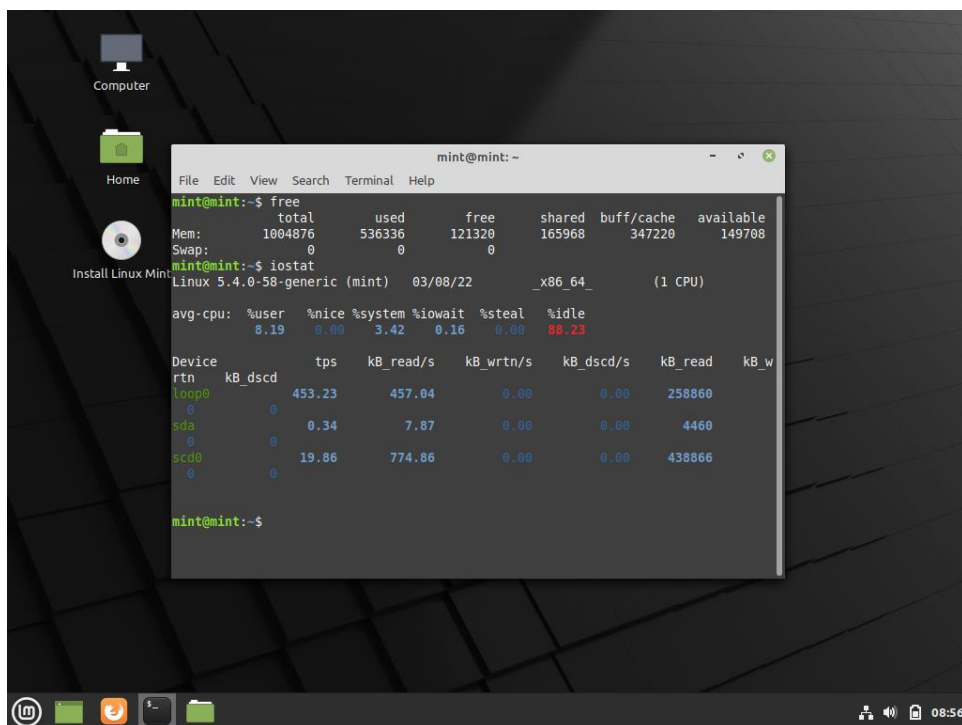
A legtöbb memóriát fogyasztó PID-ek



The image shows a Linux Mint desktop environment. A terminal window is open, displaying the output of the command `ps -auxf | sort -nr -k 3`. The output lists system processes sorted by CPU usage. The desktop background is dark with a grid pattern. Icons for 'Computer', 'Home', and 'Install Linux Mint' are visible on the left. The system tray at the bottom shows the date and time as 09:19.

```
mint@mint: ~  
File Edit View Search Terminal Help  
mint@mint:~$ ps -auxf | sort -nr -k 3  
mint 1617 1.2 14.1 3272748 141776 ? Rl 08:46 0:24 |  
\_ cinnamon --replace  
root 985 0.1 4.8 279904 48944 tty7 Ssl+ 08:46 0:03 \_ /usr/lib/  
Xorg/Xorg -core :0 -seat seat0 -auth /var/run/lightdm/root/:0 -nolisten tcp vt7  
-novtswitch  
root 1 0.1 1.0 103044 10068 ? Ss 08:46 0:02 /sbin/init sp  
lash  
systemd+ 795 0.0 0.3 90552 3560 ? Ssl 08:46 0:00 /lib/systemd/  
systemd-timesyncd  
systemd+ 794 0.0 0.8 24360 8192 ? Ss 08:46 0:00 /lib/systemd/  
systemd-resolved  
syslog 878 0.0 0.3 224348 3556 ? Ssl 08:46 0:00 /usr/sbin/rsy  
slogd -n -iNONE  
rtkit 1107 0.0 0.2 152932 2568 ? SNsl 08:46 0:00 /usr/libexec/  
rtkit-daemon  
root 2495 0.0 0.0 0 0 ? I 09:11 0:00 \_ [kworker/  
u2:1-events_power_efficient]  
root 2466 0.0 0.0 0 0 ? I 09:00 0:00 \_ [kworker/  
0:1-ata_sff]  
root 2455 0.0 0.0 0 0 ? I 09:00 0:00 \_ [kworker/  
u2:0-events_unbound]  
root 1530 0.0 0.4 253836 4696 ? Ssl 08:46 0:00 /usr/lib/upow  
er/upoword
```

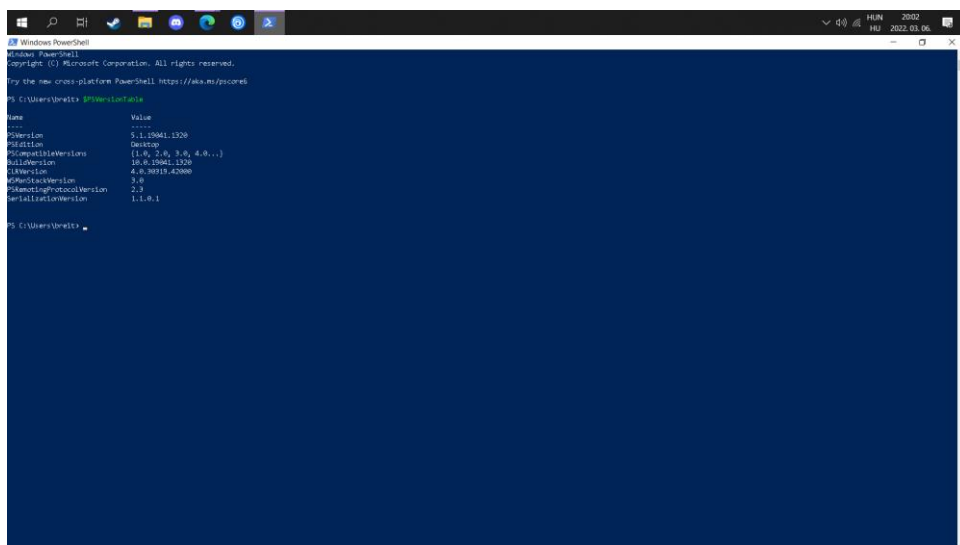
## 6/7.) Fizikai memória lekérdezés,CPU terheltség



The image shows a Linux Mint desktop environment. A terminal window is open, displaying the output of the commands `free` and `iostat`. The `free` command shows memory usage statistics, and the `iostat` command shows disk I/O statistics. The desktop background is dark with a grid pattern. Icons for 'Computer', 'Home', and 'Install Linux Mint' are visible on the left. The system tray at the bottom shows the date and time as 08:56.

```
mint@mint:~$ free  
              total        used        free      shared  buff/cache   available  
Mem:      1004876      536336      121320      165968      347220      149708  
Swap:              0              0  
mint@mint:~$ iostat  
Linux 5.4.0-58-generic (mint) 03/08/22 _x86_64_ (1 CPU)  
  
avg-cpu:  %user   %nice %system %iowait  %steal   %idle  
           8.19    0.00    3.42    0.16    0.00   88.23  
  
Device            tps    kB_read/s    kB_wrtn/s    kB_dscd/s    kB_read    kB_w  
rtn    kB_dscd  
loop0             0 453.23      457.04        0.00        0.00    258860  
0  
sda               0 0.34       7.87         0.00        0.00     4460  
0  
scd0              0 19.86     774.86        0.00        0.00   438866  
0  
  
mint@mint:~$
```

## 9.) Processzor aktivitás (egy processzoros sz.gép használata esetén)



#### 4.) “C” meghajtón lévő fájlok.

```
Windows PowerShell
PS C:\Users\Unkelt> Get-Childitem

Directory: C:\Users\Unkelt

Mode                LastWriteTime         Length Name
-----
d----- 2019.12.15.   17:47             .vsdevjava
d----- 2021.04.15.   14:59             .AdvertisingApp
d----- 2021.10.16.   16:39             .android
d----- 2022.02.20.   15:08             .dotnet
d----- 2019.03.04.   21:17             .eclipse
d----- 2021.10.16.   16:37             .gradle
d----- 2019.01.25.   22:28             .Origin
d----- 2022.02.17.   8:26             .P2
d----- 2019.01.25.   22:28             .PowerEngineProcess
d----- 2022.02.20.   15:08             .templateengine
d----- 2019.03.04.   21:17             .tooling
d----- 2022.02.21.   19:41             .VirtualBox
d----- 2021.03.30.   14:33             .vscode
d----- 2021.11.15.   18:42             3D Objects
d----- 2021.10.16.   16:39             AutoListedProjects
d----- 2019.10.15.   19:46             avast
d----- 2021.08.09.   15:31             BradHallSenders
d----- 2022.02.20.   21:31             BradHallSenders
d----- 2020.09.09.   23:53             Contacts
d----- 2022.02.21.   9:47             Desktop
d----- 2022.02.20.   14:58             Documents
d----- 2022.03.06.   20:12             Downloads
d----- 2019.03.04.   21:14             eclipse
d----- 2021.04.06.   8:06             eclipse workspace
d----- 2020.09.09.   23:53             Favorites
d----- 2021.06.14.   17:23             Games
d----- 2020.09.09.   23:53             Links
d----- 2020.09.09.   23:53             Music
d----- 2021.08.09.   16:49             Onedrive
d----- 2022.02.21.   19:44             Pictures
d----- 2020.11.24.   20:59             Saved Games
d----- 2020.09.09.   23:53             Searches
d----- 2022.02.20.   14:48             source
d----- 2022.03.06.   15:47             Videos
d----- 2021.03.08.   12:09             VirtualBox VMs
d----- 2019.10.16.   8:12             10000 2.3

PS C:\Users\Unkelt>
```

## 5.) Parancsok Alias-a.

```
Windows PowerShell
PS C:\Users\Unkelt> Get-Alias

CommandType      Name                                Version      Source
-----
Alias             8 -> ForEach-Object
Alias             7 -> Where-Object
Alias             6 -> Add-Content
Alias             5 -> Add-PSObject
Alias             cat -> Get-Content
Alias             cd -> Set-Location
Alias             cfs -> ConvertFrom-String
Alias             chdir -> Set-Location
Alias             clc -> Clear-Content
Alias             clear -> Clear-Host
Alias             cihy -> Clear-History
Alias             cil -> Clear-Item
Alias             cip -> Clear-ItemProperty
Alias             cli -> Clear-Host
Alias             clv -> Clear-Variable
Alias             cmm -> Connect-PSession
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             cups -> Convert-Path
Alias             ddp -> Disable-PSBreakpoint
Alias             del -> Remove-Item
Alias             diff -> Compare-Object
Alias             dir -> Get-Childitem
Alias             dsun -> Disconnect-PSession
Alias             ewp -> Enable-PSBreakpoint
Alias             echo -> Write-Output
Alias             eqs -> Export-Alias
Alias             exchv -> Export-Csv
Alias             exps -> Export-PSession
Alias             erase -> Remove-Item
Alias             erps -> Enter-PSession
Alias             exit -> Exit-PSession
Alias             fg -> Format-Table
Alias             fh -> Format-Text
Alias             fl -> Format-Lit
Alias             foreach -> ForEach-Object
Alias             ft -> Format-Table
Alias             fu -> Format-Uri
Alias             gal -> Get-Alias
Alias             gdp -> Get-PSBreakpoint
Alias             gc -> Get-Content
Alias             gcb -> Get-Clipboard
Alias             gcl -> Get-Childitem
Alias             gcm -> Get-Command
Alias             gp -> Get-PSCallstack
Alias             gpi -> Get-PSDrive
Alias             ghy -> Get-History
```

## 6.) Szolgáltatások listázása formázva.



```

Windows PowerShell
Name : AprSvc_40285
DisplayName : AprSvc_40285
Status : Running
DependentServices : {}
ServiceDependencies : {}
CanPauseAndContinue : False
CanShutdown : False
CanStop : True
ServiceType : None

Name : ALMHeader
DisplayName : ALMHeader-Üzemeltető szolgáltatás
Status : Stopped
DependentServices : {}
ServiceDependencies : {}
CanPauseAndContinue : False
CanShutdown : False
CanStop : False
ServiceType : Win32ShareProcess

Name : ALMHeader
DisplayName : ALMHeader-Üzemeltető szolgáltatás
Status : Stopped
DependentServices : {}
ServiceDependencies : {}
CanPauseAndContinue : False
CanShutdown : False
CanStop : False
ServiceType : Win32ShareProcess

Name : AprInfo
DisplayName : Alkalmazási információk
Status : Running
DependentServices : {}
ServiceDependencies : {}
CanPauseAndContinue : False
CanShutdown : False
CanStop : True
ServiceType : Win32ShareProcess, Win32ShareProcess

Name : AprInfo
DisplayName : Alkalmazási információk
Status : Running
DependentServices : {}
ServiceDependencies : {}
CanPauseAndContinue : False
CanShutdown : False
CanStop : True
ServiceType : Win32ShareProcess, Win32ShareProcess

Name : AprInfo
DisplayName : Alkalmazási információk
Status : Running
DependentServices : {}
ServiceDependencies : {}
CanPauseAndContinue : False
CanShutdown : False
CanStop : True
ServiceType : Win32ShareProcess, Win32ShareProcess

```

## 7.) Szolgáltatások listázása csökkenő sorrendbe.

```

Windows PowerShell
PS C:\Users\lucy> Get-Service | Sort-Object Name -Descending

Name      PID      PName      CPU      ID      ProcessName
-----
4000      36      4000      0.00      0.00      4000
312       13      312       0.00      0.00      312
206       13      206       0.00      0.00      206
1000      71      1000      1.73      2156      1000
284       13      284       0.00      0.00      284
152       11      152       0.00      0.00      152
142       19      142       0.00      0.00      142
177       13      177       0.00      0.00      177
577       23      577       0.00      0.00      577
282       45      282       0.00      0.00      282
892       42      892       0.00      0.00      892
5962      6      5962      0.00      0.00      5962
151       9      151       0.00      0.00      151
436       12      436       0.00      0.00      436
185       18      185       0.00      0.00      185
233       12      233       0.00      0.00      233
190       16      190       0.00      0.00      190
235       12      235       0.00      0.00      235
204       13      204       0.00      0.00      204
205       11      205       0.00      0.00      205
214       7       214       0.00      0.00      214
118       7       118       0.00      0.00      118
248       15      248       0.00      0.00      248
133       8       133       0.00      0.00      133
186       11      186       0.00      0.00      186
436       32      436       0.00      0.00      436
517       22      517       0.00      0.00      517
337       13      337       0.00      0.00      337
284       14      284       0.00      0.00      284
384       16      384       0.00      0.00      384
142       11      142       0.00      0.00      142
468       18      468       0.00      0.00      468
264       18      264       0.00      0.00      264
168       7       168       0.00      0.00      168
341       12      341       0.00      0.00      341
254       13      254       0.00      0.00      254
1302      21      1302      0.00      0.00      1302
1475      27      1475      0.00      0.00      1475
109       7       109       0.00      0.00      109
293       18      293       0.00      0.00      293
258       14      258       0.00      0.00      258
238       18      238       0.00      0.00      238
145       24      145       0.00      0.00      145
415       18      415       0.00      0.00      415
125       8       125       0.00      0.00      125
185       12      185       0.00      0.00      185
175       9       175       0.00      0.00      175
137       19      137       0.00      0.00      137
307       11      307       0.00      0.00      307
435       14      435       0.00      0.00      435
151       19      151       0.00      0.00      151

```

## 8.) Szolgáltatások amiknek “wi”-vel kezdődik.

```
Windows PowerShell
PS C:\Users\bratt> Get-Service | Where-Object { $_.name -like '*.*.*'}
PS C:\Users\bratt> Get-Service | Where-Object { $_.name -like '*.*.*'}
PS C:\Users\bratt>
```

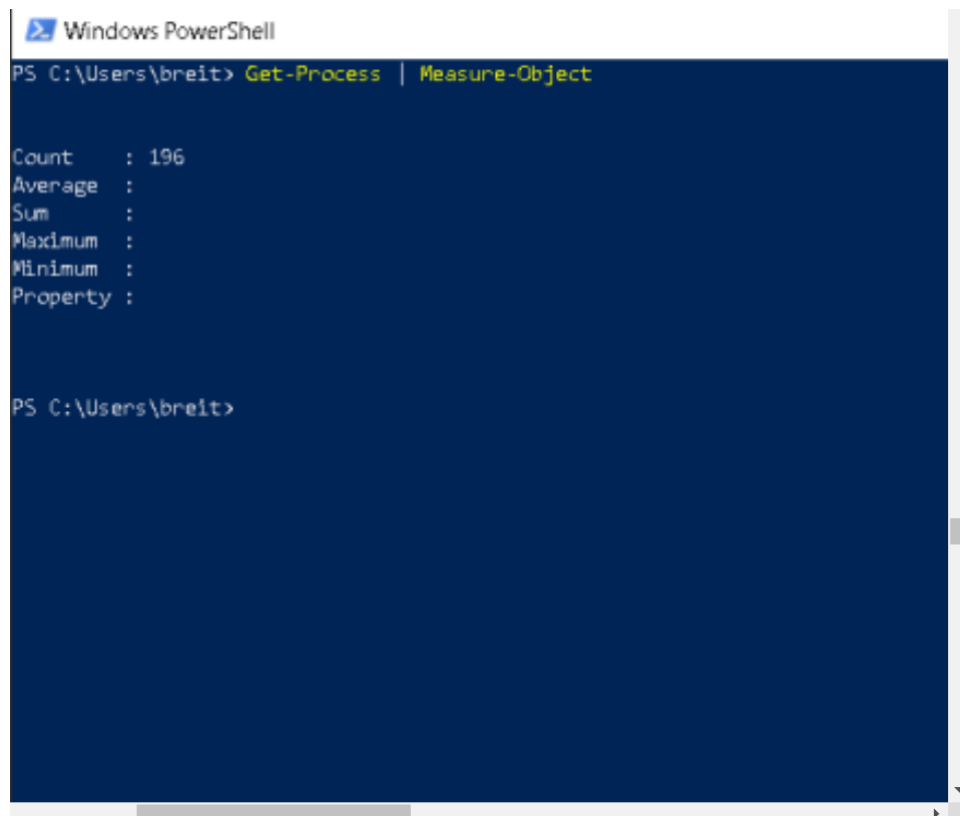
## 9.) Obj. Csoportosítása

```
Windows PowerShell
PS C:\Users\bratt> Get-Service | Group-Object
Count Name Group
-----
206 AerSvc_46205 (AerSvc_46205, Allrouter, ALG, App10Svc...)

PS C:\Users\bratt> Get-Service | Group-Object status
Count Name Group
-----
128 Running (AerSvc_46205, AppleIo, AntiDefService, ASIOService...)
176 Stopped (Allrouter, ALG, App10Svc, AppLoadress...)

PS C:\Users\bratt>
```

## 10/11.) Obj. Megszámolása(min,max,avg,sum)



```
Windows PowerShell
PS C:\Users\breit> Get-Process | Measure-Object

Count      : 196
Average    :
Sum        :
Maximum    :
Minimum    :
Property   :

PS C:\Users\breit>
```

**12.)** Windows idő

**13/14.)** Változó létrehozása értékkel és különböző műveletek végzése.

```
Windows PowerShell
PS C:\Users\breit> $szoveg = "Miskolc"
PS C:\Users\breit> "$szoveg-on élek."
Miskolc-on élek.
PS C:\Users\breit> $szoveg.Length
7
PS C:\Users\breit> $szoveg.ToUpper()
MISKOLC
PS C:\Users\breit> $szoveg.Replace("kolc", "ka")
Miska
PS C:\Users\breit> $szoveg.Split("s")
Ml
kolc
PS C:\Users\breit>
```

## 12.) Fájelkezelés

```
Windows PowerShell
PS C:\Users\breit> $acubo = Get-Content .\
PS C:\Users\breit> $acubo
Breitwisch Attila
PS C:\Users\breit> $acubo.Count
1
PS C:\Users\breit> Get-Item .\

Directory: C:\

Mode                LastWriteTime         Length Name
----                -
d-----          2021. 03. 02.   14:38          acubo.txt

PS C:\Users\breit>
```