

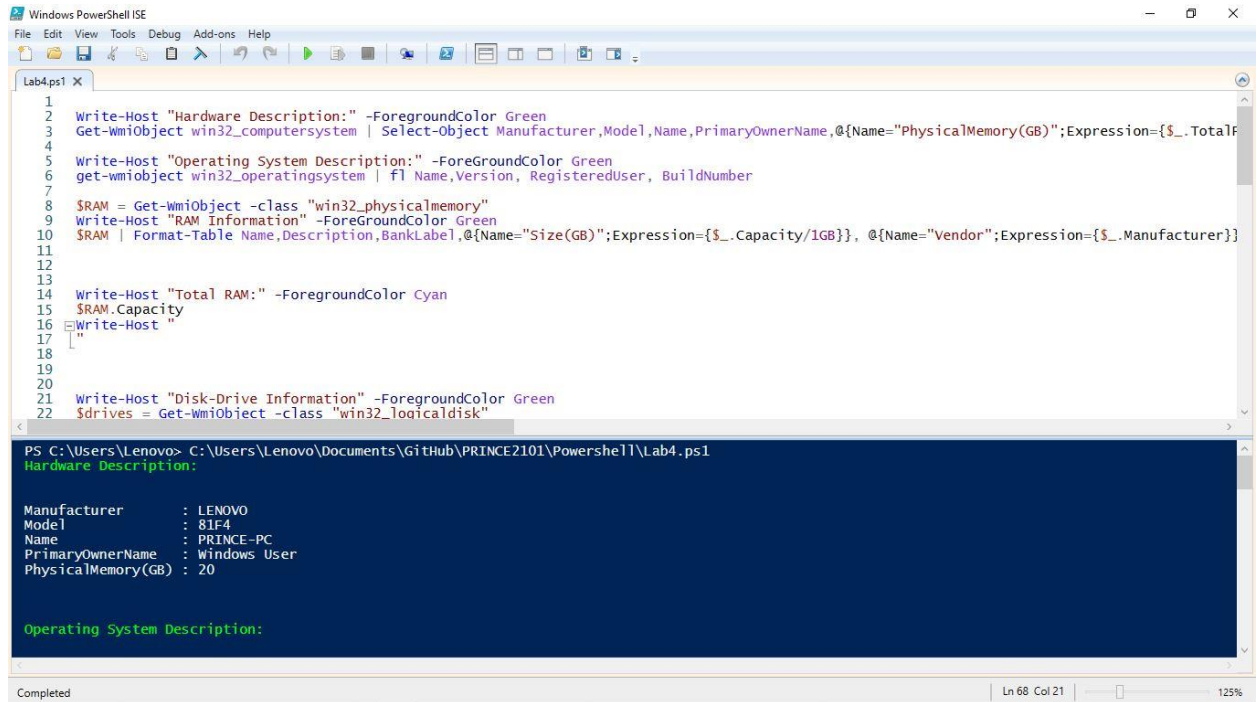
LAB-04, POWERSHELL

Professor: Dennis Simpson.

Pushpa Raj Sapkota, 200420164.

1. Create a system information script to report several items of information about the running system

- Include the system hardware description (win32_computersystem).



The screenshot shows a Windows PowerShell ISE window with a script named 'Lab4.ps1'. The script is designed to report system hardware information. It includes commands to get the win32_computersystem object, format it as a table, and then get the win32_physicalmemory object to report RAM details. The output in the console shows the hardware description and RAM capacity.

```
1 Write-Host "Hardware Description:" -ForegroundColor Green
2 Get-WmiObject win32_computersystem | Select-Object Manufacturer,Model,Name,PrimaryOwnerName,@{Name="PhysicalMemory(GB)";Expression={$_.TotalPhysicalMemory/1GB}}
3
4 Write-Host "Operating System Description:" -ForegroundColor Green
5 get-wmiobject win32_operatingsystem | fl Name,Version, RegisteredUser, BuildNumber
6
7 $RAM = Get-WmiObject -class "win32_physicalmemory"
8 Write-Host "RAM Information" -ForegroundColor Green
9 $RAM | Format-Table Name,Description,BankLabel,@{Name="Size(GB)";Expression={$_.Capacity/1GB}}, @{Name="Vendor";Expression={$_.Manufacturer}}
10
11
12 Write-Host "Total RAM:" -ForegroundColor Cyan
13 $RAM.Capacity
14 Write-Host "
15
16
17
18
19
20 Write-Host "Disk-Drive Information" -ForegroundColor Green
21 $drives = Get-WmiObject -class "win32_logicaldisk"
22
```

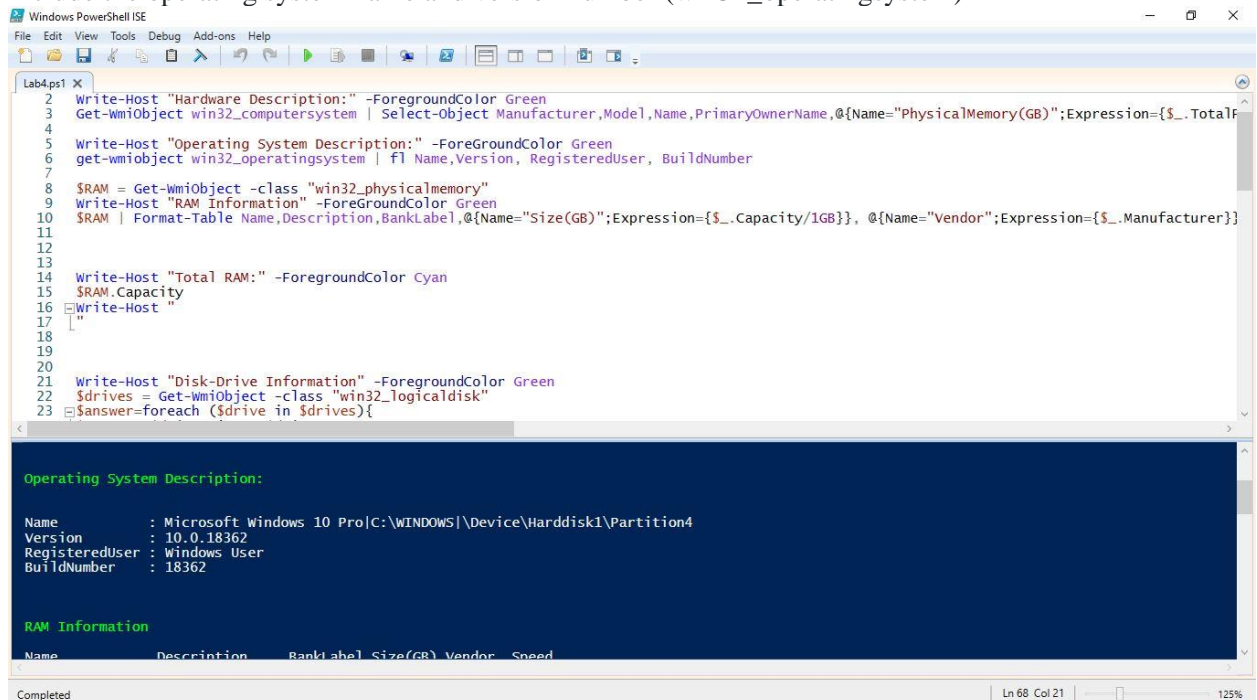
PS C:\Users\Lenovo> C:\Users\Lenovo\Documents\GitHub\PRINCE2101\Powershell\Lab4.ps1

Hardware Description:

Manufacturer	: LENOVO
Model	: 81F4
Name	: PRINCE-PC
PrimaryOwnerName	: windows User
PhysicalMemory(GB)	: 20

Operating System Description:

- Include the operating system name and version number (win32_operatingsystem)



The screenshot shows the same Windows PowerShell ISE window with the 'Lab4.ps1' script. The script is modified to include the operating system name and version number. It uses the 'fl' (format-list) command to display the Name, Version, RegisteredUser, and BuildNumber of the win32_operatingsystem object. The output in the console shows the operating system description.

```
2 Write-Host "Hardware Description:" -ForegroundColor Green
3 Get-WmiObject win32_computersystem | Select-Object Manufacturer,Model,Name,PrimaryOwnerName,@{Name="PhysicalMemory(GB)";Expression={$_.TotalPhysicalMemory/1GB}}
4
5 Write-Host "Operating System Description:" -ForegroundColor Green
6 get-wmiobject win32_operatingsystem | fl Name,Version, RegisteredUser, BuildNumber
7
8 $RAM = Get-WmiObject -class "win32_physicalmemory"
9 Write-Host "RAM Information" -ForegroundColor Green
10 $RAM | Format-Table Name,Description,BankLabel,@{Name="Size(GB)";Expression={$_.Capacity/1GB}}, @{Name="Vendor";Expression={$_.Manufacturer}}
11
12
13 Write-Host "Total RAM:" -ForegroundColor Cyan
14 $RAM.Capacity
15 Write-Host "
16
17
18
19
20 Write-Host "Disk-Drive Information" -ForegroundColor Green
21 $drives = Get-WmiObject -class "win32_logicaldisk"
22 $answer=foreach ($drive in $drives){
23
```

Operating System Description:

Name	: Microsoft Windows 10 Pro C:\WINDOWS Device\Harddisk1\Partition4
Version	: 10.0.18362
RegisteredUser	: windows User
BuildNumber	: 18362

RAM Information

Name	Description	BankLabel	Size(GB)	Vendor	Speed
------	-------------	-----------	----------	--------	-------

- Include processor description with speed, number of core, and sizes of L1, L2, and L3 cache (do not show empty properties)(win32_processor)

```

49
50 Vendor=$video.Videoprocessor
51 Description=$video.Description
52 Resolution = "$hor * $ver"
53
54 }
55 }
56
57 $final | fl
58
59 Write-Host "Processor Information" -ForegroundColor Green
60 (Get-WmiObject -Class Win32_Processor | Select-Object Name, NumberOfCores, MaxClockSpeed,@{Name="L2CacheSize(KB)";Expression={$_.L2CacheSize/
61 Where-Object {$_.Value -ne $null } | select-object @{Name="Processor-Info";Expression={$_.Name}},Value| ft
62
63

```

Processor Information

Processor-Info	Value
Name	Intel(R) Core(TM) i5-8250U CPU @ 1.60GHz
NumberOfCores	4
MaxClockSpeed	1801
L2CacheSize(KB)	1
L3CacheSize(KB)	6
L1CacheSize(KB)	0

PS C:\Users\Lenovo> |

- Include a summary of the RAM installed with the vendor, description, size, and bank and slot for each DIMM as a table and the total RAM installed in the computer as a summary line after the table (win32_physicalmemory)

```

2 Write-Host "Hardware Description:" -ForegroundColor Green
3 Get-WmiObject win32_computersystem | Select-Object Manufacturer,Model,Name,PrimaryOwnerName,@{Name="PhysicalMemory(GB)";Expression={$_.TotalF
4
5 Write-Host "Operating System Description:" -ForegroundColor Green
6 get-wmiobject win32_operatingsystem | fl Name,Version, RegisteredUser, BuildNumber
7
8 $RAM = Get-WmiObject -class "win32_physicalmemory"
9 Write-Host "RAM Information" -ForegroundColor Green
10 $RAM | Format-Table Name,Description,BankLabel,@{Name="Size(GB)";Expression={$_.Capacity/1GB}}, @{Name="Vendor";Expression={$_.Manufacturer}}
11
12
13
14 Write-Host "Total RAM:" -ForegroundColor Cyan
15 $RAM.Capacity
16 Write-Host "
17 "
18
19
20
21 Write-Host "Disk-Drive Information" -ForegroundColor Green
22 $drives = Get-WmiObject -class "win32_logicaldisk"
23 $answer=foreach ($drive in $drives){

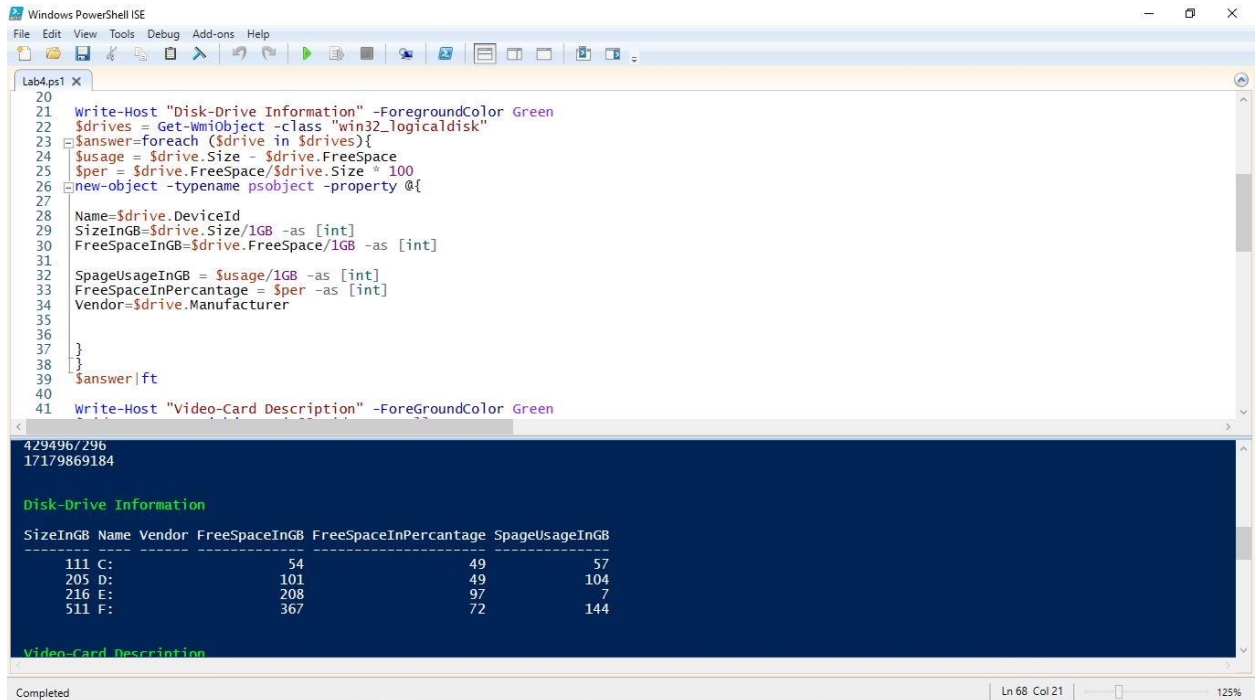
```

RAM Information

Name	Description	BankLabel	Size(GB)	Vendor	Speed
Physical Memory	Physical Memory	BANK 0	4	Samsung	2400
Physical Memory	Physical Memory	BANK 2	16	859B	2400

Total RAM:
4294967296
17179869184

- Include a summary of the physical disk drives with their vendor, model, size, and space usage (size, free space, and percentage free) of the logical disks on them as a single table with one logical disk per output line (win32_diskdrive, win32_diskpartition, win32_logicaldisk). You will need to use a nested foreach something like this: ```powershell $diskdrives = Get-CIMInstance CIM_diskdrive`



```

20
21 Write-Host "Disk-Drive Information" -ForegroundColor Green
22 $drives = Get-WmiObject -class "win32_logicaldisk"
23 $answer=foreach ($drive in $drives){
24     $usage = $drive.Size - $drive.FreeSpace
25     $per = $drive.FreeSpace/$drive.Size * 100
26     new-object -typename psobject -property @{
27
28         Name=$drive.DeviceId
29         SizeInGB=$drive.Size/1GB -as [int]
30         FreeSpaceInGB=$drive.FreeSpace/1GB -as [int]
31
32         SpageUsageInGB = $usage/1GB -as [int]
33         FreeSpaceInPercentage = $per -as [int]
34         Vendor=$drive.Manufacturer
35
36     }
37 }
38 $answer|ft
39
40
41 Write-Host "Video-Card Description" -ForegroundColor Green

```

429496/296
17179869184

Disk-Drive Information

SizeInGB	Name	Vendor	FreeSpaceInGB	FreeSpaceInPercentage	SpaceUsageInGB
111	C:		54	49	57
205	D:		101	49	104
216	E:		208	97	7
511	F:		367	72	144

Video-Card Description

Completed | Ln 68 Col 21 | 125%

- Include the video card vendor, description, and current screen resolution in the format horizontalpixels x verticalpixels (win32_videocontroller)

The screenshot shows the Windows PowerShell ISE interface. The script in the editor is as follows:

```
37 }  
38 }  
39 $answer|ft  
40  
41 Write-Host "Video-Card Description" -ForegroundColor Green  
42 $videos = get-wmiobject win32_videocontroller  
43 $final = foreach ($video in $videos){  
44     $hor = $video.currenthorizontalresolution  
45     $ver = $video.currentverticalresolution  
46  
47     new-object -typename psubject -property @{  
48         Vendor=$video.Videoprocessor  
49         Description=$video.Description  
50         Resolution = "$hor * $ver"  
51     }  
52 }  
53  
54 $final | fl  
55  
56  
57  
58
```

The console output shows the following results:

```
Video-Card Description  
  
Description : Intel(R) UHD Graphics 620  
Vendor      : Intel(R) UHD Graphics Family  
Resolution  : 1366 * 768  
  
Processor Information  
  
Processor-Info Value
```

The status bar at the bottom indicates "Completed" and the cursor is at line 68, column 21. The zoom level is set to 125%.

Screenshot of the LAB;

```
Windows PowerShell
Try the new cross-platform PowerShell https://aka.ms/pscore6

Welcome to PowerShell

PS C:\Users\Lenovo> Lab4.ps1
Hardware Description:

Manufacturer      : LENOVO
Model             : 81F4
Name              : PRINCE-PC
PrimaryOwnerName  : Windows User
PhysicalMemory(GB) : 20

Operating System Description:

Name      : Microsoft Windows 10 Pro[C:\WINDOWS\Device\Harddisk1\Partition4]
Version   : 10.0.18362
RegisteredUser : Windows User
BuildNumber : 18362

RAM Information

Name      Description      BankLabel Size(GB) Vendor  Speed
-----
Physical Memory Physical Memory BANK 0      4 Samsung 2400
Physical Memory Physical Memory BANK 2    16 859B  2400

Total RAM:
4294967296
17179869184

Disk-Drive Information

SizeInGB Name Vendor FreeSpaceInGB FreeSpaceInPercentage SpaceUsageInGB
-----
111 C:      54      49      57
205 D:     101      49     104
216 E:     208      97      7
511 F:     367      72     144

Video-Card Description

Description : Intel(R) UHD Graphics 620
Vendor      : Intel(R) UHD Graphics Family
Resolution  : 1366 * 768

Processor Information

Processor-Info Value
-----
Name            Intel(R) Core(TM) i5-8250U CPU @ 1.60GHz
NumberOfCores   4
MaxClockSpeed   1801
L2CacheSize(KB) 1
L3CacheSize(KB) 6
L1CacheSize(KB) 0

PS C:\Users\Lenovo>
```

END OF LAB.

Respected Professor, I have attached my script as well. Thank you.