Getting to know your machine and account
Dated 30-October-2019

Packages needed for this session:

```
hwinfo, lshw, fdisk, memtester, hardinfo, util-linux, clinfo, net-
tools, coreutils, procps, pciutils, dmidecode, lsb-release, hdparm

Use “sudo apt-get install <package>” to install the above
packages.
```

To search for which package a particular executable came from:

```
/usr/bin/sudo apt-get install apt-file
/usr/bin/sudo apt-file update
/usr/bin/apt-file search <executable>
```

1. Hardware of the machine

This module is to let you know about the following peices of hardware you have in your machine: CPU, Memory, Hard Disks, Graphics Card, Monitor Network Cards

Command	Remarks
`/usr/sbin/hwinfo`	Redirect the output to a file and read it. This is a long and comprehensive listing of hardware. Package: **hwinfo**
`/usr/bin/lshw`	Redirect the output to a file and read it. This is a brief listing of hardware. Package: **lshw**
`/bin/cat /proc/cpuinfo`	Explore what cpu you have, how many cores, speed, cache memory etc.,
`/usr/bin/sudo /sbin/fdisk -l`	Use with care. One can use fdisk to edit partitions, format etc., so be careful with this command. Package: **fdisk**
`/bin/cat /proc/partitions`	List the partitions mounted. Use the command **mount** or **df** to see similar information.
`/bin/lsblk -o NAME,SIZE`	Figure out the device and the partitions being used for storage in your machine.
`/usr/bin/lspci`	Explore what hardware components

Command	Remarks
	are associated with the PCI bus. Package: **pciutils**
`/bin/grep “CardName” /var/log/Xorg.0.log`	Use the output of lspci to know the name of the graphics card you have. Use that name to search for details in the log file.
`/usr/bin/top`	Press q to quit. Watch the listing of processes while you open other applications and close them. Explore the meaning of numbers shown in the header of the screen. Package: **procps**
`/bin/df -h`	Explore other options of df to display the details on filesystems mounted. Package: **coreutils**
`/usr/bin/lshw -c display`	Explore other sections under which lshw gives the output. Package: **lshw**
`/bin/dmesg`	Redirect the output to a file and read it. Package: **util-linux**

Further exploration

`/usr/bin/free`	Use with option -h for human readable format of free and used memory. Package: **procps**
`/usr/bin/sudo /usr/sbin/dmidecode --type memory`	Explore what type of memory you have, of what speed etc., Explore what other types of hardware this command can give you details about. Redirect the output to a file and read it. Package: **dmidecode**
`/usr/sbin/memtester 24M 2`	Install this from the package “memtester”. Check for any errors in your memory. In the command given, 24MB of data and 2 iterations are being used to make this test. Package: **memtester**
`/usr/bin/hardinfo`	Install package “hardinfo” to get this tool which has a graphical user interface and can export a report of your hardware. Package: **hardinfo**
`/usr/bin/upower`	Run with -e option to see which option to be

	used for <battery> (the one containing the string BAT). Run “upower -i <battery>” to see the status of your battery. Package: **upower**
`/usr/bin/lscpu`	List CPU information of the machine. Package: **util-linux**
`/usr/bin/sudo /usr/bin/clinfo`	See the capabilities of CPU and GPU to run OpenCL codes. Package: **clinfo**
`/sbin/hdparm -Tt /dev/sda` `/sbin/hdparm -v /dev/sda`	get/set IDE SATA parameters Package: **hdparm**
`/usr/bin/iostat -dx /dev/sda`	Report CPU and I/O statistics. Package: **sysstat**

Configurations:

`/sbin/ifconfig`	Configuration of network interface. Package: **net-tools**

Home work:

[1] Make a listing of the hard ware components you have in your laptop.
[2] Look up internet and identify other variants or models of each of the hardware components. Critically compare the specs with the ones you have in your machine in a tabular fashion.
[3] List the CPU and GPU capabilities of your machine in GigaFlops as per theoretical or vendor provided specs. You don’t have to do any benchmarking yourself for this information.
[4] Count the number of packages installed on your OS.
[5] Find out the difference in the IP configuration of your machine when you connect your laptop using wired LAN in the hostel room and over WiFi using the campus WiFi connection.